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SUBJECT: Forwards Rev 33 to Radiological Emergency Plan for Turkey Point Plant.

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L-98-027
10 CFR 50.54(q)
10 CFR 50, Appendix E

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Radiological Emergency Plan - Revision 33

Florida Power and Light Company (FPL) has issued Revision 33 to the Turkey Point Radiological Emergency Plan, and has determined that the revision does not decrease the effectiveness of the plan.

Attached is a description of the changes to the Turkey Point Radiological Emergency Plan. Pursuant to 10 CFR 50.54 (q), enclosed is one copy of the plan.

Should there be any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

CLM

attachment
enclosure

cc: Regional Administrator, Region II, USNRC (2 copies)
Senior Resident Inspector, USNRC, Turkey Point Plant (no enclosure)

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This document provides a review of the changes incorporated into Revision 33 of the Turkey Point Radiological Emergency Plan. The majority of the changes were editorial in nature and are so indicated. An explanation/evaluation of significant changes is provided. There were no areas of reduced effectiveness identified in this revision.

Generic Changes:

- The county name "Dade" was changed to "Miami-Dade" to reflect the official county name adopted by voters in November 1997.
- All references to "County Manager" (Miami-Dade County) or "Chairperson, County Board of Commissioners". (Monroe County) as the individuals responsible during emergencies, were changed to "County Mayor or designee" to reflect the county organizational changes.
- All references to specific Annexes in the State of Florida Radiological Emergency Plan were deleted due to the restructuring of the State Plan. This change keeps the Turkey Point Emergency Plan accurate during the restructuring of the State Plan.

Chapter 1 – General Information

Page 1-7 The Plume Exposure Pathway map was replaced with an updated map.

Page 1-8 Paragraph 7 was re-worded to be more grammatically correct. Editorial change.

Page 1-11 Table 1-1; moved the actions of the EIM to the more appropriate place in the sequence of actions. Editorial change.

Chapter 2 – Organization, Facilities, and Support Services

Page 2-2 Figure 2-1; changed the On-Shift Recovery and Restoration from "none" to "As Directed by EC" to reflect the true onshift emergency organization structure.

Page 2-3 Paragraph 2, *State of Florida Department of Health;* deleted last sentence. This sentence explained the organizational change made resulting in a transfer of duties from the DHRS to the DOH-BRC. This sentence is no longer necessary. Editorial change.

Page 2-11 Figure 2-3; changed "Fire Protection/Safety Supervisor" to "Protection Services Manager" and "Safety Analyst" to "Safety Supervisor" to reflect current organizational titles.

Page 2-12	Paragraph 1, *Vice President, Turkey Point Plant*, added "nuclear" to the title of the Turkey Point nuclear plant, to reflect the correct plant title.
Page 2-13	Paragraph 3, *Engineering Manager*, made discipline engineers lower case. Discipline engineers is not a title.
Page 2-17	Figure 2-4, change "Security Shift Specialist" to "Security Shift Supervisor" to reflect current organizational title.
Page 2-19	Paragraph C.7, *Rescue Operations and First Aid*, minor grammatical change. Remains functionally the same.
Page 2-19	Paragraph C.8, *Site Access Control and Personnel Accountability*, changed "The Security Shift Specialist or designee..." to read, "A member of the Security Department...", due to organizational changes. Several different positions have the ability to report as the TSC Security Supervisor.
Page 2-24	Paragraph 2, *Emergency Information Manager (EIM)*, minor rewording to be consistent with description of duties in Chapter 1.
Page 2-25	Figure 2-5, moved dotted line to reflect that the Recover Manager is part of the off-site expanded response organization.
Page 2-29	Section 2.4.2, Paragraph 3, minor grammatical change. Remains functionally the same.
Page 2-31	Section 2.4.10, updated the address for the State Emergency Operations Center in Tallahassee.
Page 2-34	Section 2.5, *Medical and Health Support*, reworded the description of services provided by South Florida Emergency Physicians, Emergency Room Medical Associates and Oak Ridge Associated Universities. This section remains functionally the same.
Page 2-35	Section 2.5, under the title of "Transportation of Injured Personnel", added Miami-Dade Fire Rescue as a provider of 24-hour helicopter transportation.

Chapter 3 - Emergency Classification System

Page 3-1 Section 3.2, Item 2, reworded to more clearly state FPL's actions in response to an Alert classification.

Page 3-4 Section 3.5, Paragraphs 2 and 3, changed, "...used to initiate emergency actions" to read "...used to assess emergency conditions" to more accurately describe the use of process and effluent monitors and area radiation monitors.

Chapter 4 - Notification and Communications

Page 4-1 Section 4.1.1, *Initial Notification*, added "the following information should be related to the extent possible:" to notify items to be reported to the NPS.

Page 4-3 Section 4.2, *State Agencies*, deleted (T) from Plan. Editorial change.

Page 4-6 Figure 4-1, added references to commercial telephone or fax machine as a communications interface, where applicable. Also, deleted reference to HF-ALE, which is no longer used.

Page 4-10 Section 4.6, *Communications Equipment, Portable Radio Transceiver Sets,* incorrect reference to radio receivers was changed to radio transceivers.

Chapter 5 - Response to Accident Conditions

Page 5-4 Section 5.1.5, *Exposure and Dose Rate Determination*, Paragraph 2, Sentence 6, changed from "predetermined recommendations" to "protective action recommendations". The change corrected improper phrasing.

Page 5-11 Section 5.1, *Field Monitoring - Plant*, deleted specific reference to a lower tiered document (EPIP). Changed to read generically; "Plant procedures".

Page 5-12 Section 5.2.1, *Protective Actions*, Paragraph 2, Sentence 2, changed "after an approximate exposure" to "based on an estimated exposure". Also, changed exposure amount from "25 (CDE) rem" to "25 (CDE) rem or more". These changes were made to make wording consistent between PSL and PTN E-Plans, based on input from Corporate HP.

Page 5-12 Section 5.2.1, *Protective Actions, Decontamination*, Item 2, made "North" lower case. Editorial change.

Page 5-19	Table 5-4, *Evacuation Time and Traffic Capacity Estimates*, changed revision date to 3/97. This is the current revision date of the State of Florida Radiological Emergency Management Plan for Nuclear Power Plants.
Page 5-20	Figure 5-3, Dade and Monroe County Evacuation Routes, map has been replaced with an updated map.
Page 5-21	Section 5.2.8, last sentence, changed name from "Emergency Broadcast System" to "Emergency Alert System" to reflect a change in terminology made by the FCC in 1997.
Page 5-21	Section 5.3.1, *On-Site Radiation Protection Program*, Paragraph 6, complete wording change, clarifying FPL's position on the use of declared pregnant adults during emergencies.

Chapter 6 - Public Information

Page 6-1	Section 6.2.1, *Organization, Emergency Information Manager*, changed "designated senior manager" to "designated company manager", to make position description consistent with description in Chapter 1 of the E-Plan.

Chapter 7 - Maintaining Emergency Preparedness

Page 7-3	Section 7.1.4.1, *Exercises (Integrated Drills)*, inserted revised wording to clarify the requirement for an off-year integrated drill, between biennial exercises.
Page 7-6	Section 7.1.4.3, *Medical Emergency Drill*, last sentence, changed "will be tested..." to "may be tested...". Editorial change.
Page 7-9	Section 7.2.3, *Training of Non-FPL Off-Site Emergency Response Personnel*, reworded paragraph to be consistent with PSL Emergency Plan.
Page 7-11	Section 7.3.5, *Audits*, changed requirement for independent audits of emergency preparedness from "annually" to "every 12 months" to be consistent with wording in 10 CFR 50.54(t).
Page 7-12	Section 7.4, *Emergency Equipment/Maintenance*, changed "will be inventoried" to "are inventoried". Editorial change.

Appendix A	Florida Radiological Emergency Management Plan
Page A-1	Added "State of" to title. Editorial change.
Appendix C	Listing of EPIP's
Page C-1	Updated procedure numbers, deleted EPIP-20131, deleted EPIP-1108, deleted PSL from title of 0-EPIP-1302.

SUPERSEDED PAGES PER REV. 33, LTR DATED 2/13/98
ACC# 9802230222 98/02/13 UPDATED BY ACB 9/30/98

50-250

TURKEY POINT PLANT
RADIOLOGICAL
EMERGENCY PLAN
REVISION 32

Revision Approval Date: 1 /29 /97

Approved by: ______________________ Date: 1 /29 /97
President, Nuclear Division

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1. GENERAL INFORMATION

1.1 Purpose

This Emergency Plan contains Florida Power & Light Company's plans for coping with radiological emergencies at the Turkey Point Nuclear Power Plant, (Units 3 and 4) located in Dade County, Florida.

The plan has been designed to preclude or mitigate the adverse health and safety effects of an emergency. Four general objectives have been considered in the development of this plan:

1) Timely and accurate assessment of off-normal or emergency conditions and proper notification of responsible authorities.

2) Effective coordination of emergency actions among all organizations having a response role.

3) Continued assessment of actual or potential consequences both on site and offsite.

4) Continuing maintenance of an adequate state of emergency preparedness.

1.2 Definitions

Annual - Occurring once per calendar year (January 1 through December 31).

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

Company - Florida Power & Light Company (FPL)

Corrective Actions - Those measures taken to mitigate or terminate an emergency situation at or near the source of the problem in order to prevent an uncontrolled release of radioactive material or to reduce the magnitude of a release, e.g., shutting down equipment, fire fighting, repair, and damage control.

Duty Call Supervisor - A designated supervisor assigned from the nuclear plant staff to provide 24-hour response to any emergency upon notification by the Nuclear Plant Supervisor. The Duty Call Supervisor is responsible for notifying the Emergency Response Organization and, as requested, plant management in the event of an emergency.

Emergency - Any off-normal event or condition which is classified into one of the four event categories in Table 3-1, Emergency Classification of this Plan. A radiological emergency at the Plant is classified in accordance with Section 3, Emergency Classification System, and 0-EPIP-20101, Duties of Emergency Coordinator, as an Unusual Event, an Alert, a Site Area Emergency, or a General Emergency.

Emergency Action Levels (EALs) - Radiological dose rates, specific contamination levels of airborne, waterborne, or surface-deposited concentrations of radioactive materials; or specific instrument indications (including their rates of change) that may be used as thresholds for initiating specific emergency measures such as designating a particular class of emergency, or initiating a particular protective action.

Emergency Control Officer (ECO) - A designated senior manager who will act as the Chief Nuclear Officer until relieved by a higher ranking Senior Manager or Company officer. He/She will serve as official spokesperson for the Nuclear Division.

Emergency Coordinator (EC) - The title assumed by the Nuclear Plant Supervisor or member of the plant management staff, in the event of a radiological emergency at the Plant. The EC is responsible for notifying off-site authorities, both inside and outside the Company, and has full authority and responsibility for on-site emergency response actions. The EC is also responsible for Protective Action Recommendations during the initial stages of an emergency.

Emergency Information Manager (EIM) - A designated Company manager who will serve as the principal public spokesman for the Company during a radiological emergency.

Emergency News Center (ENC) - A designated facility for use by the EIM in communicating with the news media.

Emergency Operations Centers (EOCs) - Designated off-site facilities from which the Dade County, Monroe County and State of Florida Emergency Response Organizations will direct necessary assessment and protective actions for off-site areas.

Emergency Operations Facility (EOF) - A designated location from which FPL emergency activities will be coordinated.

Emergency Operating Procedures (EOPs) - Specific procedures that provide instructions to guide plant operations during potential or actual emergency situations.

Emergency Plan Implementing Procedures (EPIPs) - A set of emergency response procedures initiated and followed by the FPL Emergency Response Organization to implement the appropriate sections of the Emergency Plan, assess and classify the emergency, notify the appropriate authorities, and provide continuing response capability (See Appendix C).

Emergency Planning Zone (EPZ) - That area, for which emergency planning consideration of the plume exposure and ingestion pathways has been given, in order to assure that prompt and effective actions can be taken to protect the public in the event of a radiological emergency at the Plant.

Emergency Response Organization (ERO) - That portion of the FPL organization assigned responsibilities upon initiation of the Radiological Emergency Plan for the Turkey Point Plant.

Emergency Response Directors - The Directors of Dade County Office of Emergency Management and Monroe County Emergency Management Department.

Emergency Security Manager (ESM) - A designated Company manager or supervisor who will have responsibility during a radiological emergency for security aspects of the emergency response.

Emergency Technical Manager (ETM) - A designated Company manager or supervisor who will be responsible, during a radiological emergency, for providing engineering/technical support for emergency response actions.

Governmental Affairs Manager (GAM) - A designated senior manager who has the responsibility for liaison between the Recovery Manager/Emergency Control Officer and political officials of the Local, State and Federal Governments during a radiological emergency.

Ingestion Exposure Pathway Emergency Planning Zone - That area, approximately 50 miles in radius from the center of the Plant, for which detailed plans are made to protect people from ingestion of food-stuffs and water contaminated by radioactive materials released from the Plant.

National Oceanic and Atmospheric Administration (NOAA) - Government agency responsible for the forecasting of weather conditions. The National Weather Service (NWS) is a branch under NOAA that provides weather information and warning of severe weather situations such as hurricanes and tornadoes.

Nuclear Division Duty Officer (NDDO) - A designated member of the FPL Nuclear Division Management with responsibility for responding to radiological emergencies on a 24-hour per day basis. The NDDO may serve as an interim Emergency Control Officer until the primary or alternates are reached.

Nuclear Division Management Center - A designated area in the Juno Beach office for use by management and technical personnel to assess conditions during the initial phases of an emergency, prior to activation of the Emergency Operations Facility.

Owner Controlled Area - That portion of FPL property surrounding and including the Turkey Point Plant which is subject to limited access and control as deemed appropriate by FPL.

Operations Support Center (OSC) - An on-site Emergency Response Facility area where FPL Operations, Maintenance, Health Physics, and Chemistry Support personnel can report in an emergency and await assignment.

Offsite - All property outside the Protected Area.

On-site - The area within the Protected Area.

Plant - The Turkey Point Nuclear Power Plant, Units 3 and 4.

Plume Exposure Pathway Emergency Planning Zone - That area, approximately 10 miles in radius from the center of the Plant, for which detailed plans are made to protect people from exposure to a plume containing radioactive materials.

Protected Area - The area (within the Owner Controlled Area) occupied by the two nuclear units and their associated equipment enclosed within the security perimeter fence.

Protective Actions - Those measures taken for the purpose of preventing or minimizing radiological exposure to persons during an emergency.

Quarterly - Occurring once per calendar quarter, with quarters ending on March 31, June 30, September 30 and December 31 in a year.

Radiation Controlled Area (RCA) - The area (within the Protected Area) wherein personnel access is restricted for the purpose of monitoring and controlling exposure to radiation.

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

Recovery Manager (RM) - A designated Company Senior Manager who will have responsibility during a radiological emergency for the activation and operation of the EOF. He/She has the authority to establish policy and expend funds necessary to cope with any Emergency Situations that arise.

REAC/TS - The Radiological Emergency Assistance Center/ Training Site is operated by the Oak Ridge Associated Universities for the Department of Energy. REAC/TS serves as a backup medical facility for the Turkey Point Plant.

Site - The Turkey Point Power Plant Protected Area.

State - The State of Florida.

State Plan - The State of Florida's Radiological Emergency Management Plan for Nuclear Power Plants.

System Operations Power Coordinator - An FPL System Operations position which is staffed 24 hours per day providing uninterrupted coordination of electrical power distribution. Communication is maintained by the System Operations Power Coordinator with all FPL plants, service centers, and the General Office.

Technical Support Center (TSC) - A designated on-site facility that serves as a work area for use by technical and management personnel in order to provide technical support to Control Room personnel.

Total Dose (TEDE) - The total exposure from both external and internal (weighted) sources - Total Effective Dose Equivalent

TSC Supervisor - The person assigned to supervise the personnel and direct the technical support activities in the TSC.

Thyroid Dose (CDE) - The thyroid exposure from inhaled radioiodines - Committed Dose Equivalent. Thyroid dose (CDE) is used in Protective Action determination.

1.3 Scope and Applicability

The Emergency Plan describes Florida Power & Light Company's plans for responding to emergencies that may develop at the Turkey Point Plant. The plan has been prepared to meet the requirements of 10 CFR 50.47(b), 10 CFR 50.72, and 10 CFR 50 Appendix E. The purpose of this plan is to define and assign authority and responsibility in order to protect the health and safety of the public and plant personnel. This plan applies to all plant emergencies which have resulted in, or which increase the risk of the accidental release of radioactive materials to the environment.

Plans have been developed based upon knowledge of the potential consequences, timing, and release characteristics of a spectrum of events. Emergency Planning Zones have been defined. Figure 1-1 illustrates the Plume Exposure Pathway Emergency Planning Zone for the Turkey Point Plant. A key component of this plan is coordination with Federal, State, and County authorities who contribute to the overall response effort. This plan outlines Company responsibilities within the framework of the overall Emergency Response Organization, and provides a conceptual basis for the development of the detailed procedures necessary to implement the plan.

1.4 Concept of Operations

The Emergency Plan defines emergency conditions and delineates the responsibilities and duties of the FPL Emergency Response Organization (see Figure 2-1). The Emergency Plan is concerned with the following basic activities, which are discussed in the Plan in detail:

1) Organization and resources adequate to detect the presence of an emergency condition, assess the condition, and respond in an appropriate manner (Chapter 2).

2) Assignment of an off-normal event to its proper emergency classification (Chapter 3).

3) Notification of off-site authorities, as required, and continuing communications (Chapter 4).

4) Gathering and interpreting data to determine appropriate actions (Chapter 5).

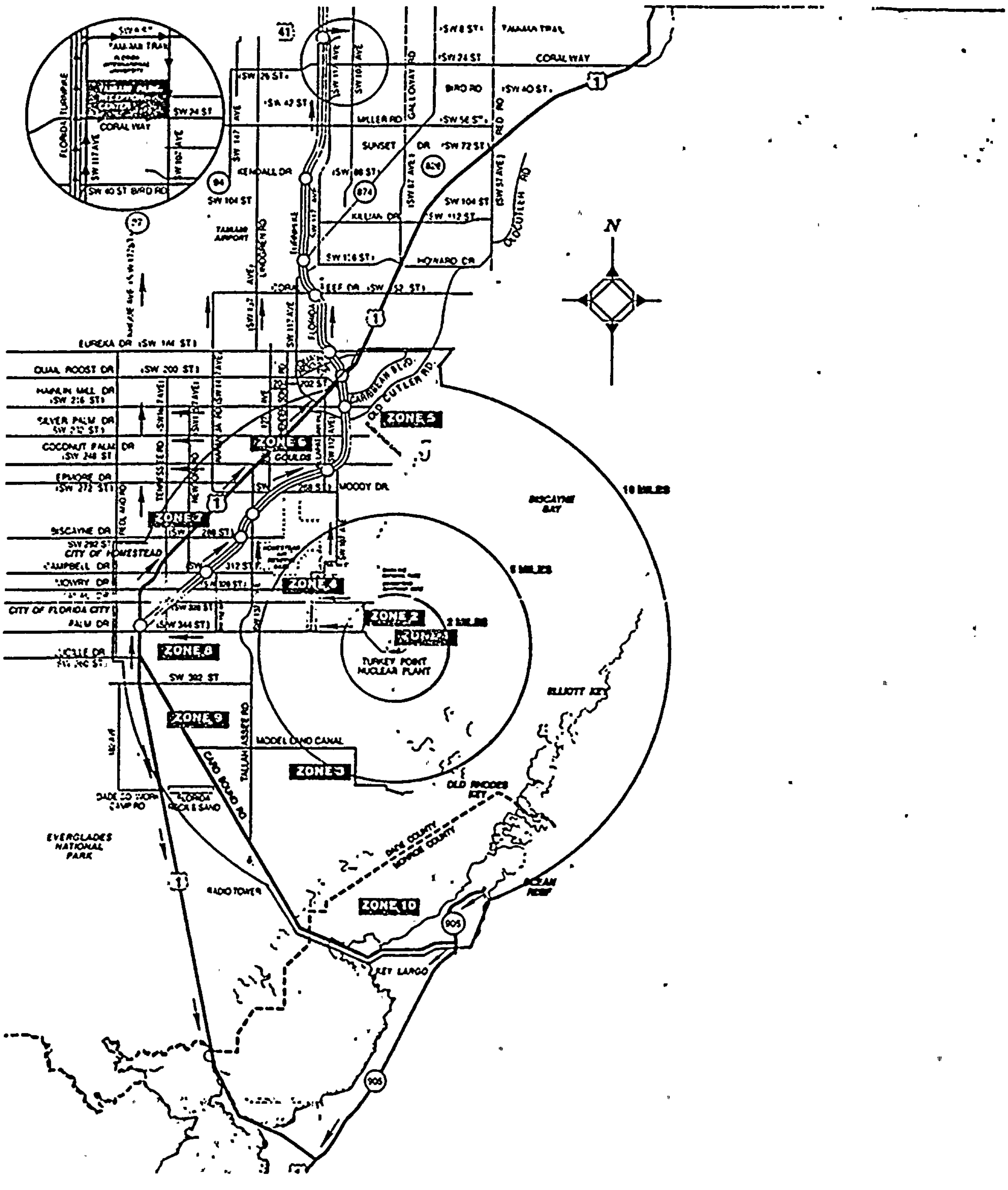
5) Assisting governmental agencies in the development of information for the public both in terms of preparatory education and emergency response information (Chapter 6).

6) Maintaining the FPL Emergency Preparedness Program in a state of readiness (Chapter 7).

Associated with this Emergency Plan are implementing procedures which provide a detailed source of pertinent information and data required by the response organization during an emergency. These procedures are listed in Appendix C.

FIGURE 1-1

PLUME EXPOSURE PATHWAY EPZ



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Off-normal events have been separated into the following four classifications of emergencies:

1) Unusual Event
2) Alert
3) Site Area Emergency
4) General Emergency

These four classes represent emergency conditions which trigger activation of emergency procedures. When an emergency is declared in connection with one of these four classes, many individuals assume new titles with special responsibilities.

Each emergency class is characterized by unusual or off-normal plant events detected by Control Room instrumentation and/or routine or directed surveillance activities.

The Company's response to an emergency condition consists of an on-shift (immediate) response and an augmented (expanded) response Emergency Response Organization (ERO) which can readily adapt to an emergency condition as it develops. The immediate response phase encompasses the period of time and sequence of actions associated with the initial detection of an off-normal event, classification as an emergency, and activation of the ERO, if required. During this phase, the Nuclear Plant Supervisor assumes responsibility as the Emergency Coordinator and initiates the following general activities:

1) Diagnosis of the off-normal event.
2) Corrective action.
3) Classification of the off-normal event.
4) Notification of appropriate off-site authorities.
5) Notification of appropriate FPL authorities.

During the expanded response phase, the Emergency Coordinator and Recovery Manager (RM) will assess the situation and expand the Emergency Response Organization, as necessary. All available company resources (site and corporate) can be mobilized as needed during this period. State, County, and Federal Response Organizations can be become fully operational, as required. Continuing corrective, assessment, and protective actions are underway, as required.

Table 1-1 summarizes the sequence of actions taken during the phased response. Figure 1-2 delineates the initial notification flow and Figure 2-2 shows the same for the State and County organizations.

As discussed throughout this plan, FPL maintains adequate facilities and equipment for detecting, assessing, and responding to emergencies. Redundant means of communications among key response participants are maintained. FPL also maintains agreements that will provide for emergency medical, rescue, or fire support on site, if needed. The training program is designed to maintain the proficiency of the Emergency Response Organization.

The FPL individual in charge of on-site Emergency response during the immediate and expanded response phases is the Emergency Coordinator. The senior company official, with responsibility for policy and authority to expend funds, is the Recovery Manager. The Recovery Manager is also responsible for Emergency Operations Facility activation and operation during the expanded response phase.

In Dade County, the individual responsible during emergencies is the County Manager. In Monroe County, the Chairperson, County Board of Commissioners, provides direction and control during emergencies.

As indicated in Annex B of the State Plan, "the Governor is ultimately responsible for protecting the population of the State from the dangers created by emergencies which are beyond the capabilities of local governments or which are multi-jurisdictional in nature. He will provide for public protection through the assignment of appropriate state resources and agencies". "The Governor has appointed the Director, Division of Emergency Management, as the Governor's Authorized Representative (GAR) to act in his/her behalf as necessary during a radiological emergency". During emergencies, all State agencies report to these persons.

1.5 Supporting Plans and Agreements

Supporting plans and agreements are included in the Appendices of this plan. Appendix A, references the State of Florida Radiological Emergency Management Plan, and the locations where it is maintained for Turkey Point Emergency response. Additional material utilized in the preparation of the Turkey Point Plan are:

1) NUREG 0654, Rev. 1, FEMA REP.1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in support of Nuclear Power Plants; November, 1980

2) NUREG 0578, TMI-2 Lessons Learned Task Force: Status Report and Short-Term Recommendations; July, 1979

3) NUREG 0737, Clarification of TMI Action Plan Requirements; November, 1980

4) 10 CFR 20, Standards for Protection Against Radiation

5) 10 CFR 50, Domestic Licensing of Production and Utilization Facilities

6) EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents; October, 1991

7) Reg. Guide 1.97, Revision 2, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident; December, 1980

TABLE 1-1

TYPICAL SEQUENCE OF ACTIONS

Detection of Off-Normal Conditions

Actions:
- o Individual identifies off-normal condition.
- o Individual immediately notifies Nuclear Plant Supervisor (NPS).

Immediate Response

Actions:
- o NPS diagnoses condition and directs initial corrective action to control or mitigate the condition.
- o NPS classifies the condition in accordance with plant procedures. If the condition is classified as an emergency, the NPS through the Emergency Plan becomes the Emergency Coordinator (EC).
- o EC notifies Duty Call Supervisor.
- o The EC orders mobilization of the Technical Support Center and the Operations Support Center (as required for Alert classification or higher classification) and confers with the RM for EOF activation.
- o EC initiates necessary protective actions for on-site personnel.
- o The EC mobilizes on-site emergency response teams as necessary to assess and control the emergency.
- o EC notifies State and County in accordance with plant procedures.
- o EC notifies NRC via ENS communications link.
- o Duty Call Supervisor notifies plant management.

TABLE 1-1

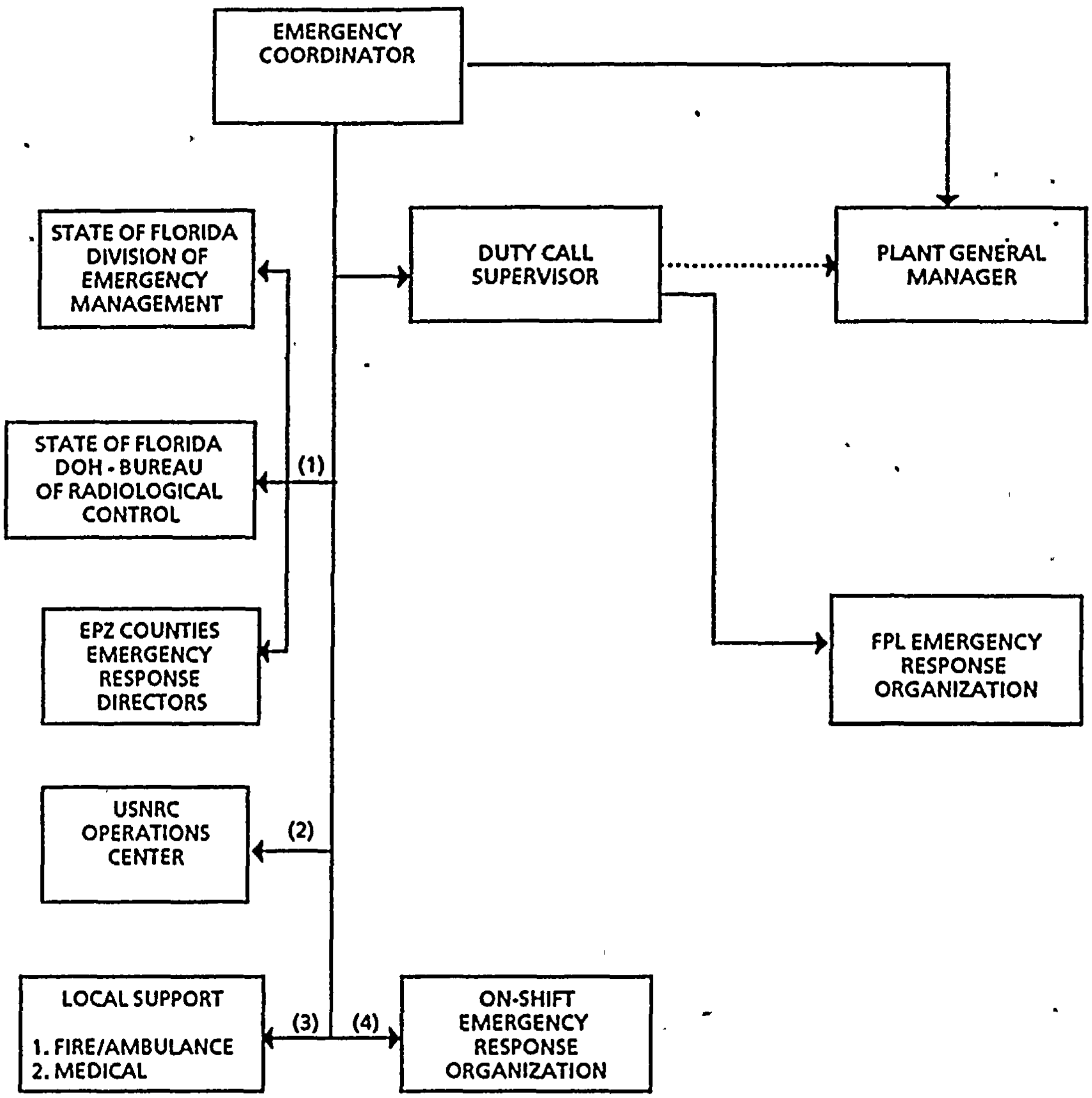
TYPICAL SEQUENCE OF ACTIONS

Expanded Response (as appropriate)

Actions:

- o TSC and OSC are staffed and declared operational assuming command and control of the emergency. This includes PARs, notifications, and classification.
- o ECO and RM proceed to the Emergency Operations Facility, as appropriate. RM notifies EC when EOF is operational and assumes responsibility for recommending off-site protective actions and for communications with off-site organizations. The EC can now devote his/her attention to control of the power plant.
- o RM (or designated response staff) receives and assesses periodic plant status, radiological data, and meteorological data, and continues communications and coordination with the State and County authorities.
- o RM continues assessment of conditions and control of FPL response until plant conditions stabilize then closes out with a summary to off-site authorities or prepares for further long-term activities.
- o EIM proceeds to the Emergency Operations Facility, as appropriate and establishes communications with the ECO and Emergency News Center.

FIGURE 1-2
INITIAL NOTIFICATION



LEGEND
——— PRIMARY NOTIFICATION PATHWAY
.... ALTERNATE NOTIFICATION PATHWAY

(1) Via State Hot Rig Down Telephone (HRD)
(2) Via Emergency Notification System (ENS)
(3) Medical & Fire Emergencies only, as needed
(4) Via Plant Public Address System (PA)

2. ORGANIZATION, FACILITIES, AND SUPPORT SERVICES

2.1 Elements of the Emergency Response Organization

This section defines the primary components of the overall Emergency Response Organization and the relationship of each component to the total effort.

2.1.1 Florida Power & Light Company

Florida Power & Light Company (FPL) is the licensed operator of Turkey Point Units 3 and 4. As the licensed operator, FPL has developed this Emergency Plan (and associated implementing procedures) to specify actions and provide a framework for emergency response. FPL's primary responsibilities include the following:

1) Diagnosis and corrective action.

2) Emergency classification.

3) Notification of appropriate governmental response organizations and continuing communication.

4) Initiation of protective actions for employees and others on site.

5) Recommendation of protective actions for the public.

6) Mobilization of the Florida Power & Light Company Emergency Response Organization.

7) Continuing data collection, dose projection, and assessment actions.

8) Owner Controlled Area Recovery and re-entry.

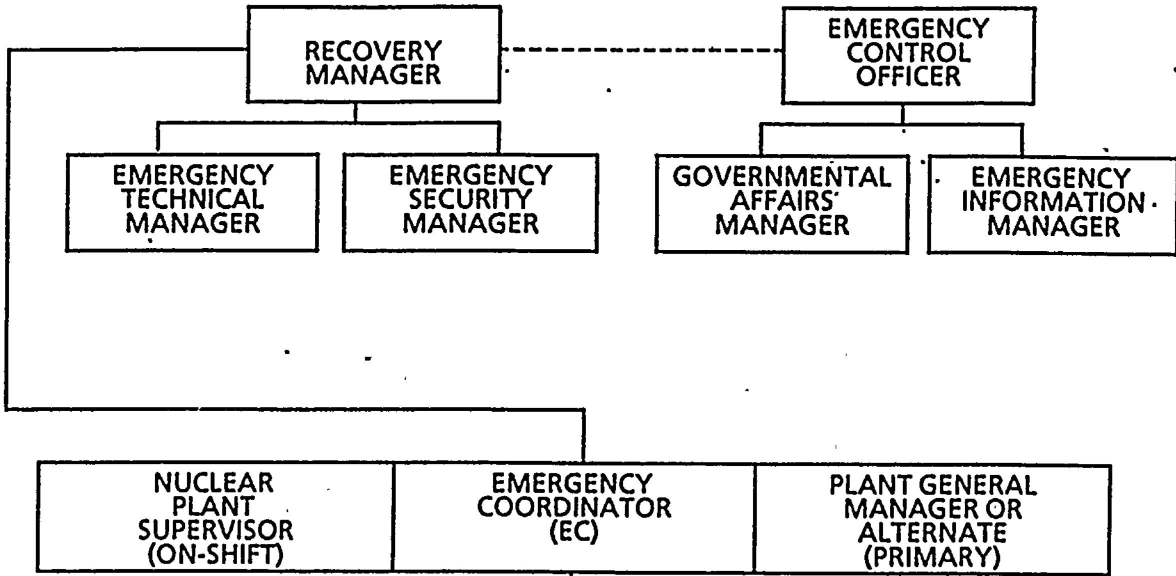
The Florida Power & Light Company Emergency Response Organization (ERO) is described in detail in Section 2.2 and illustrated in Figure 2-1.

2.1.2 State of Florida Emergency Response Organization

Figure 2-2a illustrates the State of Florida's Emergency Response Organization before an Executive Order by the Governor. Figure 2-2b illustrates the State of Florida's Emergency Response Organization after Executive Order by the Governor.

FIGURE 2-1

FPL EMERGENCY RESPONSE ORGANIZATION



On-Shift	Emergency Function	Primary
None	Recovery & Restoration	As Directed by EC/Recovery Manager
Health Physics Representative	Radiation Protection	TSC Health Physics Supervisor or alternate
Nuclear Watch Engineer Senior Nuclear Plant Operator	Fire Protection	Nuclear Watch Engineer Senior Nuclear Plant Operator
Chemistry Technician	First Aid & Decontamination	Chemistry Technician
As Directed by Security Shift Specialist	Security	TSC Security Supervisor
As Directed by Security Specialist	Site Assembly Area	Site Assembly Supervisor
Chemistry Representative	Off-site Dose Calculations	TSC Chemistry Supervisor or alternate
Other Trained ERO personnel on shift	Emergency Response (Re-Entry Repair)	OSC Emergency Response Teams

State of Florida Division of Emergency Management

The Division of Emergency Management (DEM) is the state agency authorized to receive initial notification from Florida Power & Light Company and is responsible for mobilizing the State and local emergency response agencies. Specific discussion on transportation of state emergency response personnel to the vicinity of the plant is discussed in Annex H of the State Plan. This emergency response is conducted in accordance with the Florida Radiological Emergency Management Plan for Nuclear Power Plants, prepared by the DEM in coordination with other emergency response agencies. The DEM's responsibilities include:

1) Overall responsibility for coordinating the development and implementation of State and County emergency response plans.

2) Command and control of State emergency response resources.

3) Notification of State and County response agencies.

4) Coordination among State, Federal (i.e., FEMA, EPA, DOE) and Local agencies.

State of Florida Department of Health

The Department of Health (DOH) is the State agency authorized to provide technical support and expertise in Public Health matters. The Department of Health - Bureau of Radiation Control has assumed the duties of theDepartment of Health and Rehabilitative Services - Office ofRadiation Control.

The DOH defined responsibilities include:

1) Emergency medical services, public health, and sanitation.

2) Economic and social services.

Through the Bureau of Radiation Control:

3) Radiological monitoring off site.

4) Off-site radiological exposure control and protective response recommendations for off-site areas.

Other State Agencies

The DEM can request support, as necessary, from other State agencies as defined in Annex B of the State Plan.

2.1.3 County Response Organizations

Counties that fall within the plume exposure EPZ include Dade County and Monroe County. Counties that fall within the ingestion pathway EPZ include Dade County, Monroe County, Broward County, and Collier County.

The local organizations are described in Annex Q of the State Plan. Counties may have responsibilities with respect to plume exposure risk response, hosting of evacuees, and ingestion pathway protection. Dade and Monroe Counties have responsibilities with respect to risk, hosting and ingestion pathway. Collier and Broward Counties have responsibility for ingestion pathway.

Section XII to Annex Q addresses short term actions required in the plume exposure pathway EPZ. Annex K addresses the ingestion pathway EPZ. State agencies take the lead in controlling ingestion pathway response. Section XII to Annex Q also establishes procedures to protect citizens of Dade and Monroe Counties and visitors to these Counties from the effect of an accident at the Turkey Point plant. Section II to Annex Q includes the Dade and Monroe County's Radiological Emergency Organizations.

Annex Q also includes host plans for Dade County and Monroe County, respectively.

Boards of County Commissioners will take proper and responsible action to protect life, health, safety, property, and the environment from the consequences of nuclear power plant accidents. During radiological emergencies, resources, and personnel of Dade and Monroe Counties will be reserved and available for use by County Commissioners.

FIGURE 2-2a

STATE, LOCAL, AND FEDERAL RESPONSE BEFORE EXECUTIVE ORDER

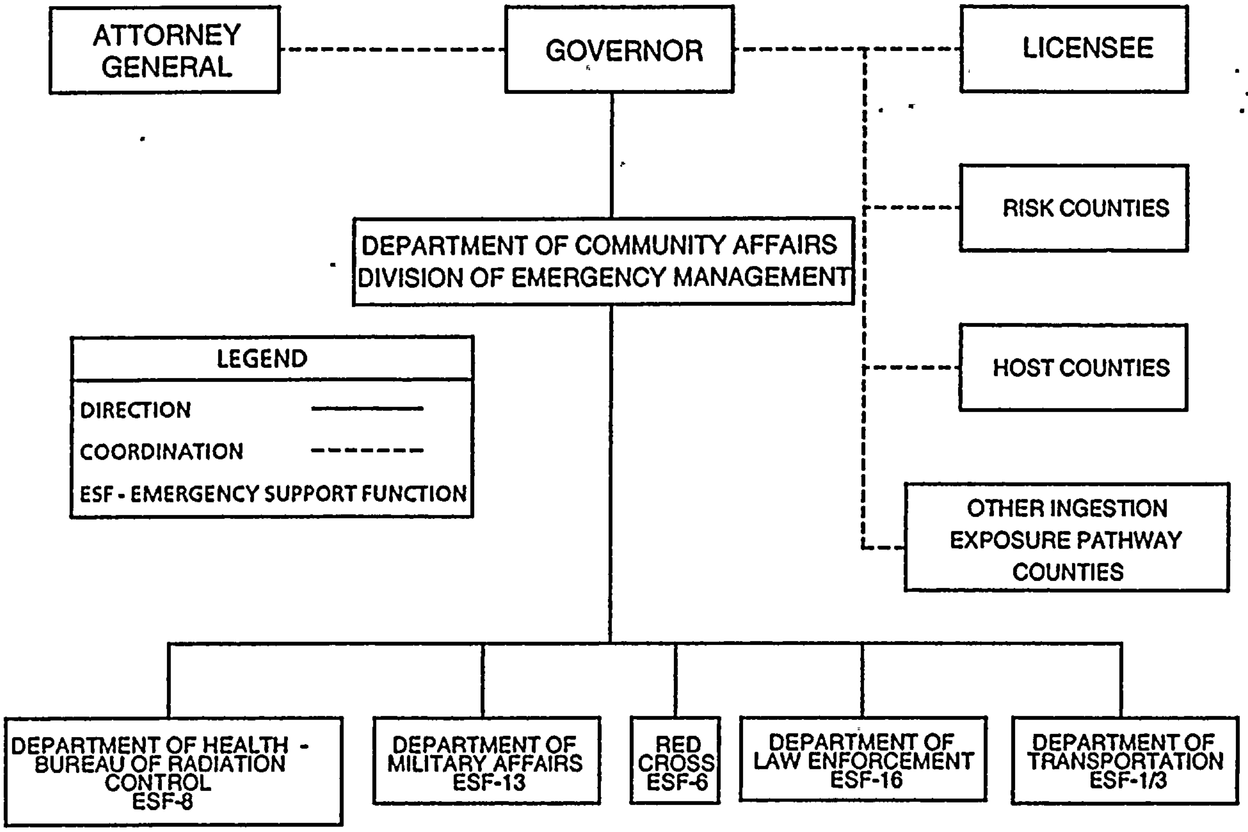
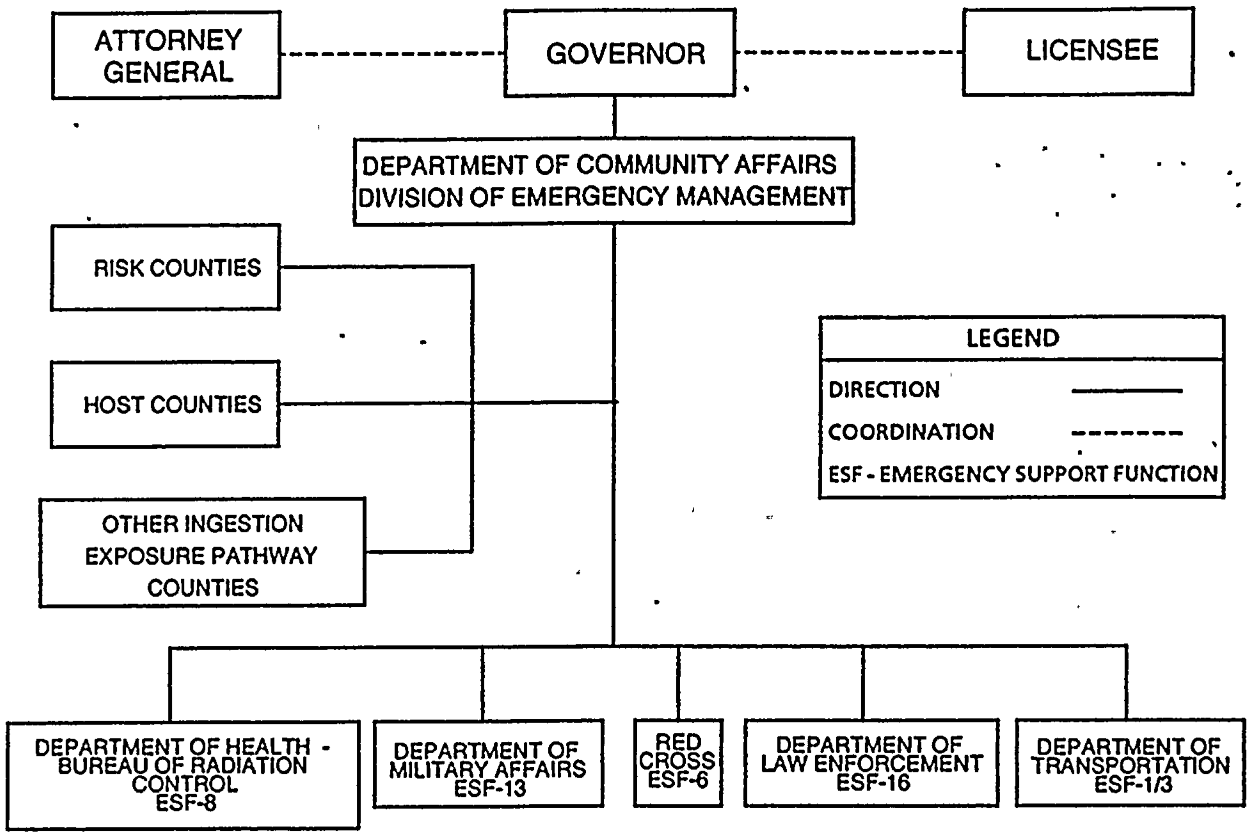


FIGURE 2-2b

STATE, LOCAL, AND FEDERAL RESPONSE AFTER EXECUTIVE ORDER



Decision to implement protective action recommendations will be made jointly by the Dade County Manager and Chairperson, Monroe County Board of Commissioners and either the Governor or his authorized representative (State Director, Division of Emergency Management). If time does not permit State involvement in initial decision making, the decision to take protective actions may be made by the Dade County Manager and Chairperson, Monroe County Board of Commissioners, or their designated alternates. All County personnel and resources will be under the control of the County Commissioners. Federal and State resources will also be available to the Counties.

Alerting, warning, and evacuation of populations will be in accordance with procedures prescribed in Section VI and XII to Annex Q. Sections IX and XII also describe hosting responsibilities, including shelter location and operation, and evacuee registration, monitoring, and decontamination.

Responsibility for direction and control rests with the Dade County Manager and Chairperson, Monroe County Board of Commissioners, unless a disaster declaration under provisions of Florida Statues, Chapter 252 is in effect. If a disaster has been declared, responsibility for direction and control rests with the Governor or authorized representative.

The Dade County Office of Emergency Management reports to the County Manager and the Monroe County Emergency Management Department to the Board of Commissioners. This is also true for other County resources, including the County Manager, Sheriffs' Offices, Engineers' Offices, fire departments, public health offices, school boards, and other County organizations.

The Chairperson, Monroe County Board of Commissioners, and Dade County Manager have responsibility for overall emergency response planning. County Emergency Response Directors are responsible for actual plan development and updating. Dade County and Monroe County each have an Emergency Operations Center.

Dade County Office of Emergency Management and Monroe County Office of Emergency Management Department Directors

The county Emergency Response Directors (Monroe and Metropolitan Dade County) receive initial notification from Florida Power & Light Company simultaneously with the DEM via the Hot Ring Down System or individually by DEM via other alternate communications for all four classes of emergency. They then have responsibility for initiating any necessary off-site protective actions (including evacuation of off-site areas) based upon available information from the FPL Emergency Coordinator or Recovery Manager, and Department of Health - Bureau of Radiation Control. The Dade County and Monroe County Plans are a part of the State Plan.

In addition to overall responsibility, the Emergency Response Directors have responsibility for the following:

1) Direction and control of County emergency resources.

2) Protective response for off-site areas including warning and evacuation.

3) Communications.

4) Public information.

5) Off-site radiological exposure control.

6) Coordination of arrangements for shelter and feeding of evacuees.

Metropolitan Dade County Public Safety Department and Monroe County Sheriff

At the request of the respective Emergency Response Directors, the Dade County Public Safety Department or the Monroe County Sheriff can provide the following support services:

1) Law enforcement.

2) Warning and evacuation (implementation).

3) Traffic control.

4) Communications (support).

5) Rescue (support).

Other Local Agencies

As defined in the County plans, the Emergency Response Directors can request support as necessary from the following:

1) Department of Fire and Rescue.

2) Department of Public Health.

3) Public Works/General Services Administration.

4) Metro Transit Agency (Dade County).

5) American Red Cross.

The Metropolitan Dade County Fire Department, by agreement with Florida Power & Light Company (Appendix B) will respond to fires on site upon request.

2.1.4 Federal Response Agencies

U. S. Nuclear Regulatory Commission

The Nuclear Regulatory Commission (NRC) will be notified via a direct, dedicated telephone line (ENS hotline) or designated alternate communications within one hour of classification. NRC is responsible for the coordination of the Federal Government's technical response activities.

U. S. Coast Guard

At the request of Florida Power & Light Company (on-site activities) and the DEM (off-site activities), the Coast Guard can provide rescue assistance in accordance with their general authority as described in Appendix B.

U. S. Department to Energy (DOE)

Upon request by the Department of Health - Bureau of Radiation Control, DEM can request that the DOE provide a Radiological Assistance Team to aid in evaluating radiological hazards. This support would be provided out of DOE's Savannah River Operations Office, Aiken, South Carolina. This provision is described in Annex I Section IV of the State Plan. DOE is responsible for coordinating the off-site radiological monitoring and evaluation activities of the Federal Government.

Federal Emergency Management Agency (FEMA)

FEMA has the responsibility for coordinating all non-technical response activities of the Federal Government off site. They serve as the primary point of contact for requests for federal assistance from State and Local officials and other federal agencies.

2.1.5 Private Sector Organization

Institute of Nuclear Power Operations (INPO)

INPO maintains industry source lists for personnel and equipment which can be made available for support services during an emergency. A letter of support has been provided in Appendix B.

2.2 Florida Power & Light Company Emergency Response Organization

The purpose of this section is to describe FPL's Emergency Response Organization and resources. The Emergency Response Organization (ERO) is defined relative to the two phases of response and actions which are anticipated. This approach recognizes that the organization will be a dynamic one, dependent upon response time and the severity of the emergency. The on-shift response consists of shift operators, the plant duty shift and other trained plant personnel as available who are responsible for diagnosing the emergency and taking corrective actions. Along with the required shift operations personnel, the expanded response includes personnel necessary to man the TSC, OSC and EOF. Figure 2-4 shows the resources associated with the on-shift response phase. The ERO includes plant and corporate personnel which are available as the emergency warrants, to assist in assessment actions, control and stabilization.

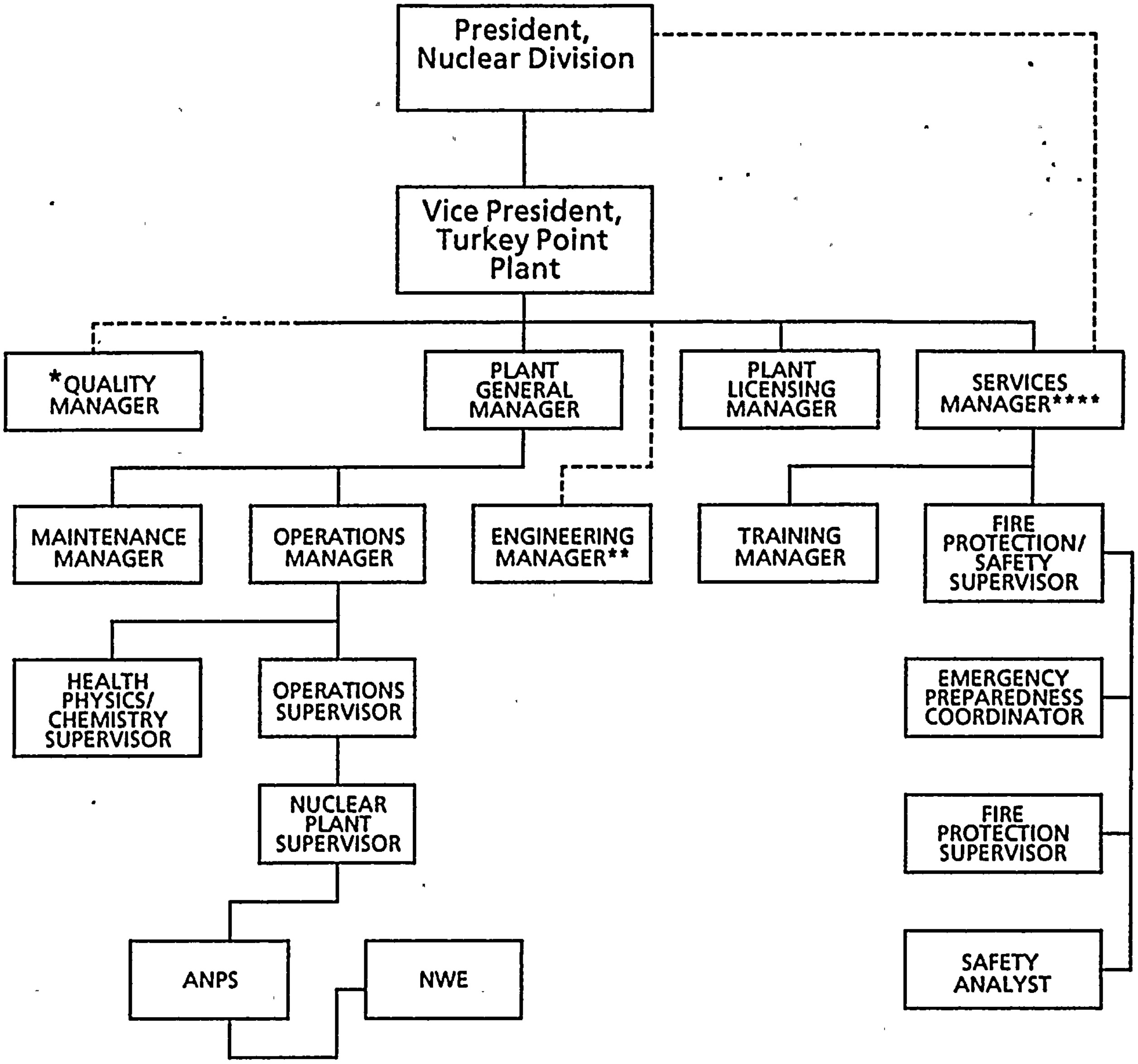
2.2.1 Normal Operating Organization

The normal operating organization chart for Turkey Point Units 3 and 4 is shown on Figure 2-3. The plant is staffed and qualified to take the necessary actions to implement the Emergency Plan and to initiate the immediate response actions necessary.

The normal hours plant staff consists of approximately 550 people. Key operating positions are described on Figure 2-3.

FIGURE 2-3

TURKEY POINT PLANT NORMAL OPERATING ORGANIZATION ***



* Reports to Director, Nuclear Assurance
** Reports to Vice President, Nuclear Engineering
*** This figure depicts a limited plant organization for Emergency Plan purposes.
**** Emergency Preparedness Issues

Vice President, Turkey Point Plant

The Vice President, Turkey Point Plant, reports to the President, Nuclear Division, and has the direct responsibility for the operation and maintenance of the Turkey Point Plant in a safe, reliable, and efficient manner.

Plant General Manager

The Plant General Manager reports to the Vice President, Turkey Point Plant and is responsible for overall plant operation and control over those on-site activities necessary for safe operation and maintenance of the plant.

Operations Manager

The Operations Manager has the overall responsibility for directing the day-to-day operation of the nuclear units. The Operations Manager reports directly to the Plant General Manager and the Operations Supervisor reports to him/her.

Operations Supervisor

The Operations Supervisor has responsibility for directing the activities of the nuclear plant operating shifts, including the Nuclear Plant Supervisors, Assistant Nuclear Plant Supervisors, and the Nuclear Watch Engineers.

Nuclear Plant Supervisor

The Nuclear Plant Supervisor is responsible for the actual operation of the nuclear plant and fuel handling operations on his assigned shift. The Nuclear Plant Supervisor directs the activities of the personnel on his/her shift and is cognizant of maintenance activity being performed while on duty. The Nuclear Plant Supervisor reports directly to the Operations Supervisor.

Assistant Nuclear Plant Supervisor

The Assistant Nuclear Plant Supervisor is responsible for assisting the Nuclear Plant Supervisor in the administrative functions associated in operating the nuclear units. He/she is responsible for the actual operation of the nuclear plant and fuel handling operations when the Nuclear Plant Supervisor is absent from the Control Room. The Assistant Nuclear Plant Supervisor reports directly to the Nuclear Plant Supervisor.

Nuclear Watch Engineer

The Nuclear Watch Engineer is the working operating foreman assigned for each shift. He/she reports directly to the Nuclear Plant Supervisor.

Health Physics/Chemistry Supervisor

The Health Physics/Chemistry Supervisor supervises the Health Physics and Chemistry Departments. He/she is responsible for implementing and maintaining the plant's radiation protection program and for chemical and radiochemical monitoring, analysis, and evaluation. He/she supervises overall laboratory operation and ensures that Health Physics/Chemistry training, record keeping and reporting requirements are met.

Maintenance Manager

The Maintenance Manager supervises the Electrical, Mechanical, and Instrument and Control (I&C) Departments. He/she is responsible for the maintenance of mechanical, electrical, and I & C equipment in the nuclear units.

Engineering Manager

The Engineering Manager supervises Reactor Engineering, Discipline Engineers, the Shift Technical Advisors and other general plant engineers and technicians.

Quality Manager

The Quality Manager supervises the Quality Control/Quality Assurance Department. He/she is responsible for directing the activities of the QC Inspectors who perform surveillance and inspection of nuclear safety related activities to monitor for technical specification and regulatory compliance.

Services Manager

The Services Manager supervises the areas of training, security, document control, plant change controls, and on-site safety programs including emergency preparedness. The Services Manager reports to the Vice President - Turkey Point Plant.

Plant Nuclear Safety Committee (PNSC)

The PNSC functions to advise the Plant General Manager on all matters related to nuclear safety. Specific responsibilities of the PNSC are identified in Technical Specifications.

2.2.2 Emergency Response Organization

The Emergency Plan is structured so that, insofar as practical, normal company operations are not significantly disrupted. Personnel are designated as part of the Emergency Response Organization and arrangements are made for others to carry out routine duties in the event of an emergency. Emergency Response Organization members are also available periodically to develop, review, and practice procedures covering their responsibilities.

2.2.2.1 On-Shift Response Phase

Initiating Event (Unusual Event, Alert, Site Area Emergency or General Emergency).

The emergency response is initiated by any individual who discovers an emergency condition. This person notifies the Nuclear Plant Supervisor by the fastest means possible. This first phase is characterized by diagnosis and immediate action by the plant operators on shift to place the plant in a safe and stable condition.

Organization

If the diagnosis indicates that the condition is classified as an Unusual Event, an Alert, Site Area Emergency or General Emergency, then the Nuclear Plant Supervisor declares an emergency.

The Nuclear Plant Supervisor becomes the Emergency Coordinator and, as such, directs the On-shift Emergency Response Organization. Initially, shift operators and plant duty staff constitute the response organization. Emergency requirements take immediate precedence over normal operating responsibilities (as determined by procedure or at the direction of the Emergency Coordinator). The Plant Staff Emergency Assignments Section of this section describes the emergency services that can be provided initially by shift operators and the plant duty staff.
Figure 2-4 shows the On-shift Emergency Response Organization.

Line of Succession

The line of succession in the Control Room for the position of Emergency Coordinator should the Nuclear Plant Supervisor be incapacitated is as follows (in order of succession):

1) Assistant Nuclear Plant Supervisor (ANPS)

2) Nuclear Watch Engineer (NWE)

3) Any other member of the plant staff with an active Senior Reactor Operator license.

It is the responsibility of the new Emergency Coordinator to ascertain the status of all Emergency Coordinator responsibilities. When the EC function is transferred to higher level plant management, the EC may serve the function from the TSC.

The Emergency Coordinator can grant permission for watch relief, including his own, when it is safe in his judgment to do so. Following a proper turnover, the Emergency Coordinator may be relieved of his duties by a qualified member of the Plant Management staff.

Actions

The Emergency Coordinator initiates the following actions per plant procedures and using his judgment:

1) Orders corrective actions to bring the emergency under control.

2) Mobilizes the Emergency Response Organization.

3) Notifies the State Division of Emergency Management State Warning Point Duty Officer and the County Emergency Response Directors in accordance with plant procedures.

4) Provides recommendations for off-site protective actions as discussed in Section 5.

5) Notifies NRC via ENS within one hour of declaration of an emergency condition.

Delegation

The Emergency Coordinator shall not delegate the following responsibilities:

1) Classification

2) Decision to notify Federal, State and Local authorities.

3) Recommendation of protective actions for the public (offsite).

The Emergency Coordinator may delegate other responsibilities.

Note: The Recovery Manager assumes the responsibility for notifying Federal, State and Local authorities and recommending protective actions when the EOF is manned and operational.

Plant Staff Emergency Assignments

A. On-Shift Emergency Response Organization

1) The On-shift Emergency Response Organization is composed of operators, the plant duty staff and other trained ERO personnel on shift. All are qualified in procedures and practices required for the performances of their duties as ERO members. The On-shift Emergency Response Organization takes action until the emergency condition is mitigated or until relieved.

2) Members of the On-shift Emergency Response Organization may consider themselves relieved only upon the specific instructions of the EC or apropriate facility supervisor . Merely knowing that a superior is present does not constitute a release from emergency duties and responsibilities.

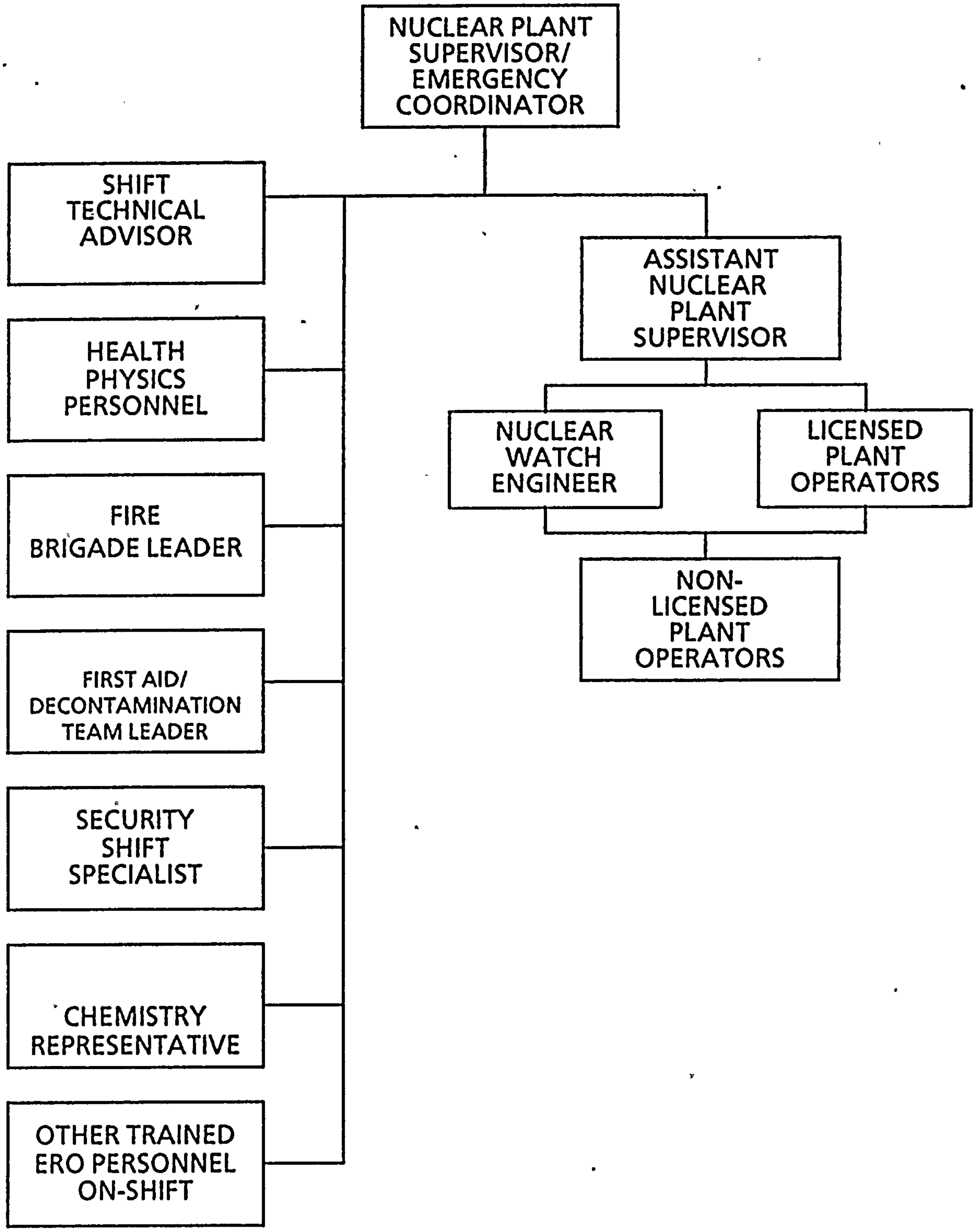
B. Emergency Response Organization

1) The Expanded Emergency Response Organization is composed of Operations personnel and ERO personnel to man the TSC, OSC and EOF, as necessary.

2) With the knowledge of the appropriate facility supervisor, alternate ERO members may relieve their counterpart on the On-shift Emergency Response Organization.

FIGURE 2-4

ON-SHIFT EMERGENCY RESPONSE ORGANIZATION



C. Functional Areas of Emergency Activity

1) Plant Systems Operations and Assessments of Operational Aspects

The Nuclear Plant Supervisor on duty becomes the Emergency Coordinator in the event of an emergency. He/she may be relieved as the Emergency Coordinator by another member of the plant management staff who is trained as Emergency Coordinator. The normal alternate is the Assistant Nuclear Plant Supervisor. The Nuclear Plant Supervisor and Assistant Nuclear Plant Supervisor positions are constantly manned. The Emergency Coordinator initially supervises the operations of the plant systems and controls the actions of emergency teams.

2) Emergency Direction and Control

Emergency Coordinator as previously discussed.

3) Notification and Communication

Emergency Coordinator as previously discussed.

4) Radiological Accident Assessment and In-Plant Protective Actions

The primary TSC Health Physics Supervisor is the Health Physics Supervisor. He/she directs the radiological surveillance performed by the Health Physics technicians under the orders of the Emergency Coordinator. A Health Physics representative, on site, is designated as the On-Shift TSC Health Physics Supervisor. The TSC Health Physics Supervisor recommends appropriate protective actions to the EC when not covered by procedure.

5) Plant System Engineering, Repair, and Corrective Actions, and Support of Operational Accident Assessment

The Shift Technical Advisor will provide the initial technical support necessary for repair, corrective actions, and operational accident assessment.

6) Fire fighting

The Nuclear Watch Engineer is normally the Fire Brigade Leader. This position is manned continuously, but if he/she is not available, an alternate will be a trained Senior Nuclear Operator. The Plant Fire Brigade and Metropolitan Dade County Fire Department are available to respond to fires on site, if requested.

7) Rescue Operations and First Aid

a) Rescue operations involve the First Aid Team, as necessary. Under the control of the EC/TSC Health Physics Supervisor, entry to potentially hazardous areas will be made by the First Aid Team. Upon notification of the injury, the team will respond per the Emergency Coordinator's instructions.

b) The Chemistry technician is the First Aid Team Leader. Any First Aid trained employee could render first aid until the First Aid Team can be called in.

8) Site Access Control and Personnel Accountability

The Security Shift Specialist or designee will act as the TSC Security Supervisor. Personnel control and accountability are the responsibility of the Security Force. Security will notify the EC of any unaccounted for personnel. Notification of personnel in the owner controlled area will take place during the security sweep of the area. It is estimated that personnel accountability can be accomplished within 30 minutes of declaration of an evacuation [by the Security Force].

9) Repair and Damage Control

Repair and damage control will be performed by assigned teams. These teams may be composed of members from any plant disciplines and may be augmented by other plant staff and non-Florida Power & Light company support personnel. Under the direction of the Emergency Coordinator or his designee, these teams are used to mitigate the consequences of the accident and to help restore the normal operation of the plant. Actions include the movement and set-up of portable shielding, tools, emergency equipment, and the operation of plant systems.

TABLE 2-2a

SHIFT AND EMERGENCY STAFFING CAPABILITIES

A. Normal Operations Shift Staffing

Position/Function	On-Shift
Senior Reactor Operator (NPS, ANPS, NWE)	3
Reactor Operator (RCO, SRCO)	3
Shift Technical Advisor	1
Nuclear Operator/Senior Nuclear Plant Operator	2
Nuclear Plant Operator/Nuclear Turbine Operator	2
Assistant Nuclear Plant Operator	1
Rad/Chem Technician	1
Health Physics Technician	1

Note: Minimum shift crew composition is identified in Technical Specifications. Fire Team staffing is per Tech Specs. Security Force is per Security Plan.

B. Emergency Staff Capabilities

Major Functional Area	NUREG 0654, REV. 1 Table B-1 Guidance *** 30 min.*	60 min.*
1. Notification/Communication	1	2
2. Radiological Accident Assessment And Support of Operational Accident Assessment Protective		
a. Senior Manager (EOF)		1
b. Offsite Dose Assessment Rad/Chem Technician**	1	
c. Health Physics Technicians**	7	6

* Estimated response time from receipt of notification.
** Combines all qualified individuals for similar functions from Table B-1.
*** Augment staffing capabilities are routinely tested to ensure timely response is maintained with respect to the goals identified in NUREG 0654.

TABLE 2-2a (cont.)

SHIFT AND EMERGENCY STAFFING CAPABILITIES

Major Functional Area	NUREG 0654, Rev. 1 Table B-1 Guidance *** 30 min.*	60 min.*
3. Plant System Engineering, Repair and Corrective Actions		
A. Core/Thermal Hydraulics	1	-
B. Electrical (TSC)/	-	1
Mechanical (TSC)	-	1
C. Mechanical Maintenance	-	1
D. Radwaste Operator	-	1
E. Electrical Maintenance	1	1
F. I&C Technician	1	-

* Estimated response time from receipt of notification.
** Combines all qualified individuals for similar functions from Table B-1.
*** Augment staffing capabilities are routinely tested to ensure timely response is maintained with respect to the goals identified in NUREG 0654.

TABLE 2-2b

FLORIDA POWER & LIGHT EMERGENCY RESPONSE ORGANIZATION FUNCTIONS AND RESPONSIBILITIES

Function	Responsibility: On-shift	Responsibility: Expanded
Command and Control	Emergency Coordinator (Nuclear Plant Supervisor)	EC/Recovery Manager
Warning	Emergency Coordinator	EC/Recovery Manager
Notification/ Communications	Emergency Coordinator	EC/Recovery Manager
Public Information	Emergency Coordinator	Emergency Information Manager
Accident Assessment	Emergency Coordinator (assisted by Shift Technical Advisor)	Recovery Manager (assisted by Emergency Technical Manager, Emergency Coordinator and TSC technical staff)
Fire	Fire Brigade Leader	Fire Brigade Leader
Rescue	Emergency Coordinator	Emergency Coordinator
Traffic Control	TSC Security Supervisor	TSC Security Supervisor
Emergency Medical Services	First Aid Team Leader	First Aid Team Leader
Transportation	TSC Security Supervisor	Emergency Security Manager
Protective Response (On-site)	Emergency Coordinator	EC/TSC HP Supervisor
Radiological Exposure Control (On-site)	Emergency Coordinator (Assisted by Health Physics Department Representative)	TSC HP Supervisor

2.2.2.2 Expanded Response Phase

Initiating Action

This phase is initiated by the Emergency Coordinator (EC). Notification by the EC provides the basis for mobilization of the Florida Power & Light Company Emergency Response Organization (ERO) as well as State, Local, and Federal Emergency Response Organizations. Activation of FPL personnel proceeds to the degree necessary, as determined by the EC and Recovery Manager (RM), in response to the severity of the emergency.

In an Alert, the Technical Support Center (TSC) and the Operational Support Center (OSC) are activated. The RM should place the Emergency Operations Facility (EOF) personnel in the facility for an Alert as conditions warrant. The EOF shall be activated in a Site Area Emergency and/or General Emergency. **Figure 2-5** shows the response organization that can develop during this period.

Emergency Classification

Notification of any emergency as defined by this plan will be made to the RM by the Emergency Coordinator or a designee. In an Alert, the FPL Expanded Emergency Response Organization may be notified by the EC/RM and at a minimum placed in a standby state.

Emergency Control Officer (ECO)

The ECO will be designated Corporate Officer or Senior Manager who will act as the Chief Nuclear Officer until relieved by a higher ranking company officer. He/She will serve as the official spokesperson for the Nuclear Division.

Recovery Manager (RM)

The RM is the Vice President, Turkey Point Plant, or a designated Senior Manager who has knowledge of nuclear plant operations and design. The Recovery Manager will be responsible for activating the EOF responders and directing the Company's Expanded Emergency Response Organization in conjunction with the EC. He/She has the authority to establish policy and to expend funds necessary to cope with any emergency situations that arise. Specific responsibilities for the RM include the following:

1) To periodically inform the Emergency Control Officer of the on-site status and immediately of any significant changes.

2) To provide support and data as necessary to the Emergency Coordinator.

3) To obtain information on diagnosis and prognosis of the emergency, estimates of radioactive releases, prevailing meteorological conditions, projected radiological exposures, and recommended off-site protective actions.

4) To assume from the EC, the responsibility for communicating such information to and coordinating with the State and County response organizations and the issuance of PAR's for the public.

5) To assure continuity of technical and administrative support, and material resources.

6) To request additional support for FPL and others as necessary.

7) To provide logistical support for emergency personnel (e.g., transportation, communications, temporary quarters, food, water, sanitary facilities in the field, and procurement of special equipment and supplies).

Emergency Information Manager (EIM)

The EIM will be a Senior Manager or designated member of the Corporate Communications Department experienced in disseminating information to the public via the news media. The EIM can operate from the Emergency Operations Facility or the Emergency News Center, as conditions dictate. He will have the following responsibilities:

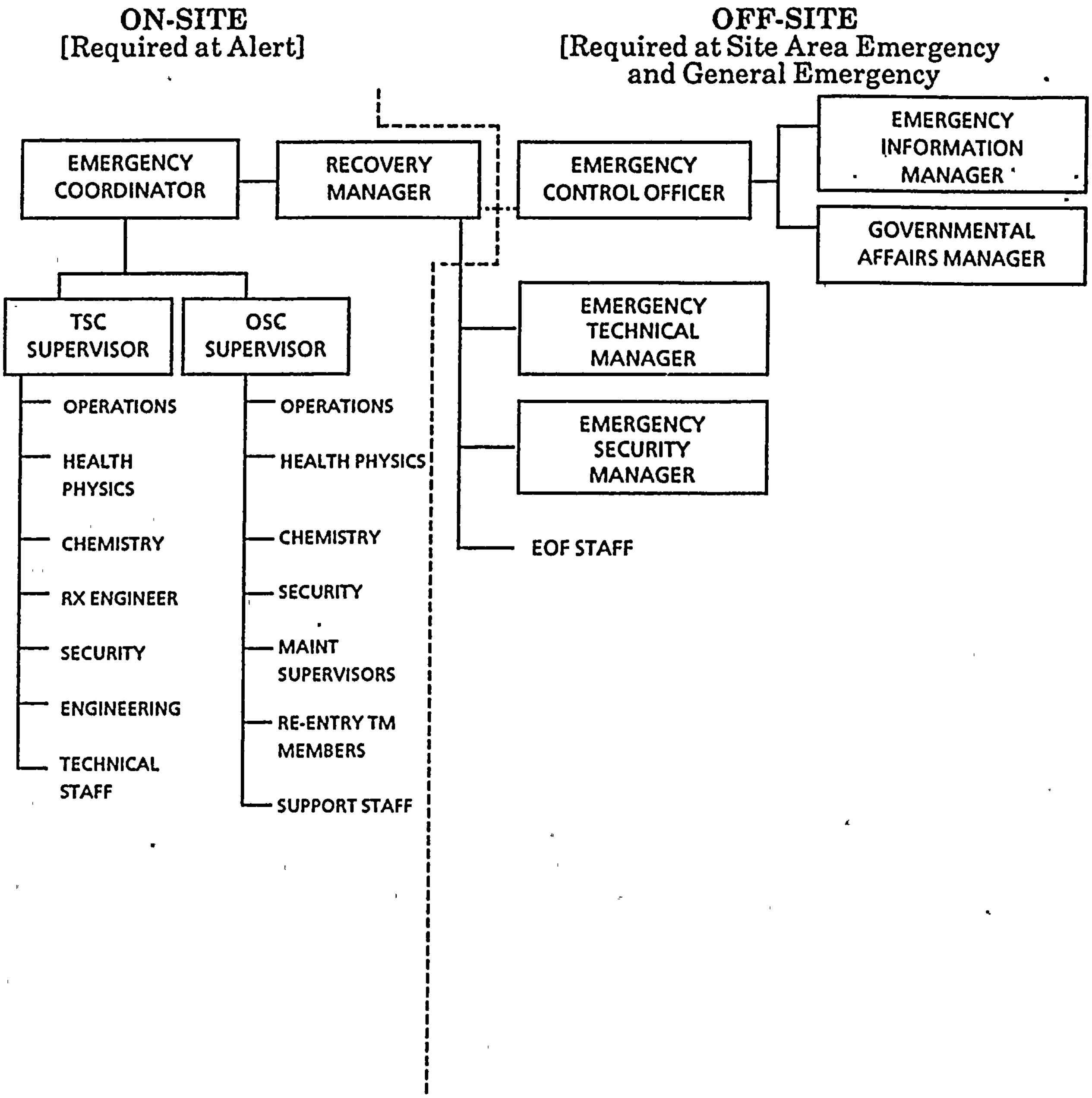
1) To act as principal public spokesperson for FPL.

2) To disseminate available information from the ECO to the news media and to provide periodic updates.

3) To work with Federal, State, and County public information representatives to effect joint releases and public appearances.

FIGURE 2-5

EXPANDED RESPONSE ORGANIZATION



Emergency Security Manager (ESM)

The ESM will be a Company supervisor or manager with security experience and will be responsible to the RM for providing liaison with county law enforcement and rescue agencies.

Emergency Technical Manager (ETM)

The ETM is a manager or senior engineer with detailed knowledge of nuclear plant operations and design and who will be responsible for providing technical support and information regarding engineering design for the plant.

Governmental Affairs Manager (GAM)

The GAM is a member of the External/Governmental Affairs staff experienced in interfacing with political officials of the State, local and Federal governments. He acts as a liaison between the ECO and these political officials.

Augmented Staff Support

Additional staff support can be provided during this phase to augment the operating staff on site and off site. The EC/RM will have access to this support through the Emergency Response Directory maintained by the Emergency Preparedness Coordinator.

Lines of Succession

Lines of succession for the RM and Managers of the Expanded Emergency Organization are controlled by procedures.

Delegation

Delegation authority is controlled by procedure.

2.3 Emergency Response Support and Resources

This section describes the arrangements that Florida Power & Light Company has made for assistance to augment the Emergency Response Organization.

2.3.1 Response Organization Representatives

Florida Power & Light company has provided facilities in the Emergency Operations Facility for representatives from FPL, State, Local, and Federal Response Organizations.

2.3.2 Radiological Laboratories

Florida Power & Light Company has primary and backup radiological laboratory facilities available. Environmental sampling will be augmented by the State's Mobile Emergency Radiological Laboratory (MERL) within approximately six hours of notification. If required, the laboratory facilities at FPL's St. Lucie Plant can be used; appropriate arrangements will be made on an as needed basis.

2.3.3 Additional Assistance

The Institute of Nuclear Power Operations (INPO) maintains industry source lists for personnel and equipment which can be made available for support services during an emergency. Additional technical assistance can also be obtained directly from the Nuclear Steam Supply System (NSSS) Vendor (Westinghouse Electric Corporation).

2.3.4 Support to Federal Assistance Teams

The Recovery Manager has the authority to request Federal assistance. It is expected that such assistance will be provided primarily by the NRC. Also, FEMA may send a representative for near-site coordination. It is expected that NRC personnel will begin to arrive at the site within six hours after declaration of a Site Area or General Emergency. Requests for assistance from the Department of Energy's Savannah River Operations in Aiken, South Carolina can be made by the State under the Federal Radiological Emergency Response Plan. Such requests are the responsibility of the Director of the Division of Emergency Management.

Federal assistance teams can achieve access to the plant via the Miami airport, approximately one hour from the plant. The Recovery Manager will assign an individual to meet such assistance teams and to escort them to the appropriate facilities on an as needed basis.

FPL has reserved space and facilities for a staff of nine from the NRC and one from FEMA at the EOF. This staff will have access to commercial telephone lines. The FEMA representative will also have access to Local Government Radio. Other support services (reproduction, office supplies, etc.) will be arranged through FPL. FPL has also allocated space in the Technical Support Center for a staff of five NRC personnel. This staff will have access to the dedicated ENS line. Other support services will be arranged through FPL. In addition to space in the TSC, FPL has provided a near-site facility for the NRC Response Team on the second floor of the building that houses the TSC (see Figure 2-6).

2.4 Emergency Facilities and Equipment

This section describes the facilities and equipment that Florida Power & Light Company maintains in readiness for an emergency situation. Figure 2-6 shows the locations of the on-site facilities.

2.4.1 Control Room

For any emergency response, the Control Room serves as the initial point of control. The Nuclear Plant Supervisor stations himself/herself in the Control Room when he/she assumes the role of Emergency Coordinator. If necessary, the EC may leave the Control Room, after a proper turnover to a qualified alternate, to make a personal assessment regarding plant safety. The Control Room is designed to remain tenable under conditions described in the FSAR. All plant related operations are directed from the Control Room. Nuclear plant instrumentation, including Area and Process Radiation Monitoring System instrumentation, is provided in the Control Room to give early warning of a potential emergency and to provide for continuing evaluation of an emergency situation. The Control Room contains the controls and instrumentation necessary for operation of the reactor under normal and emergency conditions.

A supply of protective clothing and respiratory equipment is maintained in the Control Room. Table 2-3 provides a list of emergency equipment maintained in the Control Room.

The Control Room contains the necessary communications equipment for notifying on-site personnel and off-site authorities in the event of an accident. This includes the State Hot Ring Down Telephone System, Emergency Satellite Communications System (ESATCOM), Local Government Radio (LGR), Emergency Notification System (ENS hotline) to the NRC Operations Center, commercial telephones, Florida Power & Light Company Radio System (UHF, VHF), plant page system, portable radio sets (walkie-talkies), and a radio paging system. These systems are used as defined by procedure to accomplish the necessary notifications and communications.

2.4.2 Emergency Operations Facility

The Company maintains an Emergency Operations Facility at the FPL General Office building (9250 W. Flagler in Miami) from which evaluation and coordination of all FPL activities related to an emergency can be carried out and from which FPL can provide information to Federal, State, and Local authorities.

Activation of the Emergency Operations Facility will be initiated by the Recovery Manager. The Emergency Operations Facility will be activated for an emergency classified as a Site Area Emergency or General Emergency. The Recovery Manager may activate the Emergency Operations Facility in other emergency classes at his discretion.

The Emergency Operations Facility (EOF) is maintained in the General Office. It provides for sufficient space to accommodate the Florida Power & Light Company Response Organization and representatives of the designated Federal, State, and Local authorities. Alternate temporary locations for the Emergency Operations Facility may be designated by the Recovery Manager if a natural disaster or other external events significantly affects the operational capability of the facility.

The Emergency Operations Facility has an emergency communications network which includes commercial (Bell) telephone lines, redundant company radio systems, and dedicated communication capability with off-site agencies.

The Emergency Operations Facility will be staffed, as required, under the direction of the Recovery Manager. Arrangements will be made to staff the EOF in a timely manner.

2.4.3 Technical Support Center

The Company maintains an on-site Technical Support Center (TSC) to provide the Control Room and the Emergency Operations Facility with in-depth diagnostic and engineering assistance without adding to congestion within the Control Room. This assistance can help determine the operational decisions that would be appropriate to better control and to mitigate the consequences of an emergency.

Activation of the Technical Support Center will normally be initiated by the Emergency Coordinator in the event of an Alert, Site Area Emergency or General Emergency. The TSC will be staffed by personnel under the direction of the Emergency Coordinator. Arrangements will be made to staff the TSC in a timely manner.

The Technical Support Center provides for access to certain plant parameters monitored in the Control Room. The Technical Support Center contains equipment for monitoring airborne contamination and direct radiation. The Technical Support Center also contains protective clothing and respiratory protection devices. Pertinent records and drawings are available in the TSC. Table 2-3 provides a listing of the emergency equipment maintained in the Technical Support Center.

The Technical Support Center has an emergency communications network including commercial telephone lines to the Control Room, the Emergency Operations Facility, and the ENS dedicated phone line to the NRC Operations Center (in Maryland) and the NRC Region II Office (in Atlanta, GA).

2.4.4 Operations Support Center

The Company maintains an on-site Operations Support Center (OSC) to serve as an assembly point for auxiliary operators, who are not needed at their stations and Emergency Response Organization personnel who do not report immediately to the scene of the emergency. Emergency teams will be directed to appropriate activities by the Emergency Coordinator or his designee through the OSC Supervisor.

Equipment that can be used by personnel dispatched from the OSC is stored in or near the OSC. Table 2-3 indicates the types of radiological protection material and equipment stored there.

Activation of the OSC will be initiated by the Emergency Coordinator. The OSC will be in operation for an Alert, Site Area Emergency or General Emergency within two hours of the declaration. Arrangements will be made to staff the OSC in a timely manner.

The OSC is maintained in the Maintenance Building Lunch Room. Open line telephone communications are maintained between the OSC and the Technical Support Center.

2.4.5 Alternate Operations Support Center

In the event that the OSC becomes uninhabitable, the Emergency Coordinator will designate an alternate location in accordance with procedures. One alternate location which may be chosen is the second floor of the TSC.

2.4.6 Emergency News Center

An Emergency News Center (ENC) will be provided to allow the news media access to information from the Emergency Operations Facility. The Emergency Information Manager will designate an individual to supervise the ENC. The ENC is located on the second floor of the General Office Building.

A Near-site Information Center may be set up at a location closer to the plant if deemed necessary by the Emergency Information Manager. The Emergency Information Manager will designate an individual to set up and supervise the Near-site Information Center, when activated.

2.4.7 Nuclear Division Management Center

The Nuclear Division Management Center is an area within the Nuclear Division offices at the Florida Power & Light Company Juno Beach location. The Emergency Control Officer and his staff may man the center to provide support and resources to the on-site organization until the EOF is declared operational.

2.4.8 Metropolitan Dade County Emergency Operations Center

The Dade County EOC will be the point from which county response activities will be controlled. The facility is located at 5600 SW 87 Avenue, Miami, Florida. Communications include Hot Ring Down, ESATCOM (Satellite Communications System), RACES, Local Government Radio, teletype, police and fire networks, and telephone.

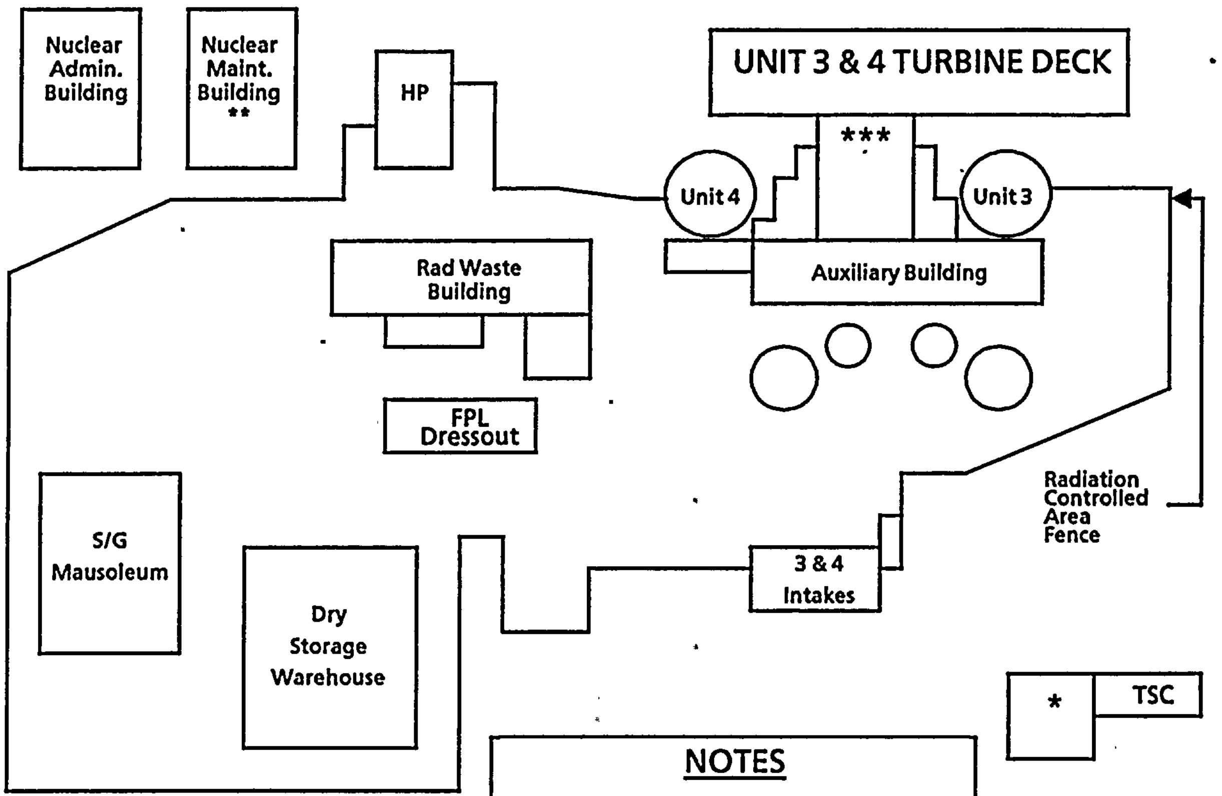
2.4.9 Monroe County (Key Largo) Emergency Operations Center

The Monroe County (Key Largo) Emergency Operations Center, located at the Key Largo Fire Rescue Station #1, will be where the County's emergency response activities are controlled. Communications include the Hot Ring Down, ESATCOM (Satellite Communications System), Local Government Radio (LGR), facsimile, police and fire radio, and commercial telephone. The Monroe County EOC in Marathon will aid the Key Largo EOC where possible.

2.4.10 Florida State Emergency Operations Center (State Warning Point)

The State's initial response comes from the State Emergency Operations Center (EOC) in Tallahassee. Initial notification goes to the State Warning Point located in the State EOC. The location is, 2740 Centerview Drive, Tallahassee, Florida. Communications include Hot Ring Down, ESATCOM (Satellite Communications System), Local Government Radio (LGR), facsimile, teletype and telephone. This facility is manned 24 hours a day by a duty officer.

FIGURE 2-6
TURKEY POINT PLANT EMERGENCY FACILITIES LOCATION MAP



NOTES

* NRC Near Site Support Center (2nd Floor of TSC Building)

** Operations Support Center (Nuclear Maintenance Lunch Room - 2nd Floor)

*** Units 3 and 4 Control Room

TABLE 2-3
ON-SITE EMERGENCY RESPONSE FACILITIES
EMERGENCY EQUIPMENT
(TYPICAL)

CONTROL ROOM EMERGENCY EQUIPMENT

DOSE RATE METER
FRISKER (COUNT RATE METER)
FULL FACE RESPIRATORS
IODINE CANISTERS
SELF READING DOSIMETERS
DOSIMETER CHARGER
PROTECTIVE CLOTHING
SELF CONTAINED BREATHING APPARATUS

OPERATIONS SUPPORT CENTER EMERGENCY EQUIPMENT

DOSE RATE METER
FRISKER (COUNT RATE METER)
FULL FACE RESPIRATORS
IODINE CANISTERS
SELF READING DOSIMETERS
DOSIMETER CHARGERS
PROTECTIVE CLOTHING
AIR SAMPLER
AIR SAMPLE HEAD
PARTICULATE FILTERS
SILVER ZEOLITE CARTRIDGES
SELF CONTAINED BREATHING APPARATUS

TECHNICAL SUPPORT CENTER EMERGENCY EQUIPMENT

DOSE RATE METER
FRISKER (COUNT RATE METER)
FULL FACE RESPIRATORS
IODINE CANISTERS
AIR SAMPLER
AIR SAMPLE HEAD
PARTICULATE FILTERS
SILVER ZEOLITE CARTRIDGES
SELF READING DOSIMETERS
DOSIMETER CHARGES
PROTECTIVE CLOTHING

2.5 Medical and Health Support

This section describes the agreements and provisions that Florida Power & Light Company has made for emergency medical support.

Plant First Aid Facility

The Plant First Aid Facility and ambulance are provided with first aid supplies. In addition, standard 24-unit first aid kits are maintained at numerous locations throughout the Turkey Point Plant. A commercial first aid kit, containing the same type of supplies as the 24-unit kit is maintained in the Florida City Substation. The medical supplies and first aid kits in the first aid station, and Florida City Substation, are checked at least every quarter and replenished as necessary by the Safety Department (Substation is replenished and checked by Health Physics). Stretchers are placed at strategic locations at Units 3 and 4.

A personnel decontamination washroom and shower room with chemical decontamination agents is provided in the FPL Dress Out Building. Accepted decontamination practices will be employed on site as per Health Physics procedure. Life endangering injuries such as extensive burns, serious wounds or fractures shall receive prompt attention in preference to decontamination. Personnel with injuries that cannot be adequately handled on site, involving radiation or radioactive contamination, will be handled by South Florida Emergency Physicians, PA in the Emergency Room at Baptist Hospital of Miami, Inc., or by Emergency Room Medical Associates, PA (ERMA) at Mercy Hospital.

South Florida Emergency Physicians, PA

The South Florida Emergency Physicians, PA, located within Baptist Hospital of Miami, Inc., provides for the immediate availability of fully equipped medical facilities with a staff of physicians and nurses skilled in the treatment of personal injury accompanied by radioactive contamination.

This facility is available on a 24-hour basis.

South Florida Emergency Physicians, PA, will provide for hospital treatment, medical examinations, and laboratory services for those employees and other persons designated by Florida Power & Light who allegedly have been involved in a radiation incident. When primary facilities are considered inappropriate because of the nature or severity of the injury sustained, then the injured person may be referred to a regional facility for hospitalization. Medical records, including bio-assay records, will be maintained permanently and copies furnished to Florida Power & Light Company.

South Florida Emergency Physicians

The facilities of South Florida Emergency Physicians, PA are located at Baptist Hospital of Miami. The patient receiving area is equipped for patient decontamination and the performance of emergency medical procedures for life saving purposes. Additional emergency medical facilities in the hospital include the emergency room and an Intensive Care Unit available for the treatment of decontaminated radiation accident casualties or persons who have received only external radiation exposures.

Emergency Room Medical Associates (ERMA)

ERMA, located within Mercy Hospital, in Miami, also provides for the immediate availability of medical facilities and trained hospital staff in the treatment of personal injury accompanied by radioactive contamination. Services are available on a 24-hour basis.

Backup Facilities

A letter of agreement between the Oak Ridge Associated Universities (ORAU) and Florida Power & Light Company provides backup support for the definitive care and treatment of seriously irradiated persons. The ORAU Medical and Health Sciences Division operates the Radiation Emergency Assistance Center/Training Site (REAC/TS) in Oak Ridge, Tennessee, for the U S Department of Energy. It studies radiation and radioactive materials in diagnosis, therapy, and research. Its specialized facilities are available for the care and treatment of possible radiation accident victims.

Transportation of Injured Personnel

Normal county ambulance service, company vehicle, or private vehicle will provide transportation for injured personnel.

In case of a life-threatening situation, the NPS will determine the mode of transportation. The US Coast Guard can provide 24-hour helicopter transportation in a life-threatening situation to a designated hospital on an as available basis.

Communications

When injured personnel are transported to Baptist Hospital or Mercy Hospital by county ambulance, radio contact as well as telemetry is normally maintained between the Hospital and the ambulance. In all cases, telephone notification is made by the Plant to the Hospital concerning the pending arrival of injured personnel. Additionally, if a helicopter were to be used, the Hospital could also maintain ground-to-air communications. Cellular telephones are available on site to be used as an alternative communication means.

3. EMERGENCY CLASSIFICATION SYSTEM

The system which has been adopted for categorizing off-normal events or conditions at the Plant has four classes. In order of increasing severity, these are: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency.

3.1 Notification of Unusual Event

The Notification of Unusual Event (normally shortened to Unusual Event) category applies to off-normal events or conditions at the plant for which no significant degradation of the level of safety of the plant has occurred or is expected. Any releases of radioactive material which have occurred or which may be expected are minor and constitute no appreciable health hazard. FPL actions in response to an Unusual Event will be:

1) Assess and respond as directed by the Emergency Coordinator.

2) Report the Unusual Event to off-site authorities (FPL and non-FPL) in accordance with plant procedures.

3) Provide periodic plant status updates in accordance with plant procedures, typically every sixty minutes, upon significant change in plant conditions, or as agreed to with State, County and Federal agencies.

4) Close out by verbal summary to off-site authorities, or escalate to a higher class.

3.2 Alert

This classification is represented by events which involve an actual or potential substantial degradation of the level of safety of the plant combined with a potential for limited uncontrolled releases of radioactivity from the plant.

FPL actions in response to this category will be:

1) Assess and respond as directed by the Emergency Coordinator.

2) The Emergency Coordinator augments resources by activating the facilities necessary to mitigate the event which may include the Technical Support Center, Operations Support Center, EOF and ENC. The Recovery Manager should place the Emergency Operations Facility personnel in the facility for an Alert as conditions warrant.

3) Report the Alert Status to off-site authorities (FPL and non-FPL) in accordance with plant procedures.

4) Dispatch monitoring teams as directed by the TSC Health Physics Supervisor.

5) Provide periodic plant status updates in accordance with plant procedures typically every sixty minutes, upon significant change in plant status or as agreed to with State, County and Federal agencies.

6) Provide periodic meteorological assessments in accordance with plant procedures if releases are anticipated or occurring. If releases are occurring, provide dose estimates for actual releases.

7) Close out by verbal summary to off-site authorities, followed by a written summary within 24 hours, or escalate to a higher class.

3.3 Site Area Emergency

This classification is composed of events which involve actual or likely major failures of plant functions needed for protection of the public combined with a potential for significant uncontrolled releases of radioactivity from the plant.

FPL actions in response to this category will be:

1) Assess and respond as directed by the Emergency Coordinator.

2) Augment resources as necessary by activating the on-site Technical Support Center, the on-site Operations Support Center, the Emergency Operations Facility and the Emergency News Center.

3) Report the Site Area Emergency status to off-site authorities (FPL and non-FPL) in accordance with plant procedures.

4) Dispatch monitoring teams as directed by the TSC Health Physics Supervisor.

5) Provide periodic plant status updates in accordance with plant procedures typically every sixty minutes, upon significant change in plant status or as agreed to with State, County and Federal agencies.

6) Provide periodic meteorological assessments in accordance with plant procedures.

7) Provide release and dose projections based on available plant and meteorological information and foreseeable contingencies.

8) Close out or recommend a change in emergency class when appropriate by briefing off-site authorities.

9) Submit a brief written summary to off-site authorities within 24 hours after closing out the emergency.

3.4 General Emergency

This classification is composed of events which involve actual or imminent substantial core degradation and potential loss of containment integrity combined with a likelihood of significant uncontrolled releases of radioactivity from the plant.

FPL actions in response to this category will be:

1) Assess and respond as directed by the Emergency Coordinator.

2) Augment resources by activating the on-site Technical Support Center, the on-site Operations Support Center, the Emergency Operations Facility and the Emergency News Center.

3) Report the General Emergency status to off-site authorities (FPL and non-FPL) in accordance with plant procedures.

4) Dispatch monitoring teams as directed by the TSC Health Physics Supervisor.

5) Provide periodic plant status updates in accordance with plant procedures, typically every sixty minutes, upon significant change in plant status or as agreed to with State, County and Federal agencies.

6) Provide periodic meteorological assessments in accordance with plant procedures.

7) Provide release and dose projections based on available plant and meteorological information and foreseeable contingencies.

8) Provide off-site protective action recommendations to the State DEM and counties.

9) Close out or recommend a reduction in emergency class when appropriate by briefing off-site authorities.

10) Submit a brief written summary to off-site authorities within 24 hours after closing out the emergency.

3.5 Emergency Action Levels

Emergency action levels for a wide variety of hypothetical off-normal plant occurrences are listed in Table 3-1. The emergency action levels represent conditions generally observable by plant personnel and can be used to properly classify an occurrence as an Unusual Event, and Alert, a Site Area Emergency, or a General Emergency. Included in these tables are all accidents discussed by the Final Safety Analysis Report. Minor changes to parameter values and wording may be made in the emergency classification table throughout the year and incorporated in the annual revision to the emergency plan.

Tables 3-2 and 3-3 contain listings of Process and Effluent Monitors and Area Radiation Monitors that may be used to initiate emergency actions. These tables contain information regarding the type of monitor, range of the instruments and typical setpoints (actual setpoints are defined by procedure).

Table 3-4 contains a listing of non-radiological monitors, meters, or gauges that may be used to initiate emergency actions. This table contains information regarding the parameter measured, typical range of the monitor, meter or gauge, and typical normal range of the instruments.

The Emergency Coordinator may classify off-normal events into one of the four categories in the absence of a specific emergency action level based on an assessment that plant conditions have or may have adverse effects on the level of safety.

Note for Tables 3-1 through 3-4

The * indicators, valve numbers etc., indicates the placement of 3 or 4 e.g., TI-*-465 is TI-3-465 for Unit 3 and TI-4-465 for Unit 4.

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

1. Primary Leakage/LOCA

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Plant in Mode 1-2-3-4 AND Either A or B: A. RCS Leakage in excess of Technical Specifications 3.4.6.2, Reactor Coolant System Operational Leakage as indicated by either: 1) Unidentified RCS Leakage >1 gpm, OR 2) Identified RCS Leakage greater than ten (10) gpm, OR 3) RCS Pressure Isolation Valve Leakage greater than allowable, OR 4) Any Pressure Boundary Leakage --------------------------- B. Failure of any primary system safety or relief valve to close resulting in an uncontrolled RCS depressurization.	Plant in Mode 1-2-3-4 AND RCS leakage >50 gpm AND RCS leakage within available charging pump capacity CAUTION: This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ruptured steam generator.	Plant in Mode 1-2-3-4 AND RCS leakage > 50gpm AND RCS leakage greater than available charging pump capacity CAUTION: This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ruptured steam generator.	Either A or B: --------------------------- A. RCS leakage > 50gpm AND RCS leakage greater than available charging pump capacity AND Containment pressure > 20 psig CAUTION: This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ ruptured steam generator. --------------------------- B. Plant in Mode 1, 2, 3, 4, AND RCS leakage > 50 gpm AND RCS leakage greater than available charging pump capacity AND Loss of containment integrity which provides a flowpath to the environment. CAUTION: This section should not be used for events involving only a steam generator tube leak/rupture, or only a faulted/ ruptured steam generator --------------------------- CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.

Possible Control Room Indicators

TI-465, 467, 469 TEC Flow Indicators	Charging/Letdown Flow Mismatch	RCS pressure Containment Pressure ARM's Charging/Letdown Flow Mismatch	RCS pressure Containment Pressure PRMS R-14

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

2. Steam Generator Tube Leak/Rupture			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Either A or B: A. Greater than 500 gpd steam generator tube leakage to any one steam generator per Technical Specification 3.4.6.2, Reactor Coolant System - - - - - - - - - - - - B. Greater than 1 gpm total steam generator tube leakage per Technical Specification 3.4.6.2, Reactor Coolant System	Either A or B: A. Confirmed steam generator tube leakage >50 gpm AND Steam generator tube leakage within available charging pump capacity AND Loss of offsite power - - - - - - - - - - - - B. Steam generator tube leakage greater than available charging pump capacity.	Steam generator tube leakage greater than available charging pump capacity AND Loss of offsite power CAUTION: Consult Figure 5-1 for possible Protective Action Recommendations	
Possible Control Room Indicators			
PRMS R-15 PRMS R-19	PRMS R-15 PRMS R-19 Charging/Letdown Flow Mismatch	PRMS R-15 PRMS R-19 Charging/Letdown Flow Mismatch	

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

3. Loss of Secondary Coolant			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Either A or B: A. Steamline or feedline break which results in Safety Injection actuation. - B. Failure of a steam generator safety or steam dump to atmosphere valve to close resulting in uncontrolled secondary depressurization.	Steamline or feedline break which results in Safety Injection actuation AND Evidence of significant (>10 gpm) steam generator tube leakage in the affected steam generator.	Steamline or feedline break which results in Safety Injection actuation AND Confirmed RCS DEQ I-131 activity ≥ 300 µCi/gm AND Confirmed steam generator tube leakage >50 gpm in the affected steam generator CAUTION: Consult Figure 5-1 for possible Protective Action Recommendations	
Possible Control Room Indicators			
	PRMS R-15 PRMS R-19 Charging/Letdown Flow Mismatch	PRMS R-15 PRMS R-19 Charging/Letdown Flow Mismatch	

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

4. Fuel Handling Accident			
UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	A spent fuel element has been dropped or damaged AND Release of radioactivity from the damaged spent fuel element has been detected.	Either A, B or C: A. Major damage to one or more spent fuel elements has occurred AND Affected area radiation monitors are $>10^3$ mR/hr. ------------------------------ B. Major damage to one or more spent fuel elements has occurred AND Containment radiation levels >1.3 E4 Rem/hr ------------------------------ C. Major damage to one or more spent fuel elements due to water level being below top of spent fuel.	
Possible Control Room Indicators			
	ARMS R-2, 5, 7, 8, 19, 21, 22 PRMS R-12, 14	ARMS R-2, 5, 7, 8, 19, 21, 22 PRMS R-12, 14 SFP Level Indication RI-6311A RI-6311B	

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

5. Loss of Safe Shutdown Functions/ATWS			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
	Either A, B, C or D: A. Reactor critical **AND** Failure of the Reactor Protection System to initiate a trip signal when a trip setpoint has been exceeded. - - - - - - - - - - B. Reactor critical **AND** Reactor fails to trip on automatic signal - - - - - - - - - - C. Reactor critical **AND** Reactor fails to trip on manual signal - - - - - - - - - - D. RCS temperature increasing due to loss of decay heat removal capability from all of the following: 1) RHR system **AND** 2) Forced RCS circulation **AND** 3) Natural RCS circulation	Either A, B, C or D: A. Inability to bring the reactor subcritical with control rods - - - - - - - - - - B. Plant in Mode 1-2-3 **AND** Loss of steam release capability from all of the following: 1) Condenser steam dumps **AND** 2) Atmospheric steam dumps **AND** 3) All steam generator safeties - - - - - - - - - - C. Plant in Mode 1-2-3 **AND** Loss of secondary heat sink has occurred **AND** RCS bleed and feed is required. - - - - - - - - - - D. Plant in Mode 1-2-3 **AND** RCS injection capability has been lost from: 1) Charging pumps **AND** 2) High-head SI pumps except due to loss of all AC power. Refer to Section 10, Loss of Power Conditions	Either A or B: A. Inability to bring the reactor subcritical **AND** RCS pressure > 2485 psig. - - - - - - - - - - B. Inability to bring the reactor subcritical **AND** Containment pressure ≥ 4 psig. **CAUTION:** Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

6. Fuel Element Failure

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
RCS activity requiring plant shutdown or cooldown per Technical Specification 3.4.8.	Either A, B or C: A. Confirmed RCS DEQ I-131 activity ≥300 µCi/gm. --- B. An increase of > 1% fuel failure in 30 minutes. --- C. Total fuel failure of 5%.	Fuel element failure as indicated by A, B, or C: A. Confirmed RCS DEQ I-131 activity ≥ 300 µCi/gm. AND RCS T_{hot} >620°F. --- B. Confirmed RCS DEQ I-131 activity ≥ 300 µCi/gm. AND Core exit thermocouples >700°F. --- C. Containment high range radiation monitor reading >1.3 E4 Rem/hr.	Fuel element failure as defined in Site Area Emergency of this section AND Any of the following is imminent or in progress: a) LOCA with loss of containment cooling OR b) LOCA with loss of containment integrity which provides a flowpath to the environment OR c) Steam generator tube rupture with unisolable flowpath from the ruptured steam generator to the environment. **CAUTION:** Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			
	PRMS R-20 ARMS R-1 through R-6	Core Exit Thermocouples RI-6311A RI-6311B	

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

7. Uncontrolled Effluent Release			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
A release to the Unrestricted Area has occurred or is in progress which exceeds either A or B: A. ODCM limits for gaseous release (Control 3.2) per off-site dose estimates performed in accordance with EPIP-20126, Off-Site Dose Calculations. --------------------------- B. ODCM limits for liquid release (Control 2.3). NOTE: Alarm Actuation does not in itself constitute exceeding ODCM limits.	A release to the Unrestricted Area has occurred or is in progress which exceeds either A or B: A. Ten times ODCM limits for gaseous release (Control 3.2) per off-site dose estimates performed in accordance with EPIP-20126, Off-Site Dose Calculations. --------------------------- B. Ten times ODCM limits for liquid release (Control 2.3). NOTE: Alarm Actuation does not in itself constitute exceeding ODCM limits.	Performance of EPIP-20126, Offsite Dose Calculation or offsite surveys indicate site boundary exposure levels have been exceeded as indicated by either A, B, C, or D: A. ≥ 50 mrem/hr total dose rate for 1/2 hour --------------------------- B. ≥ 250 mrem/hr to the thyroid for 1/2 hour --------------------------- C. ≥ 500 mrem/hr total dose rate for 2 minutes --------------------------- D. ≥ 2500 mrem/hr to the thyroid for 2 minutes NOTE: Site boundary equals 1 mile radius from affected unit. CAUTION: Consult Figure 5.1 for possible Protective Action Recommendations.	Performance of EPIP-20126, Off-site Dose Calculation or offsite surveys indicate site boundary exposure levels have been exceeded as indicated by either A, B, C or D: A. ≥ 1000 mrem/hr total dose rate --------------------------- B. ≥ 1000 mrem total dose (TEDE) --------------------------- C. ≥ 5000 mrem/hr to the thyroid --------------------------- D. ≥ 5000 mrem thyroid dose (CDE) NOTE: Site boundary equals 1 mile radius from affected unit. CAUTION: Consult Figure 5.1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

8. High Radiation Levels In Plant			
UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	Severe loss of control of radioactive materials as indicated by either A, B or C: A. Unexpected valid area monitor alarm from an undeterminable source with meter greater than 10^3 mR/hr. ------------------------- B. Unexpected plant iodine or particulate airborne concentration > 1000 DAC as per 10 CFR 20 Appendix B, Table 1. ------------------------- C. Unexpected direct radiation dose rate reading or unexpected airborne radioactivity concentration from an undetermined source in excess of 1000 times normal levels.	Containment High Range Radiation Monitor reading >1.3 E4 Rem/hr. NOTE: Direct Chemistry to perform offsite dose estimates per EPIP- 20126, Off-Site Dose Calculations. (See Section 7, Uncontrolled Effluent Release) CAUTION: Consult Figure 5-1 for possible Protective Action Recommendations.	Containment High Range Radiation Monitor reading >1.3 E5 Rem/hr. NOTE: Direct Chemistry to perform offsite dose estimates per EPIP- 20126, Off-Site Dose Calculations. (See Section 7, Uncontrolled Effluent Release) CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			
	Area Radiation Monitors	RI-6311A RI-6311B	RI-6311A RI-6311B

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

9. Other Plant Conditions That Could Lead To Substantial Core Damage			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
			Either A or B: A. Potential core damage indicated by all of the following: 1) Known LOCA greater than available charging pump capacity AND 2) Failure of ECCS to deliver flow to the core AND 3) Containment High Range Radiation Monitor reading >1.3 E4 Rem/hr. - - - - - - - - - - - - - - - - B. Potential core damage indicated by all of the following: 1) Loss of secondary heat sink AND 2) RCS bleed and feed required AND 3) No high-head SI flow available AND 4) No RHR flow for greater than 30 minutes AND 5) No AFW flow for greater than 30 minutes CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

10. Loss Of Power Conditions			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Either A or B: A. Loss of offsite power to the: 1) A 4KV bus AND 2) B 4KV bus - - - - - - - - - - B. Loss of on-site power capability as indicated by: 1) Loss of capability to power at least one vital 4KV bus from any of the four available emergency diesel generator.	Either A or B: A. Loss of all vital on-site DC power. - - - - - - - - - - B. Loss of offsite power AND Both associated emergency diesel generators fail to energize their associated 4KV buses. NOTE: Refer to Section 5, Loss of Safe Shutdown Function	Either A, B or C with fuel in the Reactor Vessel A. Loss of all A/C power for > 15 minutes. - - - - - - - - - - B. Loss of all vital on-site DC power for >15 minutes. - - - - - - - - - - C. Emergency Coordinator leaves Control Room within the first 15 minutes of a loss of all A/C OR DC power.	The following situation exists for >1 hr with fuel in the Reactor Vessel. a) Loss of all A/C power AND b) Loss of all feedwater capability. CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			
4Kv Bus Voltage 4Kv Bus Amps			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

11. Loss Of Assessment Functions			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Either A, B, or C: A. Unplanned loss of most or all Safety System Annunciators for greater than 15 minutes - B. Loss of primary communications with offsite locations AND Loss of all backup communications with offsite locations - C. Loss of effluent or radiological monitoring capability requiring plant shutdown.	Unplanned loss of ALL Safety System Annunciators AND Plant Transient in progress	Inability to monitor a significant transient in progress	
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

12. Natural Phenomena

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Plant in Mode 1-2-3-4 **AND** either A, B, C or D: A. Confirmed hurricane warning **OR** B. Confirmed tornado in owner controlled area **OR** C. Any earthquake detected on-site **OR** D. Hurricane/flood surge that prevents land access to the site	Plant in any mode including defueled. **AND** either A, B, C or D: NOTE: If accurate projections of on-site wind speeds are not available within 12 hours of entering the hurricane warning, classify the event using current hurricane track and wind speeds to project on-site conditions. For example, projected on-site wind speed would be less than current hurricane wind speed if the track is away from PTN. A. Confirmed hurricane warning with maximum projected on-site wind speeds in excess of 200 mph **OR** B. Tornado striking any power block structure **OR** C. Earthquake that could cause or has caused trip of the turbine generator or reactor **OR** D. Hurricane/flood surge that raises water level > 18 feet above MLW	Plant in Mode 1-2-3-4 **AND** either A, B or C: NOTE: If accurate projections of on-site wind speeds are not available within 12 hours of entering the hurricane warning, classify the event using current hurricane track and wind speeds to project on-site conditions. For example, projected on-site wind speed would be less than current hurricane wind speed if the track is away from PTN. A. Confirmed hurricane warning with maximum projected on-site wind speeds in excess of 225 mph AND the unit not expected to be in cold shutdown prior to the projected onset of hurricane force winds **OR** B. Earthquake has caused loss of any safety system function **OR** C. Hurricane/flood surge that raises water level > 18 feet above MLW and results in shutdown of turbine generator	A major natural event (e.g., high winds, earthquake, flooding) has occurred, which has caused massive damage to plant systems resulting in any of the other General Emergency initiating conditions. **CAUTION:** Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

<table>
<tr><td colspan="4">13. Hazards To Station Personnel And Equipment</td></tr>
<tr><th>UNUSUAL EVENT</th><th>ALERT</th><th>SITE AREA EMERGENCY</th><th>GENERAL EMERGENCY</th></tr>
<tr><td>Safety of nuclear plant or personnel threatened by either A, B, C, D, or E:

A. Aircraft crash on-site

B. Unusual aircraft activity over facility

C. Toxic or flammable gas release

D. Turbine generator rotating component failure requiring rapid turbine shutdown
----
E. On-site Explosion

NOTE: Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas.</td><td>Either A, B, or C:

A. A reduction in the level of safety of plant structures or components within the protected area due to damage caused by either 1), 2), or 3):

1) Aircraft crash
OR
2) Missile impact
OR
3) Explosion

NOTE: Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas.

B. Toxic or flammable gas release which threatens plant operation.

C. Turbine generator failure resulting in casing penetration.</td><td>Either A or B:

A. Plant in Mode 1-2-3-4
AND
Safety systems have failed or damage to vital structure has been caused by either 1), 2), or 3):

1) Aircraft crash
OR
2) Missile impact
OR
3) Explosion

NOTE: Explosion is defined as a rapid chemical reaction resulting in noise, heat and the rapid expansion of gas.

B. Toxic or flammable gas release into control or vital areas which renders one train of safety related system inoperable.</td><td></td></tr>
<tr><td colspan="4">Possible Control Room Indicators</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

14. Security Threat			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Declaration of a "Security Alert" due to either A, B, C,D , E, F, G, H A. Bomb Threat --- B. Attack threat --- C. Civil disturbance --- D. Protected area intrusion --- E. Sabotage attempt --- F. Internal disturbance --- G. Vital area intrusion --- H. Security Force strike	Declaration of a "Security Emergency"	Declaration of a "Security Emergency" involving imminent occupancy of the Control Room or other vital areas by intruders.	Physical attack on the plant resulting in occupation of the Control Room or other vital areas by intruders. CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

15. Control Room Evacuation			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
	Control Room evacuation anticipated or required	Control Room has been evacuated AND Local control of shutdown systems has NOT been established from local stations within 15 minutes.	
Possible Control Room Indicators			

16. Fire			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Uncontrolled fire within the power block lasting longer than 10 minutes	Uncontrolled fire potentially affecting safety systems AND Offsite support required	Fire which prevents a safety system from performing its design function	A major fire has occurred which has caused massive damage to plant systems resulting in any of the other General Emergency initiating conditions. **CAUTION:** Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

17. Plant Shutdown			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Any plant shutdown required by Technical Specifications in which the required shutdown mode is not reached within the Action Statement time limits.			
Possible Control Room Indicators			

TABLE 3-1
EMERGENCY CLASSIFICATION TABLE

18. Other Plant Conditions Requiring Increased Awareness (Emergency Coordinator's Judgment)			
UNUSUAL EVENT	**ALERT**	**SITE AREA EMERGENCY**	**GENERAL EMERGENCY**
Emergency Coordinator's judgment that other plant conditions exist which warrant increased awareness on the part of the operating staff and/or local offsite authorities. NOTE: Activation of the Emergency Response Facilities does not require declaration of an emergency or entry into a specific emergency classification.	Emergency Coordinator's judgment that other plant conditions exist which warrant the increased awareness and activation of emergency response personnel.	Emergency Coordinator's judgment that other plant conditions exist which warrant the precautionary notification to the public near the site and the activation of FPL and offsite agency emergency response personnel. (Reflects conditions where some significant releases are likely or are occurring but where a core melt situation is not indicated based on current information)	Emergency Coordinator's judgment that other plant conditions exist which make release of large amounts of radioactivity, in a short period of time, possible (Loss of two fission product barriers with potential for loss of the third, such as, actual or imminent substantial core degradation or melting with the potential for loss of containment.) CAUTION: Consult Figure 5-1 for required Protective Action Recommendations.
Possible Control Room Indicators			

TABLE 3-2

PROCESS AND EFFLUENT RADIATION MONITORS USED FOR ACCIDENT ASSESSMENT

MONITOR SETTINGS	TYPE	MEASUREMENTS	TYPICAL SETPOINT*
Containment air particulate monitors (R3-11, R4-11)	Photomultiplier tube scintillation	$1x10^{-11}$ to $1x10^{-5}$ µCi/cc	$4.49x10^{-6}$ µCi/cc
Containment radioactive gas monitors (R3-12, R4-12)	Beta-gamma GM Tube Thin Wall	$1x10^{-7}$ to $1x10^{-1}$ uCi/cc	$5.57x10^{-3}$ uCI/cc
Plant Vent Gas Monitor (R-14)	Beta-gamma GM Tube Assembly (4 tubes in parallel)	10 to $3x10^{5}$ cpm	$3.6x10^{4}$ cpm
Condenser Air Ejector Monitors (R3-15, R4-15)	Beta-gamma GM Tube Thin Wall	10 to $1x10^{6}$ cpm	$3x10^{3}$ cpm
Component Cooling Liquid Monitors (R3-17A, R3-17B, R4-17A, R4-17B)	Scintillation counter (NaI)	10 to $2.5x10^{5}$ cpm	$2.5x10^{3}$ cpm
Waste Disposal System Liquid Effluent (R-18)	Photomultiplier tube scintillation crystal (NaI)	10 to $1x10^{6}$ cpm	$2.5x10^{4}$ cpm
Steam Generator Liquid Sample Monitors (R3-19, R4-19)	Photomultiplier tube scintillation crystal (NaI)	10 to $1x10^{6}$ cpm	$3x10^{3}$ cpm

*Actual Setpoints are determined as outlined in the Offsite Dose Calculation Manual (ODCM)

TABLE 3-2

PROCESS AND EFFLUENT RADIATION MONITORS USED FOR ACCIDENT ASSESSMENT

MONITOR SETTINGS	TYPE	MEASUREMENTS	TYPICAL SETPOINT*
Reactor Coolant Letdown Line Activity Monitors (R3-20 R4-20)	GM Tube Thin Wall	0.1 to $1x10^4$ mR/hr	$2x10^2$ mR/hr
Specific Particulate Iodine Noble Gas Monitors (SPING)	Alpha/Beta scintillation crystal, photomultiplier tube scintillation crystal (NaI) Beta-gamma GM Tube	10^{-7} to 10^5 μci/cc	Varies with detector and channel.

*Actual Setpoints are determined as outlined in the Offsite Dose Calculation Manual (ODCM)

TABLE 3-3

AREA RADIATION MONITORS

This system consists of channels which monitor radiation levels in various areas. These areas are as follows:

DETECTOR TAG. NO.	CHANNEL NUMBER	AREA MONITOR*	TYPICAL ALARM SETPOINT SETTINGS (mR/hr)
RD-1401	1	Personnel Air Lock-Unit 3	100
RD-1402	2	Fuel Manipulator Crane-Unit 3	150
RD-1403	3	Incore Detector Seal Table-Unit 3	150
RD-1404	4	Personnel Air Lock-Unit 4	100
RD-1405	5	Fuel Manipulator Crane-Unit 4	150
RD-1406	6	Incore Instrumentation-Unit 4	100
RD-1407	7	Spent Fuel Pit Transfer Canal-Unit 3	40
RD-1408	8	Spent Fuel Pit Transfer Canal-Unit 4	50
RD-1409	9	Tank & Pump Room	10
RD-1410	10	Chemical Storage Area	40
RD-1411	11	Cask Wash Area-Unit 4	10
RD-1412	12	Cask Wash Area-Unit 3	10
RD-1413	13	Sample Room-Unit 3	10
RD-1414	14	Sample Room-Unit 4	10
RD-1415	15	North End of North/South Corridor	5
RD-1416	16	South End of North/South Corridor	5
RD-1417	17	East End of East/West Corridor	5
RD-1418	18	West End of East/West Corridor	5
RD-1419	19	Spent Fuel Pit Exhaust-Unit 3	15
RD-1420	20	Control Room	2
RD-1421	21	Spent Fuel Pit North wall-Unit 3	20
RD-1422	22	Spent Fuel Pit South wall-Unit 4	20
RD-1423	23	New Fuel Room-Unit 3	20
RD-1424	24	New Fuel Room-Unit 4	10

* The monitors all have a range of 10^{-1} to 10^{7} mr/hr, (10^{-4} to 10^{4} R/hr).

CONTAINMENT HIGH RANGE RADIATION MONITORS (CHRRM)

	RANGE	ALARM SETPOINTS
RI-6311A GM Tube	1 to 1 x 10^{8} R/hr	High 1.3 x 10^{4} R/hr, High High 1.3 x 10^{5} R/hr
RI-6311B GM Tube	1 to 1 x 10^{8} R/hr	High 1.3 x 10^{4} R/hr, High High 1.3 x 10^{5} R/hr

Typical Alarm Setpoint: Actual Alarms based on plant conditions and may vary from those indicated.

TABLE 3-4

NON-RADIOLOGICAL INSTRUMENTATION USED FOR ACCIDENT ASSESSMENT

INSTRUMENTATION	RANGE	NORMAL RANGE
Charging Flow (FI-*-122)	0-150 GPM	35 - 95 GPM
Letdown Flow (FI-*-150)	0-150 GPM	45 - 120 GPM
V.C.T. Level (LI-*-115)	0-100%	16 - 50%
R.C.S. Flow (FI-*-414, 415, 416, 424, 425, 426, 434, 435, 436)	0-120%	95 - 104% (Hot S/D to Full Power)
R.C.S. T-hot (TR-*-413)	0-750oF	545 - 605oF
R.C.S. T-cold (TR-*-410)	0 - 750oF	545 - 550oF
Safety Tailpipe Temperature (TI-*-465, 467, 469)	50 - 400oF	70 - 170oF
Power Operated Relief Tailpipe Temperature (TI-*-463)	50 - 400oF	70 - 230oF
R.C.S. T-avg (TI-*-412, 422, 432 for protection and TI-*-411, 421, 431 for control)	540 - 610oF	547 - 574.2oF
Pressurizer Temperature, both vapor and liquid. (TI-*-454, 453)	0 - 700oF	650 - 654oF

TABLE 3-4

NON-RADIOLOGICAL INSTRUMENTATION USED FOR ACCIDENT ASSESSMENT (cont.)

INSTRUMENTATION	RANGE	NORMAL RANGE
Pressurizer Pressure narrow Protection: PT-455, 456, 457 Control: PT-444, PT 445	1500 - 2500 psig	2205-2254 psig (control at 2235 psig)
Range (PT-*-455, 456, 457 for protection and PT-*-444, 445 for control)		
Pressurizer Pressure Wide Range (PT-*-403, 404, 405, 406)	0 - 3000 psig	2205 - 2265 psig
Pressurizer Level (LT-*-459, 460, 461)	0 - 100%	22.2 - 53.3%
Steam Generator Level Narrow Range 474, 475 (LT-*-476, 478, 484, 485, 486, 488, 494, 495, 496, 498)	0 - 100%	40 - 60%
Steam Generator Level Wide Range (LR-*-477)	0 - 100%	62 - 68%
Steam Generator Steam Flow (FT-*-474, 475, 484, 485, 494, 495)	$0 - 4 \times 10^6$ lbs/hr	$0.5 - 3.3 \times 10^6$ lbs/hr
Steam Generator Feed Flow (FT-*-476 477, 486, 487, 496, 497)	$0 - 4 \times 10^6$ lbs/hr	$0.5 - 3.3 \times 10^6$ lbs/hr

TABLE 3-4

NON-RADIOLOGICAL INSTRUMENTATION USED FOR ACCIDENT ASSESSMENT (cont.)

INSTRUMENTATION	RANGE	NORMAL RANGE
Steam Generator Pressure (PT-*-474, 475, 476, 484, 485, 486, 494, 495, 496) and Steam Header Pressure (PT-*-464, 466, 468)	0 - 1400 psig	770 - 1085 psig
R.H.R. Flow (when in use) (FT-*-605)	0 - 8500 GPM	3500 - 5000 psig
H.H. Safety Injection Flow (FI-*-943)	0 - 1000 GPM	Not Applicable
H.H. Safety Injection Pressure (Pi-*-943)	0 - 2000 psig	1200 - 1400 psig
QSPDS (located at RCO desk and on VPB)	Inputs allow measurement of subcooling margin, Rx core temperatures and Rx vessel water levels.	
Containment Pressure Narrow Range (PT-*-6425 A, B)	-6 psig to +18 psig	0 - 2 psig
Containment Pressure Wide Range (PT-*-6306 A, B)	0 - 180 psig	0 - 2 psig
Containment Temperature (TE-6700/1/2-*)	0 - 300°F	70 - 130°F
Containment Sump Level Range (R-*-1418)	0 - 300 gal.	57 - 266 gal.
Containment Sump Level Wide Range Tag # (LT-6308 A, B)	0 - 400"	6 - 28"

TABLE 3-4

NON-RADIOLOGICAL INSTRUMENTATION USED FOR ACCIDENT ASSESSMENT (cont.)

INSTRUMENTATION	RANGE	NORMAL RANGE
Containment Level Wide Range Tag# (LT-6309 A, B)	0 - 100"	0
Auxiliary Feed Water Flow (FI-*-1401A, 1401B, 1457A, 1457B, 1458A, 1458B)	0 - 300 GPM	Not Applicable
R.W.S.T. Level (LT-*-6583 A, B)	0 - 330,000 gal.	320,000 - 330,000 gal.
4kV Bus Volt Meters	0 - 5250 volts	3950 - 4350 volts
4kV Bus Current Meters	0 - 4000 amps	0 - 3500 amps
DC Bus Volt Meters	0 - 200 volts	128 - 132 volts
T.E.C. Safety Acoustic Monitor Tag # ZT-6303 A, B, C	(Alarms when indication of Safety lifting is required)	

4. NOTIFICATION AND COMMUNICATION

This section describes the procedures and methods established for notification and follow-up communications within Florida Power & Light Company, and from Florida Power & Light Company to the appropriate State, County, and Federal response organizations. Section 4.6, Communications Equipment, describes the referenced systems in more detail. Figure 1-2 shows the initial notification flow. Figure 4-1 presents the organizational titles and alternates for the primary response organizations communications links.

4.1 FPL Emergency Response Organization

The FPL Emergency Coordinator or Recovery Manager acting in accordance with Emergency Plan Implementing Procedures has the responsibility for making the necessary notifications and communications, and for determining the content of the notification. However, actual contacts may be made by designated communications assistants. The use of the phrase "Emergency Coordinator" below is also defined as "Emergency Coordinator or his designee", except for those items described in Section 2.2.2.1 which cannot be delegated.

Once the EOF is declared operational, the Recovery Manager assumes the responsibility for notification to off-site governmental agencies.

4.1.1 Initial Notification

Florida Power & Light Company emergency procedures call for the following actions for initial notification within the FPL organization.

Personnel detecting a potentially significant off-normal event or condition should report it to the Nuclear Plant Supervisor by the fastest means available. This may mean face-to-face communication, the Plant Public Address System, or the commercial (Bell) telephone system. These systems provide adequate means of redundancy for this initial notification.

1) Nature of off-normal event.
2) Extent of damage to equipment.
3) Location of event.
4) Personnel injuries.
5) Name of individual reporting the event.

The Nuclear Plant Supervisor directs the investigative actions to address the off-normal event. After investigation, the Nuclear Plant Supervisor classifies the event and, if it is determined to be an Unusual Event, Alert, a Site Area Emergency, or a General Emergency, implements this Emergency Plan and becomes the Emergency Coordinator.

If necessary, the Emergency Coordinator notifies plant personnel of the emergency situation and any required protective actions by the Plant Public Address System. Activation of FPL Personnel proceeds to the degree necessary, as determined by the Emergency Coordinator (EC) and Recovery Manager (RM) in response to the severity of the emergency.

The Emergency Coordinator will relay information to the Recovery Manager (RM), via the Duty Call Supervisor. The DCS notifies the RM and appropriate emergency response personnel by commercial telephone.

The Emergency Coordinator provides the following information to the DCS to the extent possible:

- o Type of accident or incident.
- o Affected unit.
- o Assessment of the emergency condition (including the class of emergency).
- o Information on personnel injuries, and an estimate of personnel radiation exposures.
- o Offsite support already called in and/or required.
- o An estimate of the magnitude of a radioactive material release and the area possibly affected.
- o Actions already taken or recommended with respect to the evacuation of various on-site areas.
- o Wind speed and direction.
- o Assessment of potential radiation exposure to persons offsite and any protective actions for offsite areas recommended.

4.1.2 Communications

Initially, communications between the Emergency Coordinator (in the Control Room) and the FPL Expanded Emergency Response Organization are by telephone, with radio as the backup.

Follow-up messages regarding the plant status and requests for off-site support by the plant organizations will be made periodically and as needed by the EC to the RM. Recommendations for off-site protective measures to DEM may be included as part of follow-up messages. These measures are referenced in Figure 5-1.

4.2 State Agencies

State of Florida notification and communications procedures are presented in Annex F of the Florida Radiological Emergency Management Plant for Nuclear Power Plants. File locations are listed in Appendix A.

4.2.1 Division of Emergency Management

Initial Notification

FPL's Emergency Coordinator will make initial notification within approximately 15 minutes of declaring any emergency to the Division of Emergency Management via the Hot Ring Down Telephone System to the State Warning Point Duty Officer at the State Warning Point in Tallahassee. Commercial telephone and ESATCOM (Satellite Communications System) serve as the backup systems for initial notification. Backup phone numbers for 24-hour per day notification are provided by procedure.

Information to be communicated to DEM during the initial notification is shown in the State of Florida Notification Message Form, Table 4-2. The listed information will be provided to the extent possible at the time of notification. Information that should be included in follow-up messages is also shown in Table 4-2. The follow-up message may come from the TSC staff, if it is operational, or the EOF, if it is operational.

The initial notification may be brief with certain information not available. Follow-up messages from the Emergency Coordinator/RM to the Division of Emergency Management (DEM) will include the required information as it becomes available.

The Division of Emergency Management (DEM) has established a procedure to authenticate emergency notification from the Turkey Point Plant. The Hot Ring Down and ESATCOM Systems are restricted circuits under control of DEM and local government. Their use is self-authenticating.

Communications

The Emergency Coordinator/RM will maintain periodic contact with the State Warning Point, located at the State EOC in Tallahassee, via the Hot Ring Down network.

FPL responsibility for communication with off-site State and Local government agencies is transferred from the Emergency Coordinator to the Recovery Manager when the Recovery Manager declares the EOF operational.

TABLE 4-1
COMMUNICATIONS RESPONSIBILITIES

The following positions are responsible for manning communication links among the listed organizations/facilities:

1) **FPL On-shift Emergency Response Organization/Control Room**

Primary: Emergency Coordinator

1. NPS
2. Alternate as defined by plan and procedure.

Alternate: Designated Communicator (from available plant operating and technical staff).

2) **FPL Expanded Emergency Response Organization/Technical Support Center/OSC and Emergency Operations Facility**

Primary: Emergency Coordinator/Recovery Manager

1. Plant General Manager (TSC) and Vice President Turkey Point Plant (EOF)
2. Alternate as defined by plan and procedure.

Alternate: Designated Communicator (from available management or technical staff).

3) **Florida Division of Emergency Management/State Emergency Operations Center, Tallahassee**

Primary: Chief of Operations, DEM

Alternate: As described in Annex E of the State Plan

4) **Metropolitan Dade County/Emergency Operations Center, Miami**

Primary: Dade County Office of Emergency Management Director

Alternate: As described in Section V, Annex Q of the State Plan

5) **Monroe County/Emergency Operations Center, Key Largo**

Primary: Monroe County Office of Emergency Management Director

Alternate: As described in Section V, Annex Q of the State Plan

TABLE 4-2

STATE OF FLORIDA NOTIFICATION MESSAGE FORM FOR NUCLEAR POWER PLANTS

☐ THIS IS A DRILL ☐ THIS IS AN ACTUAL EMERGENCY

1. A. Time/Date______________ B. Reported by (Name/Title)______________
   C. Message Number__________ D. From: ☐ Control Room ☐ TSC ☐ EOF

2. SITE ☐ CRYSTAL RIVER UNIT 3 ☐ ST LUCIE UNIT 1 ☐ ST LUCIE UNIT 2 ☐ TURKEY POINT UNIT 3 ☐ TURKEY POINT UNIT 4

3. ACCIDENT CLASSIFICATION
   ☐ NOTIFICATION OF UNUSUAL EVENT
   ☐ ALERT
   ☐ SITE AREA EMERGENCY
   ☐ GENERAL EMERGENCY

4. CURRENT EMERGENCY DECLARATION: TIME:_____DATE:_____

5. INCIDENT DESCRIPTION OR UPDATE ________________________________

6. INJURIES A. ☐ CONTAMINATED__________. B. ☐ NON-CONTAMINATED__________

7. RELEASE STATUS:
   A. ☐ No Release (Go to Item 11)
   B. ☐ Potential (Possible) release
   C. ☐ A Release is occurring--expected duration ________
   D. ☐ A. Release occurred, but stopped--duration ________

8. *RELEASE RATE
   A. ☐ NOBLE GASES: ______Curies per second ☐ Measured ☐ Default
   B. ☐ IODINES:________Curies per second ☐ Measured ☐ Default
   C. ☐ Release within normal operating limits.

9. * TYPE OF RELEASE IS (Blanks are for specific nuclides if available, i.e., I-131, Cs-137, etc.)
   A. ☐ Radioactive gases ________________
   B. ☐ Radioactive airborne particulates __________
   C. ☐ Radioactive liquids ____________
   D. ☐ Other ________________

10. * PROJECTED OFFSITE DOSE RATE

DISTANCE	THYROID DOSE RATE (CDE)	TOTAL DOSE RATE (TEDE)
1 MILE (Site Boundary)	__________mrem/hr	__________mrem/hr
2 MILES	__________mrem/hr	__________mrem/hr
5 MILES	__________mrem/hr	__________mrem/hr
10 MILES	__________mrem/hr	__________mrem/hr

11. METEOROLOGICAL DATA
   A. Wind direction (from) ________degrees.
   B. Sectors affected_____________
   C. Wind speed _________MPH
   D. Stability class ________

12. UTILITY RECOMMENDED PROTECTIVE ACTIONS:
   A. ☐ No recommendations at this time.
   B. ☐ Notify the public to take the following protective actions:
   (Note: If message refers to 360° radius, use the word "ALL" under sectors.)

MILES	NO ACTION	SHELTER/SECTORS	EVACUATE/SECTORS
0--2	______	_________	___________
2--5	______	_________	___________
5--10	______	_________	___________

13. HAS EVENT BEEN TERMINATED?: A. ☐ NO B. ☐ YES: TIME______DATE_________

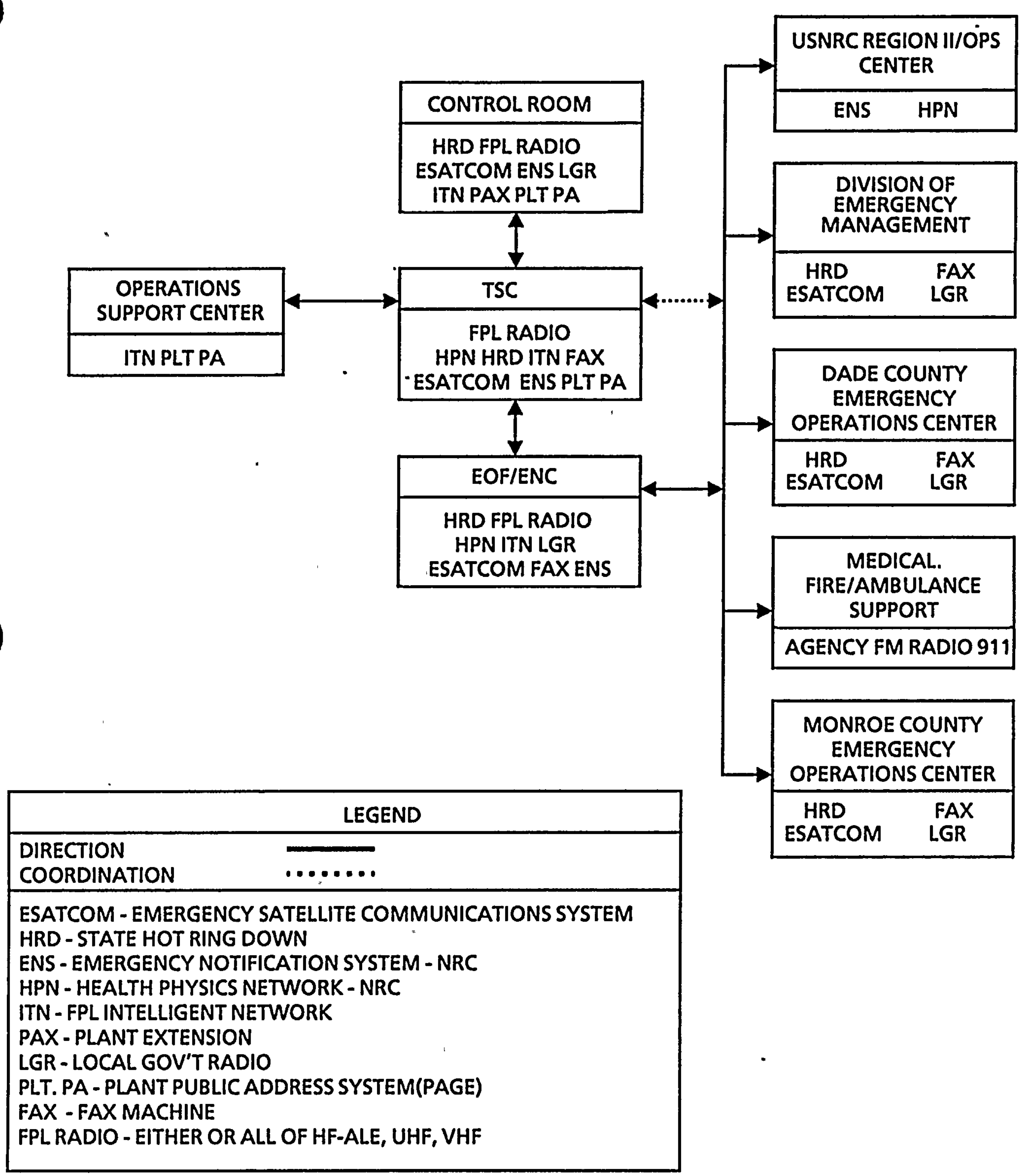
RM/EC Approval:________________________________ Time:____________ Date:____________

14. MESSAGE RECEIVED BY: Name _______________ Time: _______ Date:_______

* This information may not be available on initial notifications.

*F-439

FIGURE 4-1
COMMUNICATIONS INTERFACES



4.2.2 Department of Health - Bureau of Radiation Control

Initial Notification

The Division of Emergency Management (DEM) State Warning Point Duty Officer is responsible for notifying the Department of Health - Bureau of Radiation Control (DOH - BRC). A Health Physicist contacts the Dade County EOC to ascertain what, if any, protective actions have been initiated. If required, the Bureau of Radiation Control activates the DOH - BRC's Mobile Emergency Radiological Laboratory (MERL) and/or the Radiological Monitoring Teams.

Communications

The Public Health Physicist maintains contact with the Division of Emergency Management (DEM) via vehicle radio as he/she travels to the FPL Emergency Operations Facility. Contact is maintained with the Mobile Emergency Radiological Laboratory (MERL) by the Division of Emergency Management (DEM) via Local Government Radio while the MERL is in transit. On arrival, commercial phones are available also.

The State Plan describes provisions for communications between the EOC and State off-site radiological monitoring teams. Annexes F and Q describe communications for field assessment teams.

4.3 Metropolitan Dade County Office of Emergency Management Director and Monroe County Office of Emergency Management

Initial Notification

The County Emergency Response Directors are initially notified (within 15 minutes) simultaneously via the same Hot Ring Down communication used to notify the Division of Emergency Management for all four emergency classes. The Hot Ring Down System is manned on a 24-hour basis by the Dade County Department of Public Safety (911 Center) and Monroe County Sheriff's Office (at Plantation Key). The Emergency Management Directors can then be reached by telephone or by dispatching a patrol car. Also, the State Warning Point Duty Officer at the Division of Emergency Management is responsible for confirming the receipt of emergency notice by the County Office of Emergency Management Directors. When the emergency notification is by commercial telephone, he/she is responsible for verifying the message from the Plant by a call back procedure and informing the County Directors that the message has been verified. Backup phone numbers for 24 hour per day notification are provided by procedure. Follow-up messages concerning the emergency may come from the TSC staff or the EOF. Information that should be contained in these messages is shown in Table 4-2.

Communications

The Dade County Emergency Management Director proceeds to the Dade County Emergency Operations Center and uses the communication channels available there. These include Hot Ring Down, ESATCOM (Satellite Communications System), RACES, Local Government Radio, teletype, police and fire networks, and telephone.

The Monroe County Office of Emergency Management Director proceeds to the Emergency Operations Center and uses the communications channels available there. These include HRD, ESATCOM (Satellite Communications System), RACES, Local Government Radio, teletype, police, and fire networks, facsimile, and commercial telephone.

4.4 Federal Agencies

4.4.1 U. S. Nuclear Regulatory Commission

Initial Notification

The NRC Operations Center in Maryland is notified of all radiological emergencies via the Emergency Notification System from the Control Room. The notifications are made in accordance with Federal Regulations and plant procedures. The Emergency Coordinator or his designee notifies them within one hour of the declaration of an emergency. Alternate commercial phone numbers are provided by procedure.

Communications

Communications with the NRC may be handled as necessary by telephone from the Control Room, the TSC (if operational), or the EOF (if operational).

4.4.2 U. S. Coast Guard

Assistance from the Coast Guard for on-site rescue activities can be requested by telephone call from the Emergency Coordinator or his designee or the Recovery Manager or his designee to the Coast Guard Duty Officer.

4.5 Notification of the Public by the State/County

The Florida Radiological Emergency Management Plan for Nuclear Power Plants defines the State and County procedures for notifying the public in the event of an emergency. Section 5 describes further provisions.

4.6 Communications Equipment

The various communications systems previously discussed are described in more detail below.

This communications network incorporates all telephones, the Plant Public Address System, fixed and mobile radio systems, and radio "beepers" employed for routine plant operation and other normal Company business. In addition, the communication systems of State and County agencies and other organizations with which the Company has emergency assistance agreements will be used to implement emergency activities.

Plant Page System

The Plant Page System, with speakers strategically located throughout the Plant site, provides for the transmission of warning and instructions in event of an emergency.

A solid state Plant Page System is powered from a preferred 120V AC circuit. An alternate power supply is provided.

The Plant Page System uses noise cancelling dynamic microphone type handsets located throughout the plant. The system includes one paging channel and one party line channel.

The Plant Page System at Units 3 and 4 is completely independent of the system at Units 1 and 2. Notification by phone to the Unit 1 and 2 Control Room (by the Unit 3 and 4 Control Room) enables fossil plant employees to be advised of actions to take as a result of events occurring at the nuclear site.

Motor Maintenance Circuit

This is a communications circuit, separate from the Plant Page System, but using 120V AC power from the Plant Page System power supply source. The circuit consists of various outlets throughout the plant, near major equipment both inside and outside the containment and at the fuel handling areas, into which a headset with a microphone can be plugged, to enable communication to be carried on while leaving the operator's hands free. Outlets for this circuit are also provided in the Control Room of Units 3 and 4 so that communications between the Control Room and outlying stations can be established.

FPL Intelligent Tandem Network (ITN) System

Telephones in most FPL locations may access the Intelligent Tandem Network (ITN) Telephone System. Through the ITN and its associated "Uniform Dialing Plan," other company office locations may be directly dialed, WATS line may be accessed, and local telephone calls may be placed. This system uses a combination of Bell telephones and FPL telephones, depending upon office location.

Portable Radio Transceiver Sets

Various portable radio receivers (walkie-talkies) are available to supplement the fixed communications equipment in the plant. These radios are lightweight battery operated units which may be easily carried by personnel to any location on the plant site. Some of these portable radios are capable of communicating with the FM radio transceiver over a range of several miles.

FPL Radio Paging System

Telephones in the FPL ITN System are interconnected to the FPL Radio Paging System. This system is capable of reaching beepers in Dade, Broward, Palm Beach, St. Lucie, and Martin Counties. Beepers are regularly assigned to key personnel in the Emergency Response Organizations as shown in the Emergency Response Directories, and additional beepers can be quickly assigned if required in an emergency. A beeper is also assigned to the Duty Call Supervisor.

Company Radio System

The Company radio system consists of a variety of fixed base radio equipment. The System Operations Power Coordinator's office, trouble dispatcher offices, service centers, power plants and mobile service vehicles are equipped with one or more of these radio systems.

In the event of interruption of the on-site electric service to the base radio stations, back up power is available to the equipment.

Transceivers are located in the Control Building Elevator vestibule. The operating set and battery back up units for these radios are located in the Unit 3 and 4 Control Room, TSC, and other on-site locations. These radios will provide backup communications between the Turkey Point Plant, Systems Operations Office, EOF, and Juno Beach Office.

State Hot Ring Down Telephone

The State Hot Ring Down telephone is installed in the Control Room TSC, and EOF. This system uses dedicated commercial telephone lines and is activated through predesignated three-digit access "telephone numbers". The initial notification of an emergency is made via this system to the State Division of Emergency Management (State Warning Point-Tallahassee) and the County Emergency Response Directors. Commercial telephone and ESATCOM (Satellite Communications System) serve as backups.

Emergency Satellite Communication System (ESATCOM)

ESATCOM is an Emergency Satellite Communication System which is available in the Control Room, the Technical Support Center and the Emergency Operations Facility. The initial notification of all emergencies to the State Division of Emergency Management (DEM) and the County's Department of Public Safety will be made via the Hot Ring Down telephone with ESATCOM as the second alternate communications pathway.

Local Government Radio (LGR) System

The LGR System is installed in the Control Room, TSC, and EOF. This system, which operates on frequencies allocated in the State Division of Emergency Management (DEM), should be used to maintain communications with the DEM, the State Department of Health - Bureau of Radiation Control, Mobile Emergency Radiological Laboratory (MERL), and the County Emergency Response Directors.

Emergency Notification System (ENS)

The ENS is installed in the NRC Resident Inspector's office, the Control Room, the TSC, and the EOF. The ENS utilizes the FTS-2000 network that is designed to facilitate notifications to the NRC.

4.7 Testing

As discussed in Section 7.1, Exercises and Drills, communications equipment and procedures will be tested periodically as part of the FPL program of exercises and drills for maintaining emergency preparedness.

5. RESPONSE TO ACCIDENT CONDITIONS

Table 3-1 identifies a spectrum of off-normal events and classifies those events into four categories. The classification is based on Emergency Action Levels which are related to the instrument readings, and/or observations, of plant conditions as shown in the tables. This section discusses the assessment of and response to these events.

5.1 Accident Assessment

Once an off-normal event has been detected and classified in accordance with the Emergency Action Levels, a process of continuing assessment will be initiated. System instruments and procedures which would be used, as appropriate, in the assessment process are described below. Specifications of instrumentation utilized for accident assessment are contained in procedures. Post accident sampling capabilities are also described in procedures.

5.1.1 Plant Release Pathways

The Turkey Point Plant is provided with systems for measuring radioactivity at potential effluent release points and within the primary containment buildings (See Table 3-2). The principal release point is the plant vent. The following systems may be sources of radiological effluent through the plant vent:

- Containment Purge System (both containments).
- Gas decay tanks.
- Auxiliary Building Ventilation System.
- Unit 4 Spent Fuel Pit Ventilation.
- Radwaste Building Ventilation System.
- Laundry Facility Ventilation System.

The plant vent monitor readings are available in the Control Room. In addition to the noble gas monitor(s), cartridges for analysis of particulates and iodine are included in the Plant Vent Radiation Monitoring System. These cartridges would be removed and analyzed using a multichannel analyzer.

The Unit 3 spent fuel pit area is separately vented. The exhaust flow is monitored for noble gases, particulates, and iodine. Noble gas monitors provide continuous indication of concentration. Special cartridges provided as part of the system are removed for multichannel analyses to determine particulate and iodine emissions.

The Steam Jet Air Ejector Exhaust Systems are provided with gross radioactivity monitors. These monitors would provide early indication of primary to secondary leakage.

The steam dump/safety exhausts are monitored for gross radioactivity. Particulate and iodine concentrations will be determined by analysis of grab samples from the main steam sample lines.

Steam generator blowdowns are monitored for gross activity. Continuous readout is provided in the Control Room.

In addition to these effluent monitors, the plant is provided with an Area Radiation Monitoring System (See Table 3-3). This monitoring system employs detectors distributed throughout the plant and detector indicators are provided locally and in the Control Room. The Area Radiation Monitoring System provides early indication of a release of radioactivity within the plant.

Also, the plant has a system of fire detectors with appropriate alarms in the Control Room to provide warning of a fire emergency.

5.1.2 On-site Sampling Resources

Both containment atmosphere and reactor coolant can be analyzed "on line" during an accident by utilizing the post accident sampling system.

The capability is available at the Turkey Point Plant to obtain grab samples of the reactor containment atmosphere and the reactor coolant.

To obtain grab samples of the containment atmosphere following an accident, a special removable gas sampling vessel is used in the existing containment sampling system. The removable vessel would be transported in a shielded container to a laboratory off site with specialized material handling capabilities. At the laboratory, a portion of the gas would be drawn from the vessel, and the radioisotopic content determined by appropriate analytical techniques. Plant procedures provide instructions for sample acquisition and on-line analysis. Off-site analysis capability exists by prearranged letter of agreement between FPL and one of its vendors.

Reactor coolant grab samples can be taken within a shielded container and transported to a laboratory offsite with specialized material handling capabilities following an accident. Dedicated sample lines are installed which route a reactor coolant sample to an accessible, low background area. The sample lines are shielded to reduce the radiation exposure. Mechanical manipulators and a cart mounted shield are used to collect the sample and transport it to the laboratory. The coolant sample is analyzed for pH, boron, and radioactivity. Instructions on sample acquisition and on-line analysis are included in plant procedures.

Air samples will be collected using portable air samplers in accordance with a plant procedure. Portable air samplers are located such that time required to obtain results is minimized for critically manned areas (e.g., Control Room, Technical Support Center). Silver zeolite sample cartridges are stored on-site. To preclude interferences by noble gas adsorption, only silver zeolite cartridges will initially be used to sample critically manned areas (e.g., Control Room, Technical Support Center, other areas which require personnel to be present). Collected samples will be transported promptly to the lab. If necessary, an alternate location will be established using portable equipment in a low background area outside the Radiation Controlled Area.

Samples are to be analyzed in accordance with approved procedures.

5.1.3 Meteorological Systems

Meteorological data is required to make estimates of off-site radiation exposure in the event of a release of gaseous radioactivity. Measurement of three meteorological parameters are required to make estimates of atmospheric dispersion, an essential part of a radiation exposure calculation. The parameters are wind speed, wind direction, and a measure of atmospheric stability.

Meteorological data is collected at the Turkey Point Land Management Site 10 meter tower (2 miles southwest), the South Dade Site 60 meter tower (7 miles southwest) or obtained directly from the National Weather Service in Miami. Table 5-1 summarizes the available data. Data which represents primary and backup sources are summarized on Table 5-2.

As indicated in Table 5-1, values of the key meteorological parameters are provided for the Turkey Point Plant and South Dade Site meteorological installations. These readouts are provided continuously and the data is directly available at the Control Room, Technical Support Center (TSC) and the Emergency Operations Facility (EOF) via Emergency Response Data Acquisition and Display System (ERDADS).

Meteorological data is provided to the State via initial and follow-up communications utilizing Table 4-2 as well as response to direct inquiries from DEM and Department of Health - Bureau of Radiation Control (DOH - BRC). The EOF and NRC can receive timely meteorological information through the TSC, upon request or through ERDADS.

5.1.4 Source Term and Release Determination

As discussed in Section 5.1.3 certain meteorological parameters are required for the calculation of off-site radiation exposure from airborne releases. Additional essential pieces of information are the rate of release and isotopic composition of the released radioactivity. If radioactivity were released from a monitored vent, then a direct measure of the release rate would be available. Monitored release points are discussed in Section 5.1.1. Based upon certain assumptions, release rate can be determined using EPIP-20126, "OFFSITE DOSE CALCULATIONS", for all monitored release points and grab samples.

In event of a loss of coolant accident, the containment radiation monitors would provide the first indication of the magnitude or existence of radioactivity in the containment. These monitors can be used to determine the concentration of radionuclides based upon the isotopic mixes assumed for the accident described in the Updated Final Safety Analysis Report (UFSAR). Additional information about the isotopic composition of the airborne radioactivity would be derived from isotopic analysis of a containment atmosphere sample.

Procedures have been developed to assist the plant staff in estimating release rates and isotopic content for releases from the plant vent.

5.1.5 Exposure and Dose Rate Determination

One of the uses of radiation monitors and meteorological instrumentation is the estimation of off-site radiation exposures. An estimate of doses is needed so that responsible governmental agencies can use this information to plan protective action.

EPIP-20126, "Offsite Dose Calculations" provides the details of how initial dose estimates are determined. In particular, current meteorological data, process monitor data, and containment high range radiation monitor readings are used in conjunction with tables for estimating doses under actual conditions. Dose calculations will be updated periodically during the course of the accident and the result will be provided to State and County authorities for their use in evaluating the need for protective action. Figure 5-1 presents the protective action guides to be used for making recommendations. These are consistent with NUREG-0654 and Environmental Protection Agency (EPA) PAGs. Initial dose calculations are performed by the chemistry representative who is dispatched to the Control Room at the onset of the accident. Refined dose estimates would be prepared by the Chemistry Department personnel reporting to the TSC or by personnel in the Emergency Operations Facility (if operational) using available tables and/or an interactive computer program which presents results and pre-determined, recommendations in a tabular format. Default values based on the FSAR have been established and can be utilized if assessment instrumentation is not available (offscale or inoperable) and field sample analysis has not yet been completed.

5.1.6 Off-site Monitoring

Dosimetry

The Florida Department of Health - Bureau of Radiation Control (DOH - BRC) maintains a system of approximately 35 TLD stations in the vicinity of Turkey Point Plant. Stations are provided in each 22.5° land sector at the 1-mile (approximate), 5-mile (approximate), and 10-mile (approximate) radii. At the 10-mile radius, stations are located with special emphasis on the more densely populated area.

Laboratories and Sampling

Laboratory facilities are provided as discussed in Section 2.3.2. The plant's on-site radiological laboratory serves as the primary facility with backup provided by: 1) the Health Physics counting room facilities; 2) St. Lucie Plant Radiological facilities; 3) the State of Florida's Mobile Emergency Radiological Laboratory. Analysis of off-site environmental samples will be performed at the State's Mobile Emergency Radiological Laboratory. This mobile lab can be in position near the site within six to eight hours of notification. A DOH - BRC representative dispatched to the EOF will coordinate all State off-site field monitoring data and sample media.

TABLE 5-1

SUMMARY OF AVAILABLE METEOROLOGICAL DATA

SOURCE	DATA	DISPLAY
Turkey Point Land Management 10-meter tower	Wind Speed Wind Direction Sigma-Theta	ERDADS Strip chart record
South Dade Site 60-meter tower	Delta T (60-10m) Wind Speed Wind Direction	ERDADS Strip chart record
NOAA/NWS Forecast Center in Miami for Turkey Point Nuclear Plant Lat. 25° 26' 04" N Long. 80° 19' 52" W	Wind Speed Wind Direction Cloud Cover Ceiling Height Air Temperature	None; via telephone

TABLE 5-2

SOURCES OF METEOROLOGICAL DATA

METEOROLOGICAL PARAMETER	PRIMARY SOURCE	FIRST BACKUP	SECOND BACKUP
Atmospheric Stability	Delta T (South Dade Site Tower)	Sigma-Theta (Turkey Point Land Management Tower)	Surface Observations NOAA
Wind Speed	Turkey Point Land Management Tower	South Dade SiteTower	NOAA
Wind Direction	Turkey Point Land Management Tower	South Dade SiteTower	NOAA

FIGURE 5-1

PROTECTIVE ACTION RECOMMENDATIONS BASED ON PLANT CONDITIONS AND OFFSITE DOSE ESTIMATES

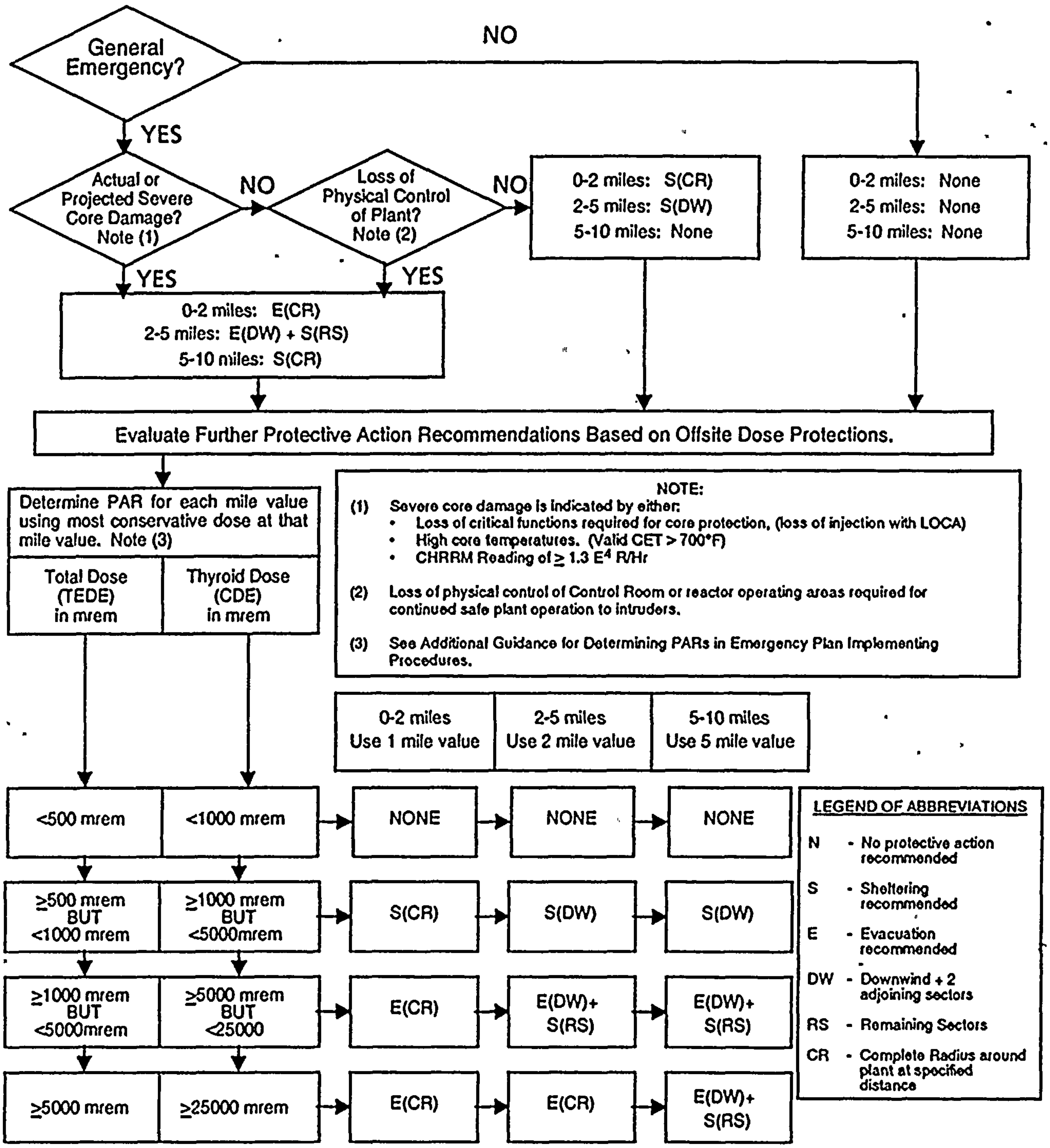


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FIGURE 5-1 (Cont'd)
PROTECTIVE ACTION RECOMMENDATIONS BASED ON PLANT CONDITIONS AND OFFSITE DOSE ESTIMATES

WIND FROM		WIND TOWARD		
SECTOR	DIRECTION	DEGREES	DIRECTION	SECTORS
A	N	348-11	S	H J K
B	NNE	11-33	SSW	J K L
C	NE	33-56	SW	K L M
D	ENE	56-78	WSW	L M N
E	E	78-101	W	M N P
F	ESE	101-123	WNW	N P Q
G	SE	123-146	NW	P Q R
H	SSE	146-168	NNW	Q R A
J	S	168-191	N	R A B
K	SSW	191-213	NNE	A B C
L	SW	213-236	NE	B C D
M	WSW	236-258	ENE	C D E
N	W	258-281	E	D E F
P	WNW	281-303	ESE	E F G
Q	NW	303-326	SE	F G H
R	NNW	326-348	SSE	G H J

Field Monitoring - State

Annex I of the State Plan discusses the State role in accident assessment. It describes agencies and their missions, specialized personnel, special equipment, and other matters related to field monitoring within the Plume Exposure Pathway Emergency Planning Zone (EPZ). Section III to Annex I discusses in further detail, the capability and resources for field monitoring.

Field team compositions, transportation, communications, equipment and estimated deployment times are included in the State Plan.

Transportation of field teams is discussed in Section V of Annex H of the State Plan. Field team communications are described in Annex F of the State Plan. Monitoring equipment is described in Section VII of Annex H. Composition of field teams is discussed in Annex I of the State Plan. Deployment times are also discussed therein.

County plans also discuss accident assessment. For example, the Metro-Dade County Plan (Annex Q) indicates that the County Health Department Director will cooperate with Department of Health - Bureau of Radiation Control with respect to accident assessment procedures. Annex Q also indicates that the Metro-Dade County Office of EmergencyManagement will be involved in assessment activities as well.

Annex H of the State Plan, discusses the measurement of iodine in air, and the use of such measurements in assessment activities.

Field Monitoring - Plant

EPIP-20129 provides methods for activation of emergency field monitoring teams, dispatching these teams throughout the plume EPZ and communications. Equipment and instrumentation is maintained for two offsite monitoring teams. Equipment and instrumentation is maintained in the OSC for numerous on-site monitoring teams. The equipment includes air samplers, filters, silver zeolite cartridges, sample bags, forms, log books, phone lists, maps, and procedure packs. Instrumentation includes single channel gamma analyzer (sodium iodide crystal type) with the capability of detecting radioiodine concentrations of at least 10^{-7} microcuries/cc in the field. Other instrumentation includes ion chamber survey monitors and high range gamma monitors. Communications will be maintained with the TSC Health Physics Supervisor by portable two-way radios or cellular telephones. The procedure packs include sampling techniques, measurements of airborne concentrations of radioiodine, direct radiation dose rates, transportation of teams, expected deployment times, and communications.

Coordination of Sampling Data

To assure that information concerning FPL off-site radiological assessment is exchanged, arrangements have been made for State Department of Health - Bureau of Radiation Control (DOH - BRC) representatives to be stationed at the EOF. Direction and control of field operations for the DOH - BRC will be provided by the Health Physics Supervisor. He/she will conduct/supervise accident assessment and response of the field teams from a post at the EOF (Section III of Annex I of the State Plan). Office space and communications are provided therein and have been described in Emergency Plan Implement Procedures. Prior to the arrival of DOH - BRC personnel, coordination of this information will be through follow-up communications with DEM and the Plume Exposure EPZ counties.

DOE off-site monitoring assistance, if required, will be requested by the DEM in consultation with DOH - BRC. Lead responsibility for coordination with Department of Energy (DOE) is assigned to DOH - BRC.

5.2 Protective Response

This section describes the protective actions on site, and the data provided to assist the State and County in determining appropriate off-site protective actions.

5.2.1 Protective Actions

On-site

On-site protective actions for a radiological emergency consist of evacuation of the affected area (localized evacuation or site evacuation), monitoring of all personnel who were in the affected area, and decontamination as required.

Individuals remaining or arriving on site during an emergency will be provided protective equipment as prescribed by the TSC Health Physics Supervisor, the OSC HP Supervisor, and plant procedures. Potassium Iodide (KI) will not be issued to emergency workers unless prescribed by a physician after an approximate exposure to the Thyroid of 25 (CDE) rem (with allowable protection factors taken in account).

Control Room personnel are in an isolated environment and need protective equipment to leave the Control Room or if the Control Room becomes contaminated. An emergency kit with all necessary equipment is present inside the Control Room and is to be used for this purpose.

Decontamination

Personnel decontamination facilities are available in four locations. Their use will be governed by the nature of the incident.

1) FPL Dress Out Building - Showers and sinks available for the decontamination of personnel with no (or minor) injuries.

2) Baptist Hospital of Miami - Decontamination shower and contaminated injury treatment room. For interim use to treat severely injured personnel. Located approximately 30 miles North of the Turkey Point Plant.

3) Mercy Hospital - Contaminated Injury Treatment Room. For interim use to treat severely injured personnel. Located approximately 30 miles north of Turkey Point Plant.

4) Decontamination Facility - The Florida City Substation has personnel decontamination capabilities available.

Vehicles will be decontaminated with the use of Metro-Dade County Fire Department equipment.

Extra clothing for personnel whose personal clothing has become contaminated is available in the form of disposable garments.

Contamination monitoring is performed through the use of count rate instruments with beta-gamma sensitive probes.

Methods for decontamination and monitoring are described in plant procedures. Contamination monitors and procedures are adequate for assessing potentially contaminated wounds either on site or at the decontamination facility.

Off-site

Off-site areas are the responsibility of the respective County Emergency response agencies, the Department of Health - Bureau of Radiation Control (DOH - BRC) and the Division of Emergency Management of the State of Florida. Control of radioactive contamination and public safety in off-site areas are responsibilities of these governmental agencies, and their criteria for implementing protective actions may be found in the Florida Radiological Emergency Plan for Nuclear Power Plants (see Appendix A). Decontamination of off-site areas will be performed under the direction of the DOH - BRC.

Section XII of Annex Q of the State Plan, discusses evacuation time estimates and their use in determining protective actions.

The Metro-Dade County Plan and the Monroe County Plan (both Annex Q, Figure Q-16) discuss evacuation times.

Recommendations for protective actions will be made by the Emergency Coordinator (or RM if EOF is operational) using Figure 5-1. The development of this figure was based upon consideration of the severity of an accident (emergency class) and, when actual or estimated off-site doses are available, the EPA Protective Action Guides in conjunction with plant conditions.

5.2.2 Owner Controlled Area Warning and Response

During an emergency, the relocation of persons may be required in order to prevent or minimize exposure to radioactive materials. An evacuation is the orderly, rapid, and safe withdrawal of all personnel from an area affected by an emergency condition.

Evacuation

Evacuation is the primary protective measure anticipated for personnel within the Protected Area not filling Emergency Response Organization positions. Contractors not having an emergency response function and visitors are normally evacuated at the Alert or higher classification. Evacuation of all other non-essential personnel, including personnel not required for the shutdown of the fossil units, occurs at the Site Area Emergency and General Emergency. However, the Emergency Coordinator shall use good judgment prior to moving personnel from the Owner Controlled Area.

Conditions such as security events, release status, release duration, plant conditions and meteorological conditions should be evaluated.

Owner Controlled Areas outside the Protected Area are evacuated, if conditions warrant, of all non-FPL personnel at an Alert or higher emergency classification. Security is responsible for evacuation implementation per applicable EPIPs and SFIs while the Emergency Coordinator is responsible for the decision to evacuate.

Local Area Evacuations are performed as required for specific areas of the site experiencing hazardous conditions (fire, radiological, toxic gas, etc.). At a minimum, an announcement over the Public Address system will be made, ordering the Local Area Evacuation. Personnel in or around the affected area are instructed to stay clear.

Accountability

At the declaration of a Site Evacuation (usually Site Area Emergency or General Emergency), all non-essential personnel are evacuated. All individuals in the Protected Area are accounted for and names of personnel not accounted for are established within 30 minutes of the initiation of the Site Evacuation. Once established, accountability within the Protected Area is maintained throughout the event. Upon notification that personnel are missing, the Emergency Coordinator shall ensure that Search and Rescue Operations are initiated. Accountability is coordinated by the TSC Security Supervisor and the results are forwarded to the Emergency Coordinator.

FIGURE 5-2
SITE EVACUATION ROUTES

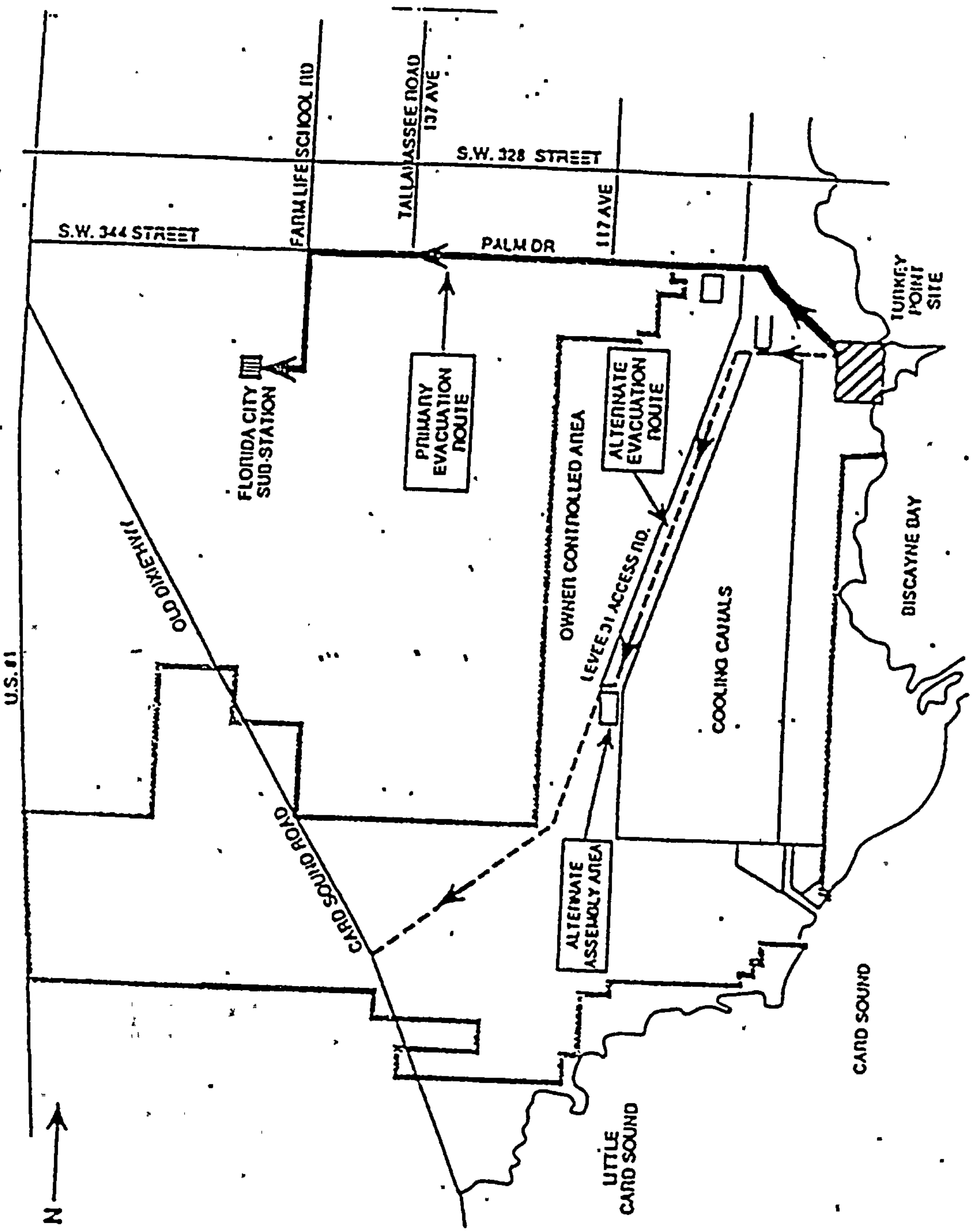

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TABLE 5-3

TYPICAL POPULATION WITHIN THE OWNER CONTROLLED AREA

AREA	POPULATION	COMMENTS
Nuclear Fossil Contractors (long term)	800 100 150	FPL & contractor at shift change, with 1 unit in outage
Cooling Canals	35	Includes visitors present 2-3 times/year, normally 25
Picnic Area (Red Barn)	300	Occasional use only
Girl Scout Camp	30	Occasional use only
Child Development Center K-2 School	150	Open during normal business hours for employees and their family members
Fitness Center	40	Employees only
Rifle Range	12	Security Guard Force use
TOTAL	1617	

5.2.3 Off-site Area Protective Measures

An off-site area evacuation is the orderly withdrawal of all persons from the portion of the public areas surrounding the plant which have been affected by the emergency. The criteria for the initiation of the evacuation are determined by the Department of Health - Bureau of Radiation Control as specified in the State of Florida Radiological Emergency Plan for Nuclear Power Plants. Annex Q of the State Plan describes evacuation measures and provides maps indicating designated evacuation routes.

The Emergency Coordinator (RM when EOF is operational) will recommend off-site protective actions based upon the criteria shown in Figure 5-1.

The Dade and Monroe County Emergency Response Directors and the State Division of Emergency Management will be responsible for the direction and implementation of the necessary protective actions as specified in the Florida Radiological Emergency Management Plan for Nuclear Power Plants, including notification and coordination with other State and Local assistance agencies.

The State plan describes the bases for the choice of recommended actions for the Plume Exposure Pathway EPZ during emergency conditions.

It will be the responsibility of the Dade and Monroe County Emergency Response agencies to notify the general public if an evacuation is warranted. This will be accomplished as discussed in Sections 5.2.4 and 5.2.8.

A summary of evacuation time estimates appears in Table 5-4 (Figure Q-16 in State Plan). Figure 5-5, (Figure Q-15 in State Plan) is a map of the Plume Exposure Pathway EPZ and indicates the evacuation study areas described in Table 5-4. Descriptions of evacuation routes, monitoring points, and reception centers are provided in Annex Q, Section XII of the State Plan.

The Emergency Classification System used by the State includes certain actions which are automatically triggered upon the occurrence of designated emergency classifications. These are discussed in Annex D and E to the State Plan. Other protective action decisions are made on the basis of information which becomes available as a result of accident assessment. Assessment actions which would form a basis for recommendations are discussed in Annex I. The State and County plans point out that EPA Protective Action Guides will be an important basis for Protective Action Recommendations (PARs).

5.2.4 Public Warning and Information

Annex Q, to the State Plan, provides information on warning of the public and discusses warning procedures for Dade and Monroe counties. Prompt notification systems are discussed therein. FPL has purchased and installed an alert (siren) and notification system as described in Section 5.2.8.

Notification to the population and arrangements with public communications media are described in the State Plan. Annex E and Annex G to the State Plan provides the guidance for keeping the public informed about the potential hazards, emergency response, and protective measures that can be taken to minimize or avoid public health effects. Annex G also provides procedures for the timely and accurate collection, coordination, and dissemination to the public of such information. In a Site Area Emergency, or General Emergency, a press section in the State Emergency Operations Center will be the State's primary source for release of public information. An official spokesperson for the State, the Public Information Officer (PIO), will establish press sections in the State EOC and at FPL EOF. Through these press sections, the PIO will establish contact with wire services, newspapers, radio, and television. Information releases will be coordinated with Federal and Local agencies.

Annex G of the State Plan also provides for releases to be used for media. These are consistent with FPL's classification scheme. These are examples of specific prior arrangements that have been made to use public communication media for issuing emergency instructions to the public. Annex G discusses annual orientation of the media. Annex Q also indicates TV and radio stations which would be used to alert the public.

5.2.5 Population Exposure Estimates

Population exposure estimates are discussed in the State Plan. Dose calculations assessment and monitoring in the Ingestion Exposure Pathway EPZ, and dose rate determination are discussed in Annexes H, I, J, K, and M.

5.2.6 Special Need Populations

The State Plan contains a discussion of evacuation of special needs populations in Annex Q of the State Plan.

5.2.7 Population Distribution

Annex Q of the State Plan includes maps and tables showing population distribution.

TABLE 5-4

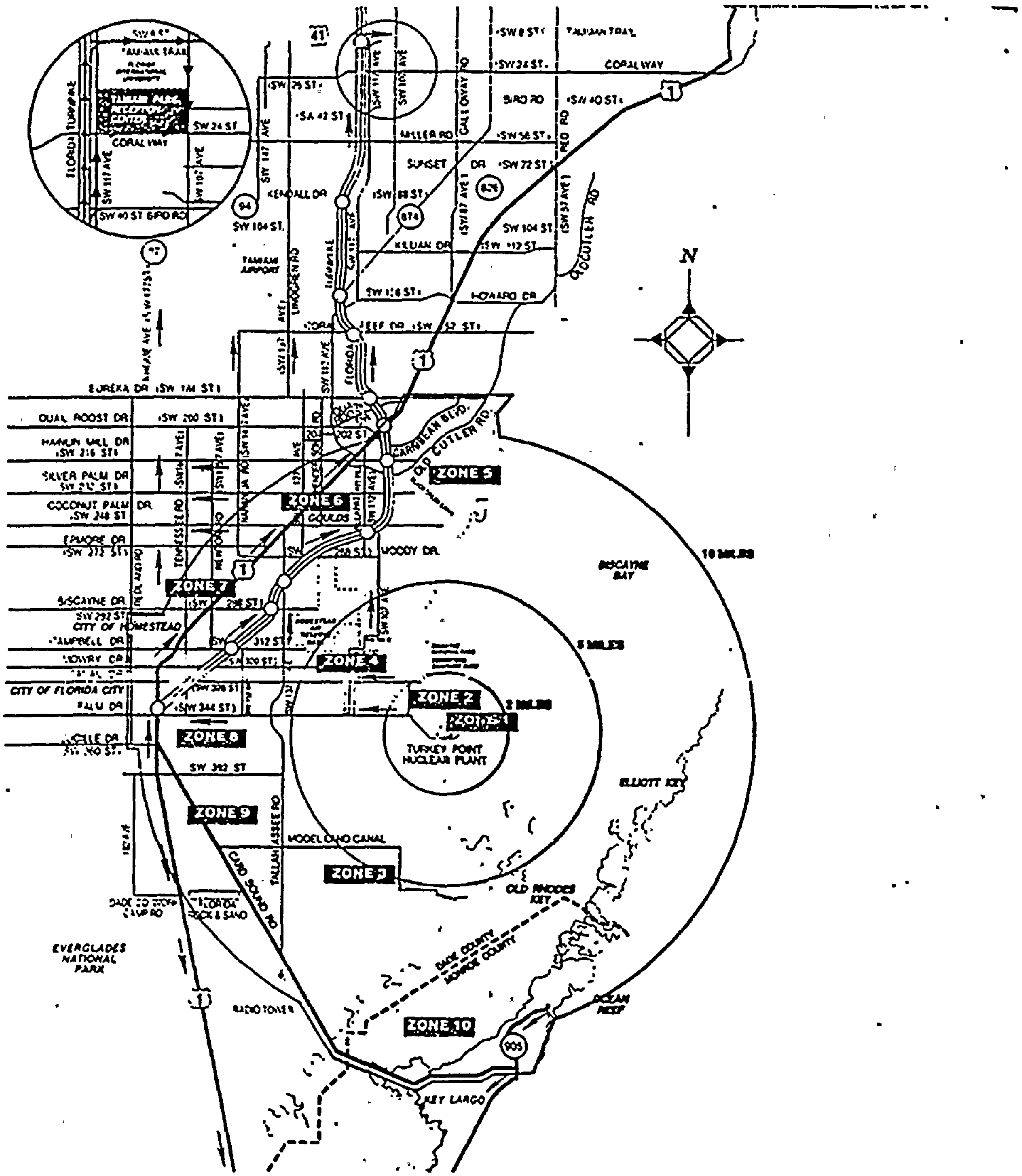
EVACUATION TIME AND TRAFFIC CAPACITY ESTIMATES

COUNTY AFFECTED	APPLICABLE SECTORS	ESTIMATED NUMBER OF AUTOMOBILES & CAPACITY (AUTOS PER HOUR)	POPULATION EVACUATION TIME ESTIMATES 0-10 MILES			
			Normal Minutes	Weather Hours	Adverse Minutes	Weather Hours
Dade	A, R, Q	17,681 (8,700)	430	7:16	445	7.42
Dade	P, Q, R	34,231 (8,700)	419	6.99	434	7.24
Dade	M, N, P, Q	33,424 (8,700)	419	6.99	434	7.24
Monroe	H, J, K, L, M	5,635 (1,030)	228	3.80	243	4.05
Dade & Monroe	A, R, Q, P, N, M, L, K, J, H	51,357 (9,730)	434	7.23	449	7.48

FROM STATE OF FLORIDA RADIOLOGICAL EMERGENCY MANAGEMENT PLAN FOR NUCLEAR POWER PLANTS, REVISION 1/96

FIGURE 5-3

DADE AND MONROE COUNTY EVACUATION ROUTES



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5.2.8 Alert and Notification System

An alert and notification system has been installed and will be used by the Dade and Monroe County Emergency Response Directors for alerting the population of the need to possibly take protective actions. The system consists of approximately 47 electronic sirens located throughout the Plume Exposure Pathway EPZ. These electronic sirens have the public address capability for voice messages. Upon sounding the sirens, the affected public, keyed through the public information program, would turn on their radios to the Local Emergency Broadcast System (EBS) radio station and await emergency information.

5.3 Radiological Exposure Control

5.3.1 On-Site Radiation Protection Program

An objective of emergency response is to minimize radiation exposure to individuals both on site and off site. Situations may arise, however, when observance of this goal is inconsistent with personnel or plant safety. In anticipation of such needs, guidelines have been established for emergency conditions. The guidelines on which the emergency radiation protection program is based are stated below.

Exposure to emergency response personnel should be maintained As Low As Reasonable Achievable (ALARA). Actions taken during an emergency should take into consideration the amount of exposure required to accomplish the task verses the potential benefit to the public health and safety.

Conditions may warrant re-entry into high radiation areas leading to exposure in excess of the regulatory limit. Except for rescue of personnel (life-saving only), authorization must be given in advance by the Emergency Coordinator (EC). If time permits, the EC should obtain concurrence from the Recovery Manager (if the EOF is operational). In any case where regulatory limits have been exceeded, the EC shall notify the RM of the event.

For those remote circumstances involving an event in progress, and obtaining EC approval will result in leaving the accident scene or decrease the victim(s) chance of survival, life-saving actions may be performed without obtaining EC approval. The EC shall be notified immediately following the rescue operation.

Re-entry personnel that have been selected/chosen to exceed regulatory exposure limits should be volunteers, broadly familiar with the risks involved (radiosensitivity of fetuses, effects of acute exposures, etc.), and whose normal duties have trained them for such missions.

Declared pregnant adults should not be used as on-site emergency workers.

For the following missions,(1) the exposure limit is:	TOTAL DOSE(2) (TEDE)	THYROID(3) (CDE)
Performance of actions that would not directly mitigate the event, minimize escalation, or minimize effluent releases.	5 REM	50 REM
Performance of actions that mitigate the escalation of the event, rescue persons from a non-life threatening situation, minimize exposures or minimize effluent releases.	10 REM	100 REM
Performance of actions that: decrease the severity of the event or terminate the processes causing the event in an attempt to control effluent releases to avoid extensive exposure of large populations. Also rescue of persons from a life-threatening situation.	25 REM	250 REM
Rescue of persons from a life-threatening situation. (Volunteers should be above the age of 45.)(4)	(5)	(5)

NOTES

1. *Both Total Dose (TEDE) and Thyroid Dose (CDE) should be used for purposes of controlling exposure.*
2. *Protective clothing, including respirators should be used where appropriate.*

(1) Exposure limits to the lens of the eye are 3 times the Total Dose (TEDE) values listed.

(2) Total Dose (TEDE) is the total dose from both external and internal (weighted) sources - Total Effective Dose Equivalent.

(3) Thyroid dose (CDE) commitment from internal sources - Committed Dose Equivalent. The same dose limits also apply to other organs (CDE), skin (Shallow Dose Equivalent) and extremities (Extremity Dose Equivalent).

(4) Volunteers with full awareness of risks involved including numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.

(5) No upper limit for Total Dose (TEDE) and/or Thyroid Dose (CDE) dose has been established because it is not possible to pre-judge the risks that one person should be allowed to take to save the life of another. Also, no specific limit is given for the thyroid since in the extreme case, complete thyroid loss might be acceptable sacrifice for a life saved. This should not be necessary if respirators and/or thyroid protection for rescue personnel are available as the result of adequate planning.

5.3.2 Dose Records

FPL Nuclear Division procedures provide for conducting the personal dosimetry program. The company has the capability of determining personnel radiation exposures on a 24 hour per day basis. Dose records for all individuals exposed to ionizing radiation at FPL's facilities are maintained.

All emergency response personnel under the authority of FPL who will potentially be exposed to radiation in the course of their duties will be monitored by the plant radiation exposure monitoring program. Personnel in this category will be issued the appropriate personnel dosimetry devices.

Since, by their vary nature, emergency exposures requiring immediate action are not planned, they are not controlled as a Planned Special Exposure. Dose received from exposure under emergency conditions will be added to the dose received during the current year, prior to the emergency, to determine compliance with the occupational dose limits in 10 CFR 20.

Doses above regulatory limits will require reporting pursuant to 10 CFR 20.2202 and 20.2203. Any dose in excess of the annual limits specified in Section 20.1201(a) will be accounted for in accordance with 10 CFR 20.1206(e). If an individual exceeds any of these limits, then that individual will not be available for additional dose under 20.1201(a).

5.3.3 Contamination Control and Decontamination Procedures

A personnel decontamination washroom and shower room with chemical decontamination agents is provided in the FPL Dress Out Building. Except in cases of serious injury, accepted decontamination practices will be employed on site. Life endangering injuries such as extensive burns, serious wounds, or fractures shall receive prompt attention in preference to decontamination. Personnel with injuries involving radiation or radioactive contamination will be handled by the Emergency Room at Baptist Hospital or Mercy Hospital. Plant Health Physics procedures specify that decontamination of uninjured personnel must be attempted at contamination levels greater than minimum detectable activity as defined in Health Physics procedures.

Food for emergency workers would be brought in from off site, if necessary. Frequent surveys of habitable areas utilized during emergency response (i.e., Control Room, OSC, TSC, and Guardhouses) will be performed to assure that these areas remain uncontaminated and tenable. Specifically, special attention to drinking water and food supplies will be given to assure that these supplies remain uncontaminated.

5.3.4 Radioactive Wastes

Radioactive wastes (resins, trash, etc.) accumulated during an emergency will be handled by normal plant procedures. Any special circumstances will be handled on a case-by-case basis.

5.4 Recovery and Re-entry

5.4.1 On-site

Once the hazard potential has passed, steps must be taken to recover from the incident. All actions should be preplanned in order to limit exposures. Access to the area will be controlled and personnel exposures will be documented.

The Recovery Manager (RM)/EC has the responsibility for determining when it is appropriate to enter into the recovery phase. The Recovery Organization consists of an augmented Expanded Emergency Response Organization. The Emergency Response Managers would continue their assigned duties using additional personnel as necessary. The Recovery Manager (or EC) will evaluate the status of the plant by reviewing all current and pertinent data available from emergency response and/or monitoring teams. The recovery phase will begin only when the plant conditions are stable and the following guidelines are met:

1) Radiation levels in all in-plant areas are stable or decreasing with time.

2) Releases of radioactive materials to the environment from the plant are under control or have ceased.

3) Any fire, flooding, or similar emergency conditions are controlled or have ceased.

4) The reactor is in a stable condition.

At the time of initiating activities to enter the recovery phase, the Recovery Manager will be responsible for informing all applicable agencies (e.g., Federal, State, and Local agencies) that on-site conditions have stabilized and activities for recovering from the incident can now begin. Once these agencies and the EC have been informed, the Recovery Manager has the authority to de-escalate the emergency classification.

Planned recovery actions which may result in radioactive release will be evaluated by the Recovery Manager and his staff in advance. Such planning and data pertaining to the possible release will be reported to the appropriate offsite emergency response organization and agencies.

Re-entry into an affected area may be required before entering the recovery phase. Re-entry into an evacuated area will be made by the Emergency Response Organization personnel when required for one or more of the following reasons:

1) To ascertain that all personnel who were in the affected area have been evacuated, or to search for unaccounted personnel.

2) To assist in evacuating injured or incapacitated personnel from the affected area.

3) To perform operations which may mitigate the effect of the emergency or hazardous condition.

4) To determine the nature and extent of the emergency and/or radiological conditions.

5) to establish personnel exclusion area boundaries.

Re-entry will take place only under the authority of the Emergency Coordinator/RM. The OSC Supervisor is responsible for evaluating the existing emergency conditions and informing the Emergency Coordinator via the OSC of the advisability of re-entry. For radiological emergencies, the TSC Health Physics Supervisor will be responsible for providing HP coverage to Emergency Response Organization personnel as required.

More detailed guidance for re-entry teams is contained in plant procedures.

5.4.2 Off-site

State and County officials would be in control of recovery and re-entry off site. Population exposure estimates are discussed in the State plan. Annex K discusses the projected dose calculations and assessment and monitoring in the Ingestion Exposure Pathway EPZ. Annex M of the State Plan (Recovery and Re-entry) also discusses population dose measurement.

6. PUBLIC INFORMATION

6.1 Preparatory Public Information Program

6.1.1 Purpose

The purpose of the preparatory public information program is to inform the public of how they will be notified and what their actions should be in a radiological emergency.

6.1.2 Program Execution

Florida Power & Light Company has the responsibility for conducting the public information program with the support from the State Division of Emergency Management and the Monroe County and Metropolitan Dade County Emergency Management offices.

Annex G of the State Plan discusses the preparatory public information program. Section VII of Annex G describes periodic dissemination. Section VII indicates that the educational program will be conducted on an annual basis. Section VII also indicates that permanent and transient population will be provided with an opportunity to become aware of the information. This section also indicates that the program will contain information on radiation, respiratory protection, sheltering, evacuation procedures, warning and notification systems, and who to contact for additional information.

6.2 Florida Power & Light Company Emergency Public Information Program

This section delineates the organization, public information network, and facilities that would be made available as required in an emergency.

6.2.1 Organization

The members of the emergency public information organization (see Figures 6-1) and their respective responsibilities are as follows:

Emergency Information Manager (EIM)

The EIM will be a designated senior manager experienced in media relations and having knowledge of nuclear plant operations. He/she will be responsible for coordinating dissemination of information to the public via the news media. Insofar as practical, he/she will work with the NRC, State, and Local news media representatives to effect joint releases and public appearances. He/she will work with other company officials to develop formal statements and responses. All FPL press releases should originate with or be cleared by the EIM. He/she will assure that exchange of information among designated spokespersons is accomplished in a timely manner, when possible.

Nuclear Information Staff

A staff of public information and technical personnel will be assigned as needed to the Emergency News Center. Their responsibilities will be to:

1) Provide technical briefings to the press.

2) Inform company employees through a newsletter, bulletin board statements, or other in-place networks.

3) Inform the industry, so other companies both in the United States and overseas can deal with questions as they arise from their local media.

4) Prepare background material for features, historical context, profiles, etc.

5) Handle the photographic needs of the company.

6) Record and transcribe all press conferences and other official proceedings for the benefit of company management, official agencies, and the news media.

7) Accredit and escort members of the press.

8) Provide its own stenographic and typing services for news releases, photo captions, reports, transcripts, etc.

9) Provide reference services for maintaining files of releases and photos, obtaining newspapers, monitoring wire services and news broadcasts, logging all clippings.

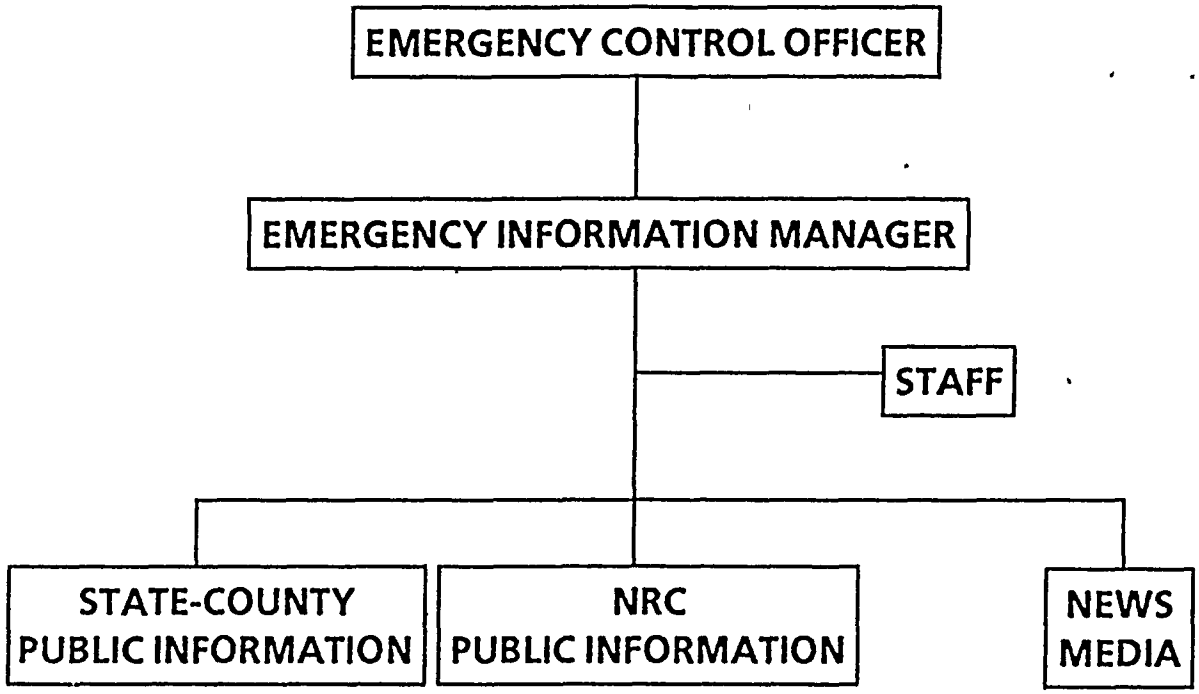
The staff of the Florida Power & Light Company Corporate Communications Department may be augmented by personnel from other utilities, consultants, or universities.

6.2.2 Emergency News Center (ENC)

An Emergency News Center (ENC) will be provided to allow the news media access to information from the EOF. The ENC is located on the second floor of the General Office. The Emergency Information Manager will report to the EOF, a designated ENC supervisor and his/her staff will man the ENC when the EIM deems it appropriate.

FIGURE 6-1

PUBLIC INFORMATION INTERFACES



If deemed necessary, the EIM may designate a suitable location near the site for dealing with the media. The location of the near site Information Center will be based on the individual circumstances of the event.

6.2.3 News Media Provisions

Florida Power & Light Company will conduct an annual program to acquaint the news media with the emergency plans, information concerning nuclear power, and points of contact for release of public information in an emergency.

In the event of an emergency, representatives of the news media will be provided space in the Emergency News Center for work and interview purposes.

6.2.4 Written Messages for the Public

Sample formats that may be used for release of information by FPL to the public via the news media appears in Tables 6-1 through 6-7. These releases include initial statements for each class of emergency and follow-up statements for the Alert class and higher.

6.3 Rumor Control

FPL will coordinate information exchange with State officials at the EOF and County officials at the EOC. This coordination will include awareness of media releases. This timely exchange of information among designated spokespersons will aid in dispelling most rumors. In written material which is disseminated annually, means for the public to obtain timely and accurate information is provided. Section VI to Annex G of the State Plan also discusses Rumor Control. Additionally, Dade County Office of Emergency Management maintains telephones designated for rumor control.

TABLE 6-1
INITIAL FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St.
Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

UNUSUAL EVENT

MIAMI -- Florida Power & Light Company has alerted the Nuclear Regulatory Commission that an "unusual event" has occurred at its Turkey Point Nuclear Power Plant located south of Miami.

According to initial reports, the event relates to ______________________

______________ (give plant/unit specific data) ______________

The situation was first identified at __(time)__.

Due to the nature of the event, FPL officials have determined that:

(Options:)

1 The unit can remain operational at this time without posing a health or safety hazard to plant employees or the general public.

2 The power levels at the plant will be systematically reduced in order to investigate the extent of the problem. Full shutdown is expected later today.

3 The unit will be brought off-line immediately and an orderly shutdown will be initiated in accordance with plant procedures.

All safety systems are operating normally and officials have stated that no radioactivity has been released as a result of this event. No further information is available at this time. However, news media will be kept informed of the plant's status as it becomes available.

# # #

TABLE 6-2
INITIAL FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St./Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

ALERT

MIAMI -- Turkey Point Nuclear Power Plant has declared an alert, based on problems at Unit #____, Florida Power & Light Company has announced.

The unit had been (still operational), (under gradual power reduction), (in a full-scale, orderly shutdown) following (give data relating to alert). FPL officials called for the alert and have notified appropriate state and federal officials. All visitors have been notified to leave the site as a precaution.

Option 1 (no radiation release)

Plant operators report that no radiation has been released from the unit as a result of the problem. Monitoring teams have been deployed at the plant site as a routine precaution. All safety systems are operating and the unit has been placed in an orderly shutdown mode as officials continue to investigate the problem. FPL officials caution that no public action is required and no health or safety problem exists at this time.

Option 2 (radiation release)

Monitoring equipment at the plant has detected (small/additional) amounts of radiation being released to the atmosphere as a result of the situation at Unit #__. However, this amount is not significantly above normal background radiation detected in the atmosphere (and does not pose an immediate health or safety hazard to plant employees or the public.) The nature and cause of the release is being investigated and further details are not available at the present time. Radiation monitoring teams have been deployed in response to the developments.

# # #

TABLE 6-3
INITIAL FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St./Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

SITE AREA EMERGENCY

MIAMI -- Florida Power & Light Company has announced that a site area emergency exists at Turkey Point Nuclear Power Plant. At ___ (a.m./p.m.), all plant employees except those with emergency response duties were ordered to evacuate the plant site.

Plant officials called for the evacuation of non-emergency employees as a precautionary measure due to (insert plant specific data, if known). There are still approximately 90 plant personnel remaining in the plant's control room, technical support center and operations support center. This includes plant management, operators for both generating units, and personnel from health physics, chemistry, maintenance and engineering. The cause and nature of the problems are being investigated and further details are not available at this time.

(Option 1 - no radiation release)
No radiation releases have been detected as a result of the situation at Unit # ___.

(Option 2 - radiation release)
Monitoring equipment at the plant has detected (small/additional) amounts of radiation being released to the atmosphere as a result of the situation at Unit #__. The nature and cause of the release is being investigated and further details are not available at the present time.

The plant is continuing shutdown procedures and emergency cooling of the reactor core is continuing. Persons in the immediate vicinity of the plant should continue to monitor radio and television broadcasts for the latest information.

# # #

TABLE 6-4
INITIAL FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St.
Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

GENERAL EMERGENCY

MIAMI -- Florida Power & Light Company, in conjunction with state and federal authorities, has announced that a general emergency exists at its Turkey Point Nuclear Power Plant as a result of escalating problems at Unit #__.

Persons within a 10-mile radius of the plant are advised to monitor radio and television stations for more information. Please follow all instructions provided through emergency broadcast services.

At this time, the plant is experiencing (significant, but controlled), (significant, uncontrolled), (small, but controlled), (small, uncontrolled), (no) releases of radiation to the environment. Plant operators report that (insert available plant status info).

# # #

TABLE 6-5
FOLLOW-UP FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St.
Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

LOSS OF POWER/CORE DAMAGE/RADIATION PLUME
(possible follow-up to general emergency)

MIAMI -- Significant equipment problems and loss of power to operate reactor core cooling systems have resulted in loss of coolant and partial uncovering of reactor fuel at Turkey Point Nuclear Unit # __, FPL plant operators have reported.

Additional emergency systems are being employed. However, monitoring teams are registering radiation in the atmosphere around the plant site. Weather conditions are moving a radiological plume in a ____________ direction.

The public is advised to monitor emergency broadcast messages on radio and television.

# # #

TABLE 6-6
FOLLOW-UP FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St.
Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

MEDICAL EMERGENCY

MIAMI -- Florida Power & Light Company has reported that one of its workers at the Turkey Point Nuclear Power Plant has been injured and requires medical treatment.

The employee was scheduled to be transported by ambulance to Baptist Hospital in Miami at ____ (am/pm).

Preliminary reports indicate the employee suffered ________________ (injury) ________________ while working in the plant's ______ (location) ________.

The worker has received some radioactive contamination, but further information of (his/her) condition is not available at this time.

The hospital has specialized equipment and protective procedures to ensure proper handling of any radioactive contamination.

# # #

TABLE 6-7
FOLLOW-UP FPL STATEMENT (Sample)

Number:

Date:

Time:

Florida Power & Light Company
Emergency News Center
9250 W. Flagler St.
Miami, FL 33102
Phone: 305/552-4506

NEWS RELEASE

EMERGENCY NEWS CENTER ACTIVATED

MIAMI -- The Turkey Point Emergency News Center is now open and operating. Information about the nuclear emergency will be provided at this facility, located in FPL's General Office at 9250 West Flagler Street in Miami. All affected agencies -- County, State and Federal -- will have representatives at the Emergency News Center to provide information about the emergency.

Rumor control numbers for the general public are 1-800-342-3557 for the State Division of Emergency Management, (305) 598-7550 for the Metro-Dade County Office of Emergency Management,and 1-800-453-1200 for the Monroe County.

# # #

7. MAINTAINING EMERGENCY PREPAREDNESS

7.1 Exercises and Drills

7.1.1 Definitions

An exercise is an event that tests the integrated capability of a major portion of the basic elements existing within the FPL Emergency Response Organization. An exercise normally includes mobilization of State and Local governmental personnel and resources adequate to verify the capability to respond to an accident scenario.

A drill is a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill should be evaluated by the supervisory personnel conducting the drill.

7.1.2 Purpose

Periodic exercises and drills will be conducted in order to test the state of emergency preparedness of participating personnel, organizations, and agencies. Each exercise or drill will be conducted to:

1) Ensure that participants are familiar with their respective duties and responsibilities.

2) Verify the adequacy of the Emergency Plan and emergency procedures.

3) Test the communications network and systems.

4) Check the availability of emergency supplies and equipment.

5) Verify the operability of emergency equipment.

The results of the exercises will form the basis for prescribing action to eliminate identified deficiencies.

7.1.3 Planning

The Services Manager (SM) will be responsible for the planning, scheduling,and coordinating of all emergency drills or exercises involving off-site agencies. A sample format for drill and exercise scenarios appears as Table 7-1. All exercises and drills involving the plant are subject to the approval of Plant Management.

When a major exercise is to be conducted, the Services Manager (SM) will:

1) Schedule a date for the exercise in coordination with the Primary State and County Emergency Response agencies. Obtain the approval of the Plant General Manager.

2) Coordinate all FPL efforts with other participating personnel, organizations, and agencies.

3) Offer Federal, State, and Local officials the opportunity to observe the exercise.

When an exercise or a major drill is to be conducted, the Services Manager (or Fire Protection Department for fire drills) will assure that the following is accomplished:

1) Assign personnel to prepare a scenario.

2) Coordinate all drill activities which involve off-site personnel, organizations, or agencies.

3) Schedule a date for the activity and assign controllers, evaluators, and observers.

4) Discuss and evaluate the exercise with observers and principal participants.

5) Review evaluations of the exercise or drill with the Plant Nuclear Safety Committee through distribution of critique report.

6) Ensure that deficiencies which are identified are addressed with corrective measures.

7) Submit scenario and critique summary with corrective actions to plant and corporate management.

8) Retain corrective actions and their resolutions for record keeping.

The Services Manager may delegate any of these responsibilities to the Emergency Preparedness Coordinator as deemed necessary.

These exercises and drills will simulate emergency conditions and may be scheduled such that two or more exercises or drills are conducted simultaneously. The Services Manager (SM) will normally notify the off-site emergency response organizations and agencies at least 30 days in advance of the scheduled date of an exercise.

7.1.4 Conduct of Exercises, Drills, and Tests

7.1.4.1 Exercises (Integrated Drills)

A major radiological emergency response exercise will be conducted at least once every two calendar years to demonstrate the effectiveness of the Emergency Plan. Any exercise that will provide for the coordination with and participation of off-site emergency response personnel, organizations, and agencies including those of Federal, State, and Local governments should escalate to adequately test the response capabilities of the organizations involved. The emergency scenario will be varied from year to year such that all major elements of the plan are tested at least every six years.

The major elements that should be tested every six years include, but are not limited to:

- Off hours staffing (6 P.M. - 4 A.M.)
- Activation of Emergency News Center
- Use of fire control teams
- Use of medical support personnel
- Use of security personnel for prompt access to emergency equipment or support
- Use of one or more portions of backup communications for notification
- Field monitoring
- Capability for determining the magnitude and impact of the particular components of a release
- Capability for post-accident coolant and sampling analysis
- Assembly and accountability
- Recovery and reentry of the site

TABLE 7-1
EXAMPLE SCENARIO FORMAT

1.0 Basic objective(s) of drill or exercise

2.0 Logistics

- 2.1 Date(s)
- 2.2 Time period
- 2.3 Location(s)
- 2.4 Participating organizations

3.0 The simulated events

4.0 Time schedule of real and simulated events

5.0 Narrative summary describing the conduct of the exercises or drills.

- 5.1 Simulated casualties
- 5.2 Off-site fire fighting assistance
- 5.3 Rescue of personnel
- 5.4 Radiological monitoring deployment
- 5.5 Public information activities

(Note: 5.1 through 5.5 are examples of subjects that might be discussed in Section 5.0 of the scenario)

6.0 Duties of observers

- 6.1 Specific observer assignment by area
- 6.2 Material provided to observers (i.e., checklists)
- 6.3 Pre-drill meeting
  - A. Date
  - B. Time
  - C. Location

7.0 Critique/Evaluation

- 7.1 Date
- 7.2 Time
- 7.3 Location
- 7.4 Suggested Participants

7.1.4.2 Radiological Monitoring Drill

A radiological monitoring drill will be conducted at least once every calendar year. These drills will include collection and analysis of air sample media and analysis of direct radiation surveys. As an integral part of this annual drill, communications and the understanding of messages between the off-site monitoring team(s) and the TSC Off-site Team Leader in the TSC will be tested. The Health Physics Department will conduct health physics drills semiannually and one of the semiannual drills may be incorporated into the radiological monitoring drill.

As indicated in Section III of Annex N of the State Plan, off-site radiological monitoring drills will be conducted annually, and these drills will involve the collection of sample media (e.g., water, grass, soil, and air).

7.1.4.3 Medical Emergency Drill

A medical emergency drill involving a simulated contaminated individual, with provisions for participation by local support services (i.e., ambulance and off-site medical treatment facility), will be conducted at least once every calendar year. Participation by local support services (i.e., ambulance and off-site medical treatment facility), will be tested separately or as part of the annual medical drill.

7.1.4.4 Fire Emergency Drill

Fire drills are conducted in accordance with 10 CFR 50, Appendix R, to test the operational readiness (personnel, equipment, and procedures) to control and extinguish a fire at the site. The drills also serve to evaluate and document the response of on-site personnel and participating off-site agencies to varying fire situations. The communication links and notification procedures are tested at least semiannually during fire emergency drills. A post-drill critique is held after each fire drill is completed to identify possible areas for improvement in equipment and/or procedures.

7.1.4.5 Communications Tests and Drills

Communications with State and Local governments within the Plume Exposure Pathway Emergency Planning Zone (EPZ) will be tested monthly. Communications with the NRC via the Emergency Notification System (ENS) will be tested monthly. On an annual basis, communications to the State EOC, Dade, and Monroe County EOCs will be tested. As part of the annual test certain information will be exchanged. It will be determined whether or not the content of the drill messages are understood. The annual drill may be performed as part of the annual exercise.

As indicated in Section III of Annex N of the State Plan, the State conducts communication drills at least annually. These drills include "communications between the nuclear power plants, State, and Local EOCs and field assessment teams...". Annex F of the State Plan indicates the equipment tested during drills.

Augmentation Drills are held once per calendar year to test response capabilities of the on-site emergency response organization.

7.1.4.6 Unannounced Drills

At least one communications drill per year will be unannounced. This unannounced drill will include notification to primary off-site response agencies (i.e., DEM, Department of Health - Bureau of Radiation Control, County Emergency Management agencies) and those FPL emergency response personnel required to be notified based upon the drill scenario.

Since the exercise scenarios are held confidential, fire, medical, evacuation, communication, and accountability drills, when conducted in conjunction with an annual exercise, are unannounced (actual time and specific details of the simulated events are not released).

7.1.5 Evaluation

During drills and exercises, controllers may make on-the-spot corrections to actions taken by drill participants that might affect the planned outcome (objective) of the drill. Minor errors in procedures or techniques will be noted and discussed during the post-drill evaluation.

Following an exercise, the Services Manager, or designee, Emergency Preparedness Coordinator, Turkey Point Plant management, FPL controllers/evaluators, and principal participants in the exercise will meet to discuss and evaluate the exercise.

The evaluation should be based on the ability of participants to follow emergency procedures, the adequacy of emergency procedures, and the adequacy of emergency equipment and supplies. The Emergency Preparedness Coordinator will be responsible for any necessary changes in the Plant Emergency Procedures and for recommending changes in the Emergency Plan to the Services Manager.

7.2 Emergency Response Training

7.2.1 Objectives

The primary objectives of emergency response training are as follows:

1) Familiarize appropriate individuals with the Emergency Plan through related Emergency Plan Implementing Procedures (EPIPs).

2) Instruct individuals in their specific duties to ensure effective and expeditious action during an emergency.

3) Periodically present significant changes in the scope or content of the Emergency Plan Implementing Procedures.

4) Provide refresher training to ensure that personnel are familiar with their duties and responsibilities.

5) Provide the various emergency organization groups with the required training that will ensure an integrated and prompt response to an emergency situation.

7.2.2 Training of Emergency Response Organization (ERO) Personnel

Training programs have been established for personnel assigned to the Emergency Response Organization (ERO). The programs include initial indoctrination (General Employee Training) and subsequent retraining.

The training program for members of the ERO will include practical drills in which each participating individual demonstrates an ability to perform assigned emergency functions. Participation in a drill or exercise is not required for initial qualification in the ERO.

The Training Manager is responsible for conducting and documenting the initial training and annual retraining programs for FPL emergency organization personnel. The Emergency Preparedness Coordinator is responsible for the content and accuracy of the Emergency Preparedness training.

Each new employee permanently assigned as an Emergency Response Organization member at the Turkey Point Plant shall be given initial training in the Emergency Plan and EPIPs.

For employees not assigned specific responsibility under the Emergency Preparedness Program, initial orientation training shall, at a minimum, provide information describing the action to be taken by an individual discovering an emergency condition, the location of assembly areas, the identification of emergency alarms, and action to be taken on hearing those alarms.

Training requirements are delineated in 0-EPIP-20201, "Radiological Emergency Plan Training."

7.2.3 Training of Non-FPL Off-site Emergency Response Personnel

Off-site agencies which may be called upon to provide assistance in the event of an emergency will be offered briefings annually. These briefings will discuss basic concepts in radiation protection, plant operations, security, and emergency classification and response. The following groups will be offered these sessions:

1) Fire and rescue

2) Police

3) Local emergency management officials

4) Medical support

7.2.3.1 State and Local Support

Annex O of the State Plan discusses State standards for training and retraining of off-site (state and local) emergency response personnel.

7.3 Planning Effort Development

Overall authority and responsibility for radiological emergency preparedness and planning lies with the President, Nuclear Division. As described below, through his staff (at the plant and Juno Beach), the FPL Emergency Preparedness program is implemented. Major responsibility in this area has been described through this plan.

7.3.1 Emergency Plan Implementing Procedures (EPIPs)

Written procedures will be established, implemented and maintained covering the activities associated with emergency plan implementation.

7.3.2 Review Procedure

The Emergency Plan and Emergency Plan Implementing Procedures will be under continuing periodic review as delineated in site procedures by the Emergency Preparedness Group. Notification lists and rosters will be updated at least quarterly. The Emergency Plan and letters of support will be reviewed annually. Changes to the plan and updated "Letters of Agreement" with supporting facilities will be confirmed annually (by telephone or in correspondence), with Letters of Agreement being updated every third year in the Emergency Plan. Where a contract or purchase order is in place detailing the services an organization provides in support of the Plant, the contract or purchase order number will be listed (along with the facility) in place of a Letter of Agreement. Responsibility for the day-to-day emergency planning coordination at the plant, lies with the Emergency Preparedness Coordinator.

The Plant Nuclear Safety Committee will conduct periodic reviews of the Emergency Plan and Emergency Plan Implementing Procedures. All changes to the Emergency Plan Implementing Procedures shall be approved by the Plant General Manager, prior to implementation. Procedures will be updated as necessary to incorporate the results of exercises and drills and to account for other site-related changes. Recommended changes to the Emergency Plan will be submitted, in writing, to the Plant Manager. All changes in the Emergency Plan must be approved by the President, Nuclear Division, prior to implementation. Approved changes of the Emergency Plan and Emergency Plan Implementing Procedures will be submitted to the Chairperson of the Company Nuclear Review Board (CNRB). The Chairperson will review any issues or concerns regarding the Emergency Plan and Emergency Plan Implementing Procedures with the CNRB on an as needed basis.

Document holders (e.g., FPL, State, Local, and Federal agencies, etc.) will receive revisions to the Emergency Plan as they are issued. The Services Manager is responsible for coordinating the periodic reviews of the Emergency Plan. In addition, the Services Manager will ensure that elements of the emergency organization (e.g., FPL, State, Federal, Local, etc.) are informed of amendments and revisions to the Emergency Plan, as applicable.

The Services Manager (SM) is responsible for maintaining emergency preparedness. He maintains a roster of Emergency Organization participants and their alternates. This roster is reviewed and confirmed periodically. Each participant is responsible for advising the Services Manager or Emergency Preparedness Coordinator when his duties are changed such that he can no longer participate. In event of transfer or termination, the Services Manager or Emergency Preparedness Coordinator is notified by the employee's department head and a replacement is named and trained.

7.3.3 Review of Changes by Emergency Response Personnel

Emergency Preparedness Coordinator will inform department training instructors of relevant changes in the Emergency Plan and Emergency Plan Implementing Procedures.

7.3.4 Review of Changes by Off-site Personnel

Periodic correspondence and/or meetings will be held to inform off-site emergency support personnel of changes in the Emergency Plans and Emergency Procedures that may impact their activities in support of Turkey Point.

7.3.5 Audits

An independent audit of emergency preparedness will be performed by the FPL Nuclear Assurance Department at least annually. Audits will verify compliance with federal regulations to include evaluation of the adequacy of interfaces with State and Local governments,and of drills, exercises, capabilities, and procedures.

Plant management, Services Manager, Manager, Plant Services (Juno), and the President, Nuclear Division will receive audit reports. Corrective actions, as delineated in the Quality Assurance Manual, will be assigned.

The audit findings will be retained for a minimum of five years.

7.3.6 Document Distribution

The Services Manager is responsible for distribution of the Emergency Plan to personnel. Manager, Plant Services (Juno) is responsible for Emergency Plan distributions to off-site agencies and organizations. Appendix A (Florida Radiological Emergency Management Plan for Nuclear Power Plants) will be distributed to the TSC, EOF, Plant Document Control Center, and Manager, Plant Services (Juno).

Revisions to the Emergency Plan and Emergency Procedures will be distributed in accordance with plant procedures.

The Emergency Procedures provide sufficient information to assure a thorough understanding of the various emergency response duties and responsibilities. Appendix C contains a listing of the pertinent Emergency Procedures.

7.3.7 Emergency Preparedness Department Personnel Training

Most training of FPL Emergency Preparedness Department Personnel is through on-the-job training related to plan preparation, periodic revisions, drills and exercises for two nuclear facilities. Other training may be available through seminars, meetings, and discussions with industry groups. FPL is a member of and participates in emergency planning programs sponsored by Nuclear Electric Institute (NEI).

7.4 Emergency Equipment/Maintenance

All emergency equipment/instrumentation that is maintained in the Control Room, TSC, OSC, EOF and the field monitoring equipment located in the Florida City Substation will be inventoried, operationally checked; and inspected at least once each calendar quarter and following each use.

APPENDIX A

FLORIDA RADIOLOGICAL EMERGENCY MANAGEMENT PLAN FOR NUCLEAR POWER PLANTS

The Florida Radiological Emergency Management Plan for Nuclear Power Plants is maintained on file in the following locations:

1) Turkey Point Document Control Center
2) Technical Support Center
3) Emergency Operations Facility
4) Manager-Plant Services (at Juno Beach)
5) Emergency Preparedness Coordinator (at Turkey Point)

APPENDIX B

TECHNICAL SUPPORT AGREEMENT

Bechtel Power Corporation

Institute for Nuclear Power Operations

U. S. Coast Guard

Florida Highway Patrol

Monroe County Sheriff's Department

Metro-Dade County Fire Department

U. S. Department of Energy (Savannah River Operations)

Baptist Hospital of Miami, FL

Emergency Room Medical Associates, PA

U. S. Department of Energy (Oakridge Operations, REAC/TS)

Framatome (formerly B&W Nuclear Technologies)

Raytheon Engineers and Constructors, Inc, Ebasco Division

Bechtel

9801 Washingtonian Boulevard
Gaithersburg, Maryland 20878-5356
(301) 417-3000

December 2, 1996

Mr.Douglas F. Whitwell
Nuclear Emergency Preparedness
Nuclear Division
Florida Power & Light Company
Post Office Box 14000
Juno Beach, Fl 33408

Subject: Nuclear Emergency Preparedness

Dear Mr. Whitwell:

This letter summarizes Bechtel's commitment to provide assistance to Florida Power and Light Company in the event of a nuclear emergency at the Turkey Point or St. Lucie Nuclear Plants. Bechtel will provide services to FPL in accordance with the Emergency Response Assistance Agreement between FPL and Bechtel originally effective January 1, 1984 and subsequently amended June 19, 1987.

Upon notification from FPL's predesignated officials of an emergency, during or immediately after a nuclear incident, Bechtel will provide loaned employee assistance to FPL as expeditiously as practicable to supplement FPL's effort to manage and control the emergency. The loaned employees will be under the complete supervision, direction, and control of FPL.

Upon notification from FPL for home office emergency assistance in addition to the loaned employees, Bechtel will mobilize its home office facilities and make available resources to provide engineering, procurement, construction and related technical services requested by FPL.

Bechtel will respond to requests from FPL officials designated in Exhibit A-2 of the referenced agreement, or any FPL employee designated in writing by such officials. The administrative point of contact for any requests from FPL in this regard should be directed to my attention at the Gaithersburg, Maryland office.

Enclosed is an update to Exhibit A-3 of the Emergency Response Assistance Agreement which identifies the names and home telephone numbers of the key response team members. Should you have any questions, please contact me at (301) 417-3887.

Sincerely,

K. B. Hess

Kennon G. Hess
Vice President
Nuclear Operating Plant Services
Bechtel Power Corporation

KGH/ldw

Enclosure: Exhibit A-3, Revised 12/96

EXHIBIT A-3

LIST OF HOME TELEPHONE NUMBERS
KEY RESPONSE TEAM MEMBERS
(12/02/96)

Home Office (Gaithersburg Maryland) Representatives

Name	Title	Home Phone #
K. G. Hess	Vice President Nuclear Operating Plant Services	(301) 840-4305
J. E. Love	Project Engineer	(301) 271-2115
K. Lee	Manager of Engineering	(301) 299-6754
J. Roberts	Engineering Manager - Nuclear Operating Plant Services	(301) 977-0668
E. Shyloski	Construction Manager	(301) 217-0962

Turkey Point Site Representative

NONE

St. Lucie Site Representative

NONE

Gaithersburg Main Office Number (Attended during non-business Hours) (301) 417-3000

INPO

Institute of
Nuclear Power
Operations

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

January 31, 1996

Mr. Mark S. Dryden
Specialist
Nuclear Licensing & Special Programs
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408

Dear Mr. Dryden:

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. INPO will provide the following assistance, if requested, and as appropriate:

- locating personnel with specific technical expertise
- obtaining information regarding industry experience with plant equipment through the Nuclear Plant Reliability Data System (NPRDS)
- facilitating the flow of utility-approved technical information to the nuclear industry using the NUCLEAR NETWORK® electronic communications system

This agreement will remain in effect until terminated in writing. Should you have questions, please call me at (770) 644-8356 or Donna Miller, section manager, emergency preparedness, at (770) 644-8646.

Sincerely,

Mark A. Peifer
Vice President and Director
Corporate Support Division

MAP:rah

cc: Mr. R. D. Mothena
Mr. Terence J. Sullivan

L96-4J006

U.S. Department of Transportation
United States Coast Guard

Commander
Seventh Coast Guard District

Brickell Plaza
Federal Building
909 SE 1st Avenue
Miami, FL 33131-3050
Staff Symbol: (sr)
Ph: (305) 536-6589

3010
NOV 27 1996

Emergency Preparedness Nuclear Division
Florida Power & Light
Attn: Mr. Douglas F. Whitwell
P.O. Box 128
Ft. Pierce, FL. 34954-0128

Gentlemen:

The following information is provided in response to your letter of October 10, 1996, and is a change to the information we provided in our letter of August 7, 1995.

1. Administrative point of contact: The Seventh Coast Guard District's Contingency Preparedness Officer and administrative point of contact is Lieutenant Commander Kim Daisher at (305) 536-6589.

2. Description of resources and support which can be provided.

(a) Resources: The nearest Coast Guard facility to the St. Lucie Plant is Coast Guard Station Ft. Pierce. Provided it is not engaged in a life threatening emergency or some other operational commitment, its normal vessel response time to the vicinity of the St. Lucie plant is between thirty to forty-five minutes. The nearest Coast Guard facility to the Turkey Point plant site is Coast Guard Station Miami Beach. Its normal response time to the Turkey Point plant site is approximately two hours. Both of these Coast Guard facilities can provide vessels to enforce a Coast Guard imposed safety zone to prevent waterside entry into radiologically contaminated areas, and to transport response personnel and equipment, and injured personnel. A normal response time for helicopters based at Coast Guard Air Station Miami to the Turkey Point plant site is approximately thirty-five minutes. These helicopters are available for transportation of personnel and material to assist in the disaster response, and injured personnel. Please note that our vessels, aircraft and crews are not equipped or trained for radiological response. Their use must be restricted to activities/geographic locations that are being air monitored for radioactive fallout and are certified to be safe without protective clothing/equipment. For this reason, the Coast Guard will not act as the primary responsible agency when a nuclear power plant disaster occurs.

2. (b) Additional Coast Guard support: Coast Guard Captain of the Port Miami may establish a safety or security zone preventing vessel movement into the U.S. navigable waters affected by the disaster. Power plant facility officials must contact Commander, Coast Guard Seventh District to have a safety or security zone established. Points of contact are listed in the following paragraph. Coast Guard Group Miami will assist by broadcasting a Notice to Mariners on marine band frequencies informing mariners of the incident and any safety or security zone in effect. Coast Guard vessels may be available to physically prevent vessel entry into contaminated waters, as stipulated in subparagraph 2.(a). However, safety or security zone implementation may be accomplished by broadcast only, if air monitoring is not available, or can not adequately predict the level, effects and movement of fallout.

3. Process/procedure to be used to obtain this support and method for information exchange: Should you need our support, your initial point of contact is the Coast Guard Seventh District Command Center, Miami, Florida. The Command Center can be reached at (305) 536-5611 or (800) 874-7561.

4. Description of the authorities, responsibilities, and limits on Coast Guard actions: Under Title 14 U.S. Code Section 88, the Coast Guard has the authority to render aid to distressed persons, vessels, and aircraft on the high seas and in the navigable waters of the United States. This includes the authority to perform any acts necessary to rescue and aid persons and protect and save property. Under 14 U.S. Code Section 89, the Coast Guard may enforce all Federal Law on vessels and waters over which the United States has jurisdiction. Further, under 14 U.S. Code Section 141, when so requested by proper authority, the Coast Guard may utilize its personnel and facilities to assist federal, state, and local government authorities to perform any activity for which Coast Guard personnel and facilities are especially qualified. Among other things, this may include transportation of personnel and material to assist in disasters or response to other emergency situations. The type, quantity, and arrival time of the assets the Coast Guard could provide in any particular emergency would be based on the operational priorities existing at the time. As mentioned in paragraph 2., our vessels, aircraft and crews are not equipped or trained for radiologic response, and thus, can not be exposed to radiologic contamination. Consequently, the Coast Guard will not act as the primary responder for nuclear power plant disasters. The Ports and Waterways Safety Act, 33 U.S. Code 1221, 33 CFR 165, and the Magnuson Act, 50 U.S. Code 191, 33 CFR 6 give the Coast Guard the authority to implement safety and security zones, respectively.

3010
NOV 27 1996

Should you desire specific details of other Coast Guard capabilities that might be available to assist you, please contact me at (305) 536-6589.

Sincerely,

KIMBERLY J. DAISHER
Lieutenant Commander, U.S. Coast Guard
Chief, Contingency Preparedness Branch
Seventh Coast Guard District
By direction of the District Commander

Copy: Federal Emergency Management Agency Region IV
State of Florida Department of Community Affairs
Metro-Dade County Office of Emergency Management
Monroe County Emergency Management
St. Lucie County Public Safety Office
Commander, Seventh Coast Guard District Search and Rescue Branch
Commander, Seventh Coast Guard District Marine Safety Division
Commanding Officer, Coast Guard Air Station Miami
Commander, Coast Guard Group Miami
Commanding Officer, Coast Guard Marine Safety Office Miami

State of Florida
DEPARTMENT OF
HIGHWAY SAFETY AND MOTOR VEHICLES

FRED O. DICKINSON, III
Executive Director

October 18, 1996

Mr. Douglas F. Whitwell
Nuclear Emergency Preparedness
Nuclear Division
FLORIDA POWER & LIGHT COMPANY
P. O. Box 14000
Juno Beach, FL 33408-0420

Dear Mr. Whitwell,

In response to your letter dated October 10, 1996, enclosed are the following:

(1) Policy #16.01 of the Florida Highway Patrol Manual will apply in cases of accidents or emergencies at the nuclear power plant.

(2) Page 13 through page 20 of the Florida Department of Law Enforcement's Florida Mutual Aid Plan is also applicable.

If you have any questions concerning these procedures, please contact Captain Robert H. Gray at (904) 487-0629.

If I can be of any further assistance, please advise me at (904) 488-4656.

Sincerely,

Nelda Parker

Nelda Parker,
Business Manager III

NP/bjm
Enclosures
cc: Captain Robert H. Gray

Sheriff

RICHARD D. ROTH • SHERIFF OF MONROE COUNTY
5525 COLLEGE ROAD • KEY WEST, FLORIDA 33040
(305) 296-2424 • FAX (305) 292-7070 • 1-800-273-COPS

January 6, 1997

John E. Kirkpatrick
Fire Protection Safety Supervisor
Turkey Point Nuclear Plant
9760 S.W. 344 Street
Florida City, Florida 33035

Dear Mr. Kirkpatrick:

I have your letter of December 16, 1996.

Please be advised that the information contained on our previous letter dated July 3, 1995, is still correct.

Please be assured of our continued support in matters of mutual interest.

Very truly yours,

Michelle Ovad, legal assistant to

Mark L. Willis
General Counsel

MLW/mq

Freeman Station
20950 Overseas Hwy., Cudjoe Key, Florida 33042
(305) 745-3184 FAX (305) 745-3761

Marathon Station
3103 Overseas Hwy., Marathon, Florida 33050
(305) 289-2430 FAX (305) 289-2497

Spottswood Station
88770 Overseas Hwy., Tavernier, Florida 33070
(305) 853-3211 FAX (305) 853-3205

Metropolitan Dade County
Fire Rescue Department
Office of the Fire Chief
6000 S.W. 87th Avenue
Miami, Florida 33173-1698
) 596-8593

R. D. Paulison
Fire Chief

Serving Unincorporated Dade County and the Municipalities of:

Bal Harbour
Bay Harbor Islands
Biscayne Park
El Portal
Florida City
Golden Beach
Hialeah Gardens
Homestead
Indian Creek
Islandia
Medley
Shores
Miami Springs
North Bay Village
North Miami
North Miami Beach
Opa-locka
South Miami
Surfside
Sweetwater
Virginia Gardens
West Miami

December 2, 1996

John E. Kirkpatrick
Florida Power & Light Co.
Turkey Point Plant
9760 S. W. 344 Street
Florida City, FL 33035

Dear Mr. Kirkpatrick:

Upon notification through emergency operators (911) of an incident at Florida Power & Light's Turkey Point Plant, the Metro-Dade Fire and Rescue Department will respond with a dispatch of appropriate fire and rescue units. A typical assignment would include six suppression vehicles (one aerial, one ladder and four pumpers), two rescue vehicles and two supervisory units. The normal complement assigned to these units is 32. Additionally, we will dispatch our Hazardous Materials unit which specializes in incidents involving hazardous materials and is equipped with sophisticated informational systems and equipment.

If conditions warrant, additional units would be dispatched, including support units. The fire department emergency services include fire suppression, basic and advanced life support and related assistance. Personnel and equipment are obligated to implement provisions of the Turkey Point Radiological Emergency Plan to the extent of available resources.

If any further information is necessary, please contact Chief Carlos J. Castillo at (305)596-8585.

Sincerely,

R D Paulison

R. D. Paulison
Fire Chief

RDP/cd

Always Ready, Proud to Serve

Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

Mr. Douglas F. Whitwell
St. Lucie Nuclear Plant
Protection Services
P. O. Box 128
Fort Pierce, FL 34954-0128

SEP 28 19[illegible]

Dear Mr. Whitwell:

Subject: Department of Energy (DOE) Letter of Agreement for Emergency Support

Assurance is hereby given that DOE will respond to requests for radiological assistance from licensees and Federal and State agencies involved in or cognizant of an incident believed to involve source, by-product, or other special nuclear material as defined by the Atomic Energy Act of 1954, as amended, or other ionizing radiation sources. Assistance as indicated above would be made available to the Florida Power & Light Company with respect to incidents occurring at its St. Lucie Nuclear Plant upon request and in consonance with response activities conducted by State, local, and private industry emergency response personnel.

Unless DOE or a DOE contractor is responsible for the activity, ionizing radiation source, or radioactive material involved in the incident, DOE radiological assistance will be limited to advice or monitoring and assessment actions essential for the control of the immediate hazards to health and safety. DOE radiological assistance will be terminated when it is no longer needed or the necessary assistance is available from State, local, or commercial services. Therefore, responsibility for post-accident recovery, including further actions for the protection of individuals and the public health and safety, should be assumed by the appropriate government agency or private authority as soon as emergency conditions are stabilized.

Requests for DOE radiological assistance should be directed to the Savannah River Site Operations Center at the 24-hour emergency assistance telephone number (803) 725-3333. Questions regarding the DOE Radiological Assistance Program may be directed to Christina T. Edwards, Regional Response Coordinator, at (803) 725-1791.

Sincerely,

Roger D. Rollins, Director
Safety Division

SD:CTE:clj

VF-97-0014

cc: CMD

Baptist Hospital
of Miami

8900 North Kendall Drive
Miami, Florida 33176-2197
Phone: (305) 596-1960

December 3, 1996

John E. Kirkpatrick
Turkey Point Plant
9760 S.W. 344th Street
Florida City, Florida 33035

Dear Mr. Kirkpatrick:

I have reviewed the letter of agreement between Baptist Hospital of Miami and Florida Power and Light Company and confirm that the current letter of agreement dated November 16, 1989, a copy of which was faxed to us yesterday, still applies as written.

Sincerely,

H. Nateman MD

H.Richard Nateman, M.D., Medical Director
Baptist Hospital Emergency Department
President, South Florida Emergency Physicians, P.A.

EMERGENCY ROOM MEDICAL ASSOCIATES
providing professional services at
MERCY HOSPITAL EMERGENCY ROOM
3663 South Miami Avenue
Miami, Florida 33133

Phone: 854-4400 ext. 2171
285-2174

Alfred Damus, M.D.
Steven Ecker, M.D.
Kenneth Rosenthal, M.D.
John Marshall, M.D.
Ralph Stegemoller, M.D.
Ivan Montoya, M.D.
Jorge Amaya, M.D.
Xavier Anton, M.D.

December 5, 1996

Mr. John Kirkpatrick
Turkey Point
9760 S.W. 344 Street
Florida City, FL 33035

Dear Mr. Kirkpatrick:

The following is the information stating our support, capabilities and resources available to you in the event of an emergency at one of your nuclear plants.

1. Administrative point of contact:

   John Marshall, M.D., E.D. Medical Director
   Mercy Hospital Emergency Department
   3663 South Miami Avenue
   Miami, Florida 33133
   Business Hours: (305) 285-2174
   24-hour-seven days a week (305) 285-2171
   Beeper 800-670-2970

2. Scope of Services:
   A) Physicians and Mercy Hospital shall perform radiological emergency medical services ("Services") for FPL's Turkey Point Nuclear Plant for the diagnosis and treatment of injury accompanied by radiological contamination, or actual of alleged injury due to radiation exposure.

   B) Physicians and Mercy Hospital shall maintain a twenty-four hour per day duty roster of qualified physicians who shall be on call and available in the event of an emergency.

C) Physicians and Mercy Hospital shall provide emergency treatment and Services without delay at the Facility on a twenty-four hour per day, seven day per week basis, for FPL employees and any other person designated b FPL who may have been involved in radiation incident.

We will continue to cooperate in every way possible in the radiological emergency preparedness program. If there is anything further you require or if we can be of assistance in any way, please do not hesitate to contact us.

Sincerely,

Michael S. Rose

Michael Rose
Chief Operating Officer and
Senior Vice President
Mercy Hospital

M.D.

John Marshall, M.D.
Emergency Department
Medical Director
Emergency Room Medical
Associates

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831— 8610

October 22, 1996

Mr. Douglas F. Whitwell
St. Lucie Nuclear Plant
Protection Services
Post Office Box 128
Fort Pierce, Florida 33954-0128

Dear Mr. Whitwell:

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

Please reference your letter of October 10, 1996, requesting that the Department of Energy (DOE) REAC/TS facilities and team be available to provide back-up capability and assistance to the Florida Power and Light Company in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request.

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

Since these facilities are government controlled, no fee or retainer is required to assure the availability of back-up services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs which could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Robert C. Ricks, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or telephone number (423) 576-3131.

Sincerely,

Thomas M. Jelinek

Thomas M. Jelinek
Contracting Officer's Representative

ER-111:Chung

cc:
R. C. Ricks, ORISE
J. E. Rounsaville, ORISE

96-8800

FRAMATOME
TECHNOLOGIES

Integrated Nuclear Services

January 6, 1997
INS-96-0042

Mr. John E. Kirkpatrick, Supervisor
Fire Protection Safety
Florida Power & Light
Turkey Point Nuclear Plant
Florida City, FL 33035

Subject: Emergency Response Support

Reference: 1) FPL letter, Kirkpatrick to Bohn, dated December 16, 1996 on the same subject
2) FTI letter, Pugh to Whitwell, dated November 5, 1996 on the same subject

Dear Mr. Kirkpatrick:

In response to your referenced letter, dated December 16, 1996, I would like to take this opportunity to confirm that Framatome Technologies, Inc. (FTI) commits to provide assistance to Florida Power & Light (FPL) in the event of an emergency at your Turkey Point or St. Lucie Nuclear Plants. Services will be provided by FTI to FPL upon request and authorization by an official representative of FPL in accordance with our existing Master Services Agreement.

The designated point of contact at Framatome Technologies is Reggie Pugh with Ron Dorman and Ray Ganthner as first and second alternates respectively. These personnel are all located in the FTI offices in Lynchburg, Virginia and their business and home phone number are listed below.

		Office	Home
Primary Contact	J.R. Pugh	(804) 832-3321	(804) 832-9079
First Alternate	R.W. Dorman	(804) 832-3316	(804) 384-0938
Second Alternate	R.W. Ganthner	(804) 832-2751	(804) 384-4959

As previously discussed, FTI can provide engineering, technical support, and field services to assist FPL in the management and control of an emergency. Any requests to the FTI point of contact from designated FPL officials will be responded to as expeditiously as practical to support the FPL needs.

Should you require any further clarification, please contact me at (804) 832-3321.

Sincerely,

J.R. Pugh

J.R. Pugh
Customer Service Manager

c: D.F. Whitwell, FPL
G.W. Christman, FTI

155 Mill Ridge Road, Lynchburg, VA 24502-4341
Telephone: 804-832-3700 Fax: 804-832-0622
Internet: http://www.framatech.com

EBASCO Division

Raytheon
Engineers & Constructors

EBASCO Division

July 11, 1994
FPL-94-033

Mr. Michael B. Gilmore
Emergency Preparedness, Nuclear Division
Florida Power and Light Company
P O Box 14000
Juno Beach, Florida 33408-0420

Dear Mr. Gilmore:

SUBJECT: FLORIDA POWER AND LIGHT COMPANY
EMERGENCY RESPONSE AGREEMENT

Reference: 1. FPL letter JNO-EP-94-140
2. Emergency Assistance Services Contract Between FPL And Ebasco dated July 1, 1987

In response to your request for an annual update of RE&C's Emergency Response Team (ERT) support capabilities (reference 1) we provide the following information:

The administrative point of contact is Mr. Charles W. Bailey who is located in the Stuart, Florida office. Please direct all future administrative correspondence to Mr. Bailey.

The resources available to FPL under the reference 2 agreement cover all engineering. disciplines, licensing, QA and project services. Primary and alternate response teams are designated to assure that any request made by FPL will be handled expeditiously.

Mobilization of any part of the emergency response team is accomplished through the ERT Manager or alternate. A current list of the ERT contacts is included as Attachment 1 to this letter. The Corporate Emergency Response Officer, Mr. L J Sas, may also be contacted in the event the ERT Manager is unavailable. Procedure N-5, "Ebasco Response to Requests for Emergency Assistance for Operating Nuclear Power Plants," describes the contact, mobilization process, authority and responsibility for emergency assistance. A copy of the procedure is enclosed as Attachment 2.

Please contact me should you need additional information at 407 225 9512.

Very truly yours

E O Bourque
Project Manager

Attachments: 1. Emergency Response Team Manager Listing (Confidential)
2. Procedure N-5, dated September 20, 1985

cc W H Bohlke
R Kundalkar
D J Denver
T F Plunkett
D A Sager
C Burton
L W Pearce
L J Sas
R J Milhiser
J C Saldarini
C W Bailey

Raytheon Engineers & Constructors
Florida Power & Light Emergency Response Team

Team Manager	Charles W. Bailey Office: ~~410-250-4822~~ 504-739-6824 Home: 504-885-2506	Project Engineering Manager
~~Alternate~~	~~Steve Marshall~~ ~~Office: 407-223-2700~~	
RE&C, Stuart Fl	Office: 407-223-2700	
Corporate Emergency Response Officer	Lou J. Sas Office: 212-839-2205	President - RNI
Alternate	Charles S. Rogovin Office: 212-839-2778	Manager of Nuclear Projects

UPDATED 12-15-95

UPDATED 01-15-97
Janet L. Rone

APPENDIX C

LISTING OF EMERGENCY PLAN IMPLEMENTING PROCEDURES (EPIPs)

PTN

EPIP-20107, Fire/Explosion Emergencies

EPIP-20110, Criteria For, and Conduct of Owner Controlled Area Evacuation

EPIP-20111, Re-entry

EPIP-20126, Offsite Dose Calculations

EPIP-20127, Duties of the Assembly Area Supervisor

EPIP-20129, Emergency Response Team - Radiological Monitoring

EPIP-20131, Transfer of Contaminated, Injured Personnel Offsite

EPIP-20132, Technical Support Center (TSC), Activation and Operation

EPIP-20133, Operational Support Center (OSC), Activation and Operation

0-EPIP-1102, Duties of the Recovery Manager

0-EPIP-1211, Duties of the Corporate Communications Emergency Response Organization (Turkey Point)

0-EPIP-1212, Activation and Use of the Emergency Operations Facility (Turkey Point)

0-EPIP-20101,Duties of Emergency Coordinator

0-EPIP-20104, Emergency Response Organization Notifications/Staff Augmentation

0-EPIP-20106, Natural Emergencies

0-EPIP-20112, Communications Network

0-EPIP-20201, Maintaining Emergency Preparedness - Radiological Emergency Plan Training

OFFSITE EMERGENCY ORGANIZATION

EPIP-1108, Duties of the Nuclear Division Duty Officer

EPIP-1302, PTN/PSL Core Damage Assessment

APPENDIX C (Cont'd)

LISTING OF EMERGENCY PLAN IMPLEMENTING PROCEDURES

OTHER PROCEDURES REFERENCED IN THE EMERGENCY PLAN

O-NCZP-094.1,Obtaining a PASS Sample During Emergency Conditions

O-NCZP-051.1, Obtaining a Containment Air Sample During Emergency Conditions

50-250.5

6/26/2001

Florida Power & Light Company

Turkey Point Nuclear Plant

0-EPIP-20106

Title:

Natural Emergencies

Safety Related Procedure	
Responsible Department:	Emergency Preparedness
Revision Approval Date:	2/12/98
Periodic Review Due:	5/30/01
Implementation Date	2/26/98

RTS 95-0996P, 96-0997, 97-1406

'/1:2/JLR/bsc/sw

LIST OF EFFECTIVE PAGES

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3	02/12/98	27	08/29/96	51	02/12/98	75	08/29/96
4	02/12/98	28	08/29/96	52	02/12/98	76	02/12/98
5	02/12/98	29	08/29/96	53	08/29/96	77	08/29/96
6	02/12/98	30	08/29/96	54	08/29/96	78	08/29/96
7	02/12/98	31	02/12/98	55	02/12/98	79	08/29/96
8	02/12/98	32	02/12/98	56	08/29/96	80	08/29/96
9	02/12/98	33	02/12/98	57	02/12/98	81	08/29/96
10	02/12/98	34	05/31/96	58	08/29/96	82	08/29/96
11	05/31/96	35	08/29/96	59	08/29/96	83	08/29/96
12	02/12/98	36	08/29/96	60	08/29/96	84	08/29/96
13	02/12/98	37	08/29/96	61	08/29/96	85	08/29/96
14	02/12/98	38	08/29/96	62	08/29/96	86	08/29/96
15	02/12/98	39	08/29/96	63	08/29/96	87	08/29/96
16	02/12/98	40	02/12/98	64	08/29/96	88	08/29/96
17	02/12/98	41	02/12/98	65	08/29/96	89	08/29/96
18	02/12/98	42	02/12/98	66	08/29/96	90	08/29/96
19	02/12/98	43	02/12/98	67	08/29/96	91	08/29/96
20	02/12/98	44	02/12/98	68	08/29/96	92	02/12/98
21	02/12/98	45	02/12/98	69	08/29/96	93	08/29/96
22	02/12/98	46	02/12/98	70	08/29/96		
23	02/12/98	47	08/29/96	71	08/29/96		
24	02/12/98	48	08/29/96	72	08/29/96		

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1.0 PURPOSE

1.1 This procedure provides instructions and guidelines for preparing, controlling, and recovering the plant following activation of the Emergency Plan for a natural emergency.

1.2 This procedure addresses tornadoes, hurricanes and earthquakes, but is to be used for any severe natural disturbance which results in Emergency Plan activation. Specific guidance is provided for coping with possible flood conditions associated with more intense hurricanes.

1.3 Procedural guidance for weather disturbances not meeting the criteria for activating the Emergency Plan are found in 0-ONOP-103.3, Severe Weather Preparation.

1.4 This procedure shall be used when the natural emergency meets the criteria in Table 1 of 0-EPIP-20101, Duties of Emergency Coordinator. Natural emergencies that do not meet the criteria of 0-EPIP-20101 shall be handled in accordance with 0-ONOP-103.3, Severe Weather Preparations.

2.0 REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS

2.1 References

2.1.1 Technical Specifications

1. Technical Specification 3.4.1.3, Reactor Coolant System - Hot Shutdown

2.1.2 Final Safety Analysis Report

1. FSAR, Section 2, Site and Environment, and Figures 1.2-3 and 1.2-4

2.1.3 Plant Drawings

1. 5610-C-1695, Network of Barriers for Main Plant External Flood Protection

2.1.4 Plant Procedures

1. 0-ADM-016.1, Transient Combustible and Flammable Substances Program
2. 0-ADM-215, Plant Surveillance Tracking Program
3. 3-ARP-097.DG, Diesel Generator Panel Annunciator Response
4. 4-ARP-097.DG, Diesel Generator Panel Annunciator Response
5. 0-ONOP-003.10, 125 VDC System - Location of Grounds
6. 0-ONOP-003.11, Auxiliary 125 VDC System - Location of Grounds
7. 3-ONOP-004, Loss of Offsite Power
8. 4-ONOP-004, Loss of Offsite Power
9. 3-ONOP-004.1, System Restoration Following Loss of Offsite Power
10. 4-ONOP-004.1, System Restoration Following Loss of Offsite Power
11. 3-ONOP-004.2, Loss of 3A 4KV Bus
12. 4-ONOP-004.2, Loss of 4A 4KV Bus
13. 3-ONOP-004.3, Loss of 3B 4KV Bus
14. 4-ONOP-004.3, Loss of 4B 4KV Bus
15. 0-ONOP-013, Loss of Instrument Air
16. 3-ONOP-019, Intake Cooling Water Malfunction
17. 4-ONOP-019, Intake Cooling Water Malfunction
18. 3-ONOP-023.2, Emergency Diesel Generator Failure
19. 4-ONOP-023.2, Emergency Diesel Generator Failure
20. 3-ONOP-041.7, Shutdown LOCA [Mode 3 (less than 1000 psig) or Mode 4]
21. 4-ONOP-041.7, Shutdown LOCA [Mode 3 (less than 1000 psig) or Mode 4]
22. 3-ONOP-041.8, Shutdown LOCA [Mode 5 or 6]

2.1.4 (Cont'd)

23. 4-ONOP-041.8, Shutdown LOCA [Mode 5 or 6]
24. 3-ONOP-050, Loss of RHR
25. 4-ONOP-050, Loss of RHR
26. 3-ONOP-075, Auxiliary Feedwater System Malfunction
27. 4-ONOP-075, Auxiliary Feedwater System Malfunction
28. 0-ONOP-103.3, Severe Weather Preparations
29. 0-OP-003.1, 125V Vital DC System
30. 3-OP-013, Instrument Air System
31. 4-OP-013, Instrument Air System
32. 0-OP-026, Cat 400 Operation
33. 0-OSP-012.1, Diesel Driven Service Water Pump Operability Test
34. 0-OSP-016.23, Diesel Driven Fire Pump Operability Test
35. 3-OSP-023.1, Diesel Generator Operability Test
36. 4-OSP-023.1, Diesel Generator Operability Test
37. 0-OSP-074.3, Standby Steam Generator Feedwater Pumps Availability Test
38. 0-OSP-102.1, Flood Protection Stoplog Inspection
39. 0-OSP-200.1, Schedule of Plant Checks and Surveillances
40. 0-PMI-103.1, Seismograph Quarterly Functional Check and Tri-Annual Battery Replacement
41. 0-EPIP-20101, Duties of Emergency Coordinator
42. 0-EPIP-20110, Criteria for and Conduct of Owner Controlled Area Evacuation
43. 0-EPIP-20112, Communication Network

2.1.5 Regulatory Guidelines

1. Station Blackout Guidelines:

   a. NRC Regulatory Guide 1.155, Station Blackout

   b. NUMARC 87-00, Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors

2.1.6 Miscellaneous Documents (i.e., PC/M, Correspondence)

1. Turkey Point Radiological Emergency Plan
2. Security Force Instruction (SFI) 3002, Hurricane Preparedness
3. Turkey Point [Fossil] Plant, Units 1 and 2 Hurricane Plans
4. PC/M 87-212, EDG Enhancement Site Preparation
5. PC/M 89-124, Repair/Replace Stoplogs On East Side of Auxiliary Building
6. PC/M 90-390, Plant Perimeter Floodwell Repair
7. PC/M 90-449, CCW Area Pipe Trench Floodwells
8. PC/M 92-086, Secondary Containment of Unit 4 Turbine Lube Oil Reservoir
9. JPN-PTN-SECJ-88-079, Safety Evaluation Temporary External Flood Protection Barriers
10. JPN-PTP-90-1902, External Flood Protection Enhancement Program - Plant Drainage Evaluation
11. JPNS-PTN-90-0111, Turkey Point Units 3 and 4 RHR Pump Room Access Hatch Removals
12. JPNS-PTN-96-0352, dated May 13, 1996, Hurricane Shutdown Criteria
13. National Oceanic and Atmospheric Administration Information - Information on Area Tornado and Hurricane Reports
14. EP AD-007, Emergency Response Facilities and Equipment Surveillance

2.2 Records Required

2.2.1 Completed copies of the below listed item(s) constitute Quality Assurance Records and shall be transmitted to QA Records for retention in accordance with Quality Assurance Records Program requirements:

1. None

2.3 Commitment Documents

2.3.1 L-91-184, PRA Transmittal Letter to NRC, dated June 25, 1991

2.3.2 Turkey Point Plant Units 3 & 4 Probabilistic Risk Assessment Individual Plant Examination Final Report, dated June 21, 1991

2.3.3 Station Blackout

1. L-89-144, Information to Resolve Station Blackout
2. JPN-PTP-89-3253, Turkey Point Units 3 and 4 Response to NRC on Station Blackout Open Items
3. Turkey Point Units 3 and 4 - Safety Evaluation For Proposed Implementation Of The Station Blackout Rule (10CFR 50.63) (TAC Nos. 68618 and 68619), dated June 15, 1990
4. L-90-275, Implementation Of The Station Blackout Rule
5. L-90-338, Comments On NRC's Safety Evaluation for Station Blackout
6. L-90-56, Information To Resolve Station Blackout, dated March 29, 1990

2.3.4 L-94-107, dated May 5, 1994, Response to Generic Letter 87-02 concerning earthquake created relay chatter

3.0 RESPONSIBILITIES

3.1 It shall be the responsibility of the following individuals to protect personnel and the plant from the effects of the emergency and to comply with the steps outlined in Section 5.0 of this procedure:

3.1.1 Emergency Coordinator

3.1.2 Emergency Preparedness Coordinator

3.1.3 TSC Projects Supervisor

3.1.4 TSC Maintenance Manager

3.1.5 TSC Mechanical Supervisor

3.1.6 TSC I&C Supervisor

3.1.7 TSC Electrical Supervisor

3.1.8 TSC Operations Manager

3.1.9 TSC Chemistry Supervisor

3.1.10 TSC Health Physics Supervisor

3.1.11 TSC Security Supervisor

3.1.12 TSC Fire Protection Supervisor

3.1.13 TSC Supervisor

3.1.14 TSC Technical Assistant to the Emergency Coordinator

3.2 The Emergency Coordinator shall ensure notifications are performed per 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR, for natural emergencies meeting emergency action level criteria.

3.3 The TSC Operations Manager and the TSC Maintenance Manager will report the status of hurricane preparations to the Emergency Coordinator. All other managers and supervisors will report the status of hurricane preparations to the Emergency Preparedness Coordinator, who will keep the Emergency Coordinator appraised.

4.0 DEFINITIONS

4.1 CATEGORY 1 HURRICANE: Hurricane with wind speed between 74 and 95 miles per hour (mph).

4.2 CATEGORY 2 HURRICANE: Hurricane with wind speed between 96 and 110 mph.

4.3 CATEGORY 3 HURRICANE: Hurricane with wind speed between 111 and 130 mph.

4.4 CATEGORY 4 HURRICANE: Hurricane with wind speed between 131 and 155 mph.

4.5 CATEGORY 5 HURRICANE: Hurricane with wind speed greater than 155 mph.

4.6 EYE: The center of a hurricane where calm prevails, with winds of no more than 20-30 mph and little or no rain.

4.7 HURRICANE: Same as a tropical storm, but the winds are over 73 mph and a well defined low barometric pressure center, called the EYE of the storm, is present.

4.8 HURRICANE ADVISORY: This is an information release put out every six hours, usually at 12 o'clock and 6 o'clock both day and night whenever a hurricane exists; the advisory is continually updated and this information is issued in the form of HURRICANE BULLETINS which are issued every 3 hours, day and night.

4.9 HURRICANE WARNING: This is a communication from NOAA, issued whenever a hurricane is between 12 and 24 hours from, and approaching, the U.S. coast and applies to an area approximately 50 miles either side of the expected landfall. This warning gives the expected time and location of landfall, as well as the hurricane's size, maximum winds, direction and speed of travel. The warning may also describe the coastal areas where high water, floods or high waves may be expected.

4.10 HURRICANE WATCH: This is a communication from NOAA, issued whenever a hurricane is between 24 and 48 hours from, and approaching, the U.S. coast and comprises an area approximately 100 miles either side of the expected landfall. It also gives the size, maximum winds, direction and speed of travel.

4.11 OWNER CONTROLLED AREA: That portion of the FPL property surrounding and including Turkey Point Plant which is subject to limited access and control as deemed appropriate by FPL.

4.12 POWER BLOCK: Structures comprising all permanent nuclear, power generation, and cooling structures, systems, and components within the Protected Area and permanent Safety Related or Quality Related utilities (e.g., air, water, and electric) both inside and outside the Protected Area.

4.13 TORNADO: A violently rotating column of air in contact with the ground, usually developing from severe thunderstorms or hurricanes.

4.14 TORNADO WARNING: This condition is declared once the surveillance means have shown that a tornado has been sighted. The area for which this warning is issued is usually smaller than that for which a watch is declared.

4.15 TORNADO WATCH: Meteorological conditions in the area described as favorable to the formation of tornadoes.

4.16 TROPICAL STORM: A weather disturbance of large size with winds of 39 to 73 mph, rotating in a counterclockwise direction, accompanied by torrential rains and an area of low barometric pressure.

4.17 TROPICAL STORM WARNING: This is a communication from NOAA issued whenever a tropical storm is 12 to 24 hours from and approaching, the U.S. coast.

[illegible]

5.0 PROCEDURE

CAUTIONS

- *Substantial portions of this procedure support Commitments 2.3.1. and 2.3.2. Do not delete material from this procedure without a full review of these commitments.*
- *Preparations for a hurricane are extensive. Start efforts early and take a conservative approach; pre-hurricane rain and winds may hamper preparation efforts.*
- *All unnecessary personnel in the Protected Area and all visitors in the Owner Controlled Area shall be required to leave when a hurricane warning is issued for the area. Flooding may make later evacuation impossible.*
- *If a hurricane passes directly over the plant area, do not assume the hurricane has passed when the winds subside and rain stops. This only means that the EYE of the hurricane is over the area, and within approximately one hour the winds will begin blowing again from the opposite direction as the second half of the hurricane passes.*
- *When a hurricane is near the area and high winds are occurring, or if there is significant likelihood that a tornado will strike the immediate plant site, keep all activities outside of the plant buildings to a minimum.*
- *Do not assume the emergency to be over until the receipt of official word from the NOAA/NWS that there is no longer a threat to the area.*

NOTES

- *The Emergency Coordinator has the authority to perform, or not to perform, the steps of this procedure as he deems necessary.*
- *Timely and efficient site preparations must be made prior to the issuance of the evacuation orders by the counties. Failure to do so, may result in a shortage of personnel to prepare the plant site for the hurricane.*
- *Testing of diesel equipment, with the exception of the EDG's, is not required if testing has been performed within the last 7 days.*
- *Walkdowns should not begin until approximately 24 hours into hurricane preparations to allow Maintenance an opportunity to initiate their tiedowns.*
- *Walkdowns should be completed approximately 24 hours before completing hurricane preparations to allow Maintenance the opportunity to close out the items.*
- *Personnel staying onsite through the hurricane should be onsite at least one full shift before the hurricane is projected to make landfall.*
- *The coordinates for Turkey Point are 25.3 Latitude and 80.2 Longitude.*

5.1 Weather Reports for Emergency Classification Determination

5.1.1 Reliable information on approaching severe weather disturbances is expected to be available from the following sources. Any method of notification from the National Oceanic and Atmospheric Administration/National Weather Service (NOAA/NWS) may be used to receive weather reports for emergency classification determination.

1. The NOAA/NWS will issue warnings received by the State of Florida Department of Emergency Management (DEM). The Florida DEM will issue an All Points Bulletin from the State Warning Point via ESATCOM. The Bulletin will identify areas to be affected by the severe weather and will be reliable for Control Room notification,

OR

2. The NOAA/NWS will issue warnings received by the FPL System Operations Power Coordinator's Office which will relay the information to the Turkey Point Units 3 and 4 Control Room. The Control Room will receive this information through one of the normal or emergency communication channels described in 0-EPIP-20112, Communications Network.

5.2 Tornado

5.2.1 For a tornado that has been sighted in the Owner Controlled Area or a tornado striking any Power Block structure, the Emergency Coordinator should perform the following:

Initials/Date

_____/________ 1. Instruct plant personnel to immediately seek safe shelter.

_____/________ 2. Consult 0-EPIP-20101, Duties of Emergency Coordinator, for direction.

_____/________ 3. Ensure that plant structures and equipment are surveyed for damage after the occurrence, and take appropriate action to maintain the units in a safe condition.

_____/________ 4. Request additional support via the Duty Call Supervisor to repair damaged equipment and commence clean-up.

5.3 Hurricane Warning

5.3.1 Emergency Coordinator responsibilities include the following:

Initials/Date

_____/________ 1. Consult 0-EPIP-20101, Duties of Emergency Coordinator, for direction.

_____/________ 2. Order all unnecessary work stopped.

NOTE

Although Emergency Response Facilities (ERF) are not required to be activated at an Unusual Event, the Emergency Coordinator may request ERF staffing.

_____/________ 3. Determine the need for additional staffing and consider alternative means of transportation for callout personnel to minimize the number of personal vehicles on site.

NOTE

All nonessential personnel in the Protected Area and all visitors in the Owner Controlled Area shall be required to leave when a Hurricane Warning is issued for the area.

_____/________ 4. Ensure the release of non-essential personnel in a phased, controlled manner as hurricane preparations are completed or as personal circumstances dictate.

_____/________ a. Release non-essential personnel giving sufficient time, in advance of severe weather to allow personnel to arrive safely at their homes and avoid any undue congestion with the public.

Initials/Date

5.3.1 (Cont'd)

____/________ 5. Investigate the need for relocation of the TSC and/or OSC.

____/________ 6. Establish a shift schedule for response personnel to provide for continuous plant support.

____/________ 7. Brief the NPS on the personnel available for emergency teams and the capabilities/limitations of support.

____/________ 8. Brief emergency response personnel on the following:

____/________ a. The storm

____/________ b. Safety precautions

____/________ c. Expected duties

____/________ d. Potential problems

____/________ e. Contingencies

____/________ f. Communications systems

____/________ 9. Ensure adequate preparations are made by conferring with the following:

____/________ a. TSC Operations Manager

____/________ b. TSC Maintenance Manager

____/________ c. Emergency Preparedness Coordinator

____/________ 10. Determine when it is safe for personnel to return to work and ensure appropriate notifications are made.

Initials/Date

5.3.1 (Cont'd)

11. The following guidelines should be considered for a Category 5 Hurricane Warning and may be considered for lesser category hurricanes:

NOTE

The Auxiliary Building is the preferred location for the TSC, but if flood levels are expected above 18 foot elevation the Cable Spreading Room, 4160V/480V rooms, or the Unit 4 EDG Building (upper floor) may be preferred.

_____/_________ a. Direct the relocation of the TSC, Security personnel and OSC to suitable locations.

NOTE

- *Emergency Coordinator responsibilities should remain with (or be transferred back to) the Nuclear Plant Supervisor (NPS) upon the relocation of the TSC/OSC due to the lack of communication, assessment and support capabilities available.*
- *The Emergency Response Organization should remain at the relocated OSC and provide support resources, principally emergency teams, to the NPS during the storm.*

_____/_________ b. Brief the NPS upon initiating relocation of the TSC/OSC, and transfer Emergency Coordinator duties to him.

_____/_________ c. Relocate the following emergency response personnel to the Control Room:

_____/_________ (1) TSC Dose Assessment Technician

_____/_________ (2) EOF Communicator

_____/_________ (3) TSC/ENS Communicator

_____/_________ (4) ERDADS Operator

Initials/Date | 5.3.1.11 (Cont'd)

_____/________ d. Evaluate the oncoming storm and select desired guidelines and contingency actions for implementation:

_____/________ (1) Discuss with the TSC Operations Manager the guidelines from Enclosure 3 and Enclosure 4 to determine if any should be implemented.

_____/________ (2) Discuss with the TSC Maintenance Manager to select and prioritize desired guidelines from Step 5.3.4.

CAUTION

Evacuation of a remote station during the hurricane presents great risk to personnel; adequate provisions must be made ahead of time to minimize this risk.

e. Ensure that the following remote field stations are habitable and well equipped (tools, fuses, oil, filters) for local actions:

_____/________ (1) 480V Load Center Rooms

_____/________ (2) Auxiliary Building

_____/________ (3) Cable Spreading Room

_____/________ (4) EDG Buildings

Initials/Date

5.3.2 Emergency Preparedness Coordinator responsibilities include the following:

NOTE

The Emergency Preparedness Coordinator has overall responsibility for storm preparedness.

_____/________ 1. Ensure the Emergency Coordinator is kept informed of the preparation status.

NOTE

Steps of this procedure may be only partially implemented based on management judgment.

_____/________ 2. Ensure the instructions of this procedure are being properly and expeditiously implemented.

_____/________ 3. Coordinate the following with the Human Resources Manager:

_____/________ a. Plans to evacuate the families of emergency crews, so that those remaining can devote their full efforts to the plant.

_____/________ b. Set up the camera system for Vice President updates.

_____/________ c. Provide information to plant personnel in **TO THE POINT.**

_____/________ 4. Collect staffing requirements from responsible departments to ensure completion of Attachment 1.

_____/________ 5. Consider generation of an overtime letter which states that deviation from the 72 hour rule is probable.

_____/________ 6. Perform frequent walkdowns of the plant site and exterior with various key mangers inspecting for and reducing potential missiles. [Reference Substep 2.1.5.1]

_____/________ 7. Coordinate activities of the various plant departments to resolve working level problems that may arise during storm preparations and any licensing issues.

Initials/Date

5.3.2 (Cont'd)

8. Coordinate the following with the Materials Management Manager:

_____/________ a. Purchase and properly store a three day supply of the following for Operations, Maintenance, Security, and support personnel staying on site during the storm:

_____/________ (1) Food items

_____/________ (2) Water, beverages

_____/________ (3) Paper plates, cups

_____/________ (4) Plastic utensils

_____/________ (5) Paper towels

_____/________ (6) Soap

_____/________ b. Make arrangements for purchase of portable bedding for on site emergency responders, as required, by the Emergency Coordinator.

_____/________ c. Ensure all on site vehicles have been fueled, and gas storage tanks/diesel fuel storage tanks are full.

_____/________ d. Verify adequate supply of emergency items are available.

_____/________ e. Wrap, elevate, relocate, or otherwise protect spare motors and other parts or tools that may be required for recovery.

_____/________ f. Verify the gas cylinders are properly secured in the gas house outside the protected area (southwest of main truck gate and south of the Hazardous Waste Building).

_____/________ 9. Coordinate with the Business Systems Manager the need to make arrangements for any offsite vendors for personnel, services, or supplies, as needed, to support recovery efforts immediately following the storm.

Initials/Date — 5.3.2 (Cont'd)

_____/_________ 10. Coordinate the following with the Safety Supervisor:

_____/_________ a. Inspect the site for potential safety hazards.

_____/_________ b. Inspect life lines for adequacy.

_____/_________ c. Ensure medical support and adequate medical supplies are available.

_____/_________ d. Investigate the relocation of the Onsite Medical Facility to the OSC.

_____/_________ 11. Coordinate with the Maintenance Manager to make arrangements with all outside contractors within plant responsibility to remove, tie down, or otherwise secure equipment and material to keep it from blowing away.

_____/_________ 12. Perform communications checks of all emergency communication systems in accordance with EPAD-007, Emergency Response Facilities and Equipment Surveillance.

_____/_________ a. Prestage Emergency Communications Systems (satellite telephone system, etc.) as required for post-storm use in Control Room.

_____/_________ 13. Arrange for personnel trained in communications equipment to be onsite during the hurricane.

_____/_________ 14. Make arrangements for televisions/radios, and required antenna systems to monitor media broadcasts of news and weather information.

_____/_________ 15. Establish a means of communications with the fossil plants.

_____/_________ 16. Assist the Emergency Coordinator in determining the need for additional staffing.

_____/_________ 17. Assist the Emergency Coordinator in investigating the need for relocation of the TSC and OSC.

_____/_________ 18. <u>IF</u> it is necessary to relocate the TSC and OSC, <u>THEN</u> determine alternate locations for relocation and ensure that the location is available.

_____/_________ 19. Ensure the TSC and OSC are fully prepared with supplies and emergency equipment in accordance with EPAD-007, Emergency Response Facilities and Equipment Surveillance, for possible activation.

Initials/Date 5.3.2 (Cont'd)

NOTE

County EOCs declaring a Level 3 status may be indicative of a severe threat by an approaching storm.

____/________ 20. Establish a point of contact with Dade County and NOAA/NWS to obtain periodic status reports on the following:

____/________ a. Tropical storm/Hurricane

____/________ b. County storm preparations (evacuation plans, etc.)

____/________ c. Police and fire/rescue unit availability

____/________ d. County water supply

____/________ (1) Determine the need to isolate the county water supply based upon declared contamination or possible contamination through communications with the county.

____/________ (2) **IF** it is necessary to isolate the water supply, **THEN** request a clearance issued to the NPS to close Raw Water Storage Tank Inlet Isolation Valves 730 and 885.

____/________ 21. Ensure a siren restoration/inspection crew is on standby at the EOF.

____/________ 22. Provide information to the EOF for press releases as soon as practical, and verify press releases are distributed as appropriate.

____/________ 23. Discuss with the Emergency Coordinator/Recovery Manager the need to partially or fully staff the EOF/ENC.

____/________ 24. Ensure the EOF has established contact with the FPL storm center, located adjacent to the EOF.

____/________ 25. Periodically update the Hurricane Information Line with updates from the National Hurricane Center.

Initials/Date 5.3.2 (Cont'd)

_____/________ 26. Ensure all required activities from 0-ONOP-103.3, Severe Weather Preparations, have been completed as necessary.

_____/________ 27. Install life lines between important operating areas of the plant in case personnel must be sent to these areas during high winds.

_____/________ 28. Contact FPL Aviation or FPL Storm Center through EOF to arrange for helicopters to bring support personnel and equipment to the site immediately after passage of the storm.

_____/________ 29. Establish phone numbers for personnel to call following the hurricane and ensure these numbers are provided to plant personnel.

_____/________ 30. Establish a staging location for those employees not staying onsite to meet following the hurricane and ensure the location is known to plant personnel.

_____/________ 31. Contact St. Lucie management, Juno Beach Staff or elsewhere to arrange for relief workers following the hurricane.

_____/________ 32. Keep plant personnel appraised of storm status.

_____/________ 33. Perform the site facilities responsibilities of Step 5.3.13.

34. The following guidelines should be considered for a Category 5 Hurricane Warning, and may be considered for lesser category hurricanes:

_____/________ a. Make preparations, as directed, to relocate the TSC and OSC:

_____/________ (1) Dismiss TSC/OSC staff who are not on the Emergency Response Teams and are not required to assure the effectiveness of the emergency response organization. Notify appropriate managers.

[illegible]

Initials/Date

5.3.2.34.a (Cont'd)

_____/________ (2) Coordinate with the TSC Maintenance Manager to move all portable emergency equipment and supplies to a location accessible from the new TSC/OSC location.

_____/________ (3) Establish dedicated phone lines to the Control Room from the relocated TSC/OSC and ensure sufficient portable radios and cellular phones are available, or contact the FPL Miami Radio Shop and/or Telecommunications to locate additional radio equipment.

_____/________ (4) Coordinate with the Nuclear Materials Management Manager to stage bedding, food, and water at a location accessible from the new TSC/OSC location.

_____/________ (5) Establish a berthing area and an area for eating and drinking in the Cable Spreading Room or other designated location.

_____/________ (6) Ensure a continuous path of access is maintained from the Auxiliary Building to the New Electrical Equipment Room to the Cable Spreading Room.

5.3.3 TSC Projects Supervisor responsibilities include the following:

_____/________ 1. Survey construction sites (if applicable) to ensure all light material is either tied down or placed indoors.

_____/________ 2. Survey site laydown areas to secure or remove loose objects.

_____/________ 3. Check tie downs on all temporary/portable buildings/structures that could be damaged by strong winds and consult facility drawings to ensure all structures are checked.

_____/________ 4. Ensure that PTF hurricane preparations are satisfactory so as not to impact the nuclear units and coordinate walkdowns at the island laydown areas.

_____/________ 5. Coordinate with the Emergency Coordinator the need to augment FPL manpower with craft personnel, if available.

Initials/Date — 5.3.3 (Cont'd)

_____/_________ 6. Ensure the Land Utilization and Facilities Supervisor completes the following:

_____/_________ a. Make arrangements (including with any outside contractor within Land Utilization responsibility) to remove, tie down, or otherwise secure equipment and material to keep it from blowing away.

_____/_________ b. Ensure that equipment is immediately available following passage of storm force winds to clear Palm Drive following the hurricane.

_____/_________ c. Stage water trailer in a secure location.

_____/_________ d. Survey the Sea Survival area and secure or remove loose material.

_____/_________ e. Secure canal pumps.

_____/_________ f. Ensure dumpsters are emptied prior to the closure of the county landfills.

_____/_________ g. Once dumpsters are emptied, coordinate with Mechanical Maintenance to remove/relocate the dumpsters.

5.3.4 TSC Maintenance Manager responsibilities include the following:

_____/_________ 1. Ensure the Emergency Coordinator is kept informed of the preparation status.

NOTE

Individuals appointed to emergency teams with personal considerations that can be addressed by the Company should be identified to the Human Resources Manager.

_____/_________ 2. Solicit volunteers for emergency staffing and coordinate activity with the Emergency Preparedness Coordinator to resolve any personal considerations.

_____/_________ 3. Contact additional Maintenance Department personnel that are necessary for hurricane preparations.

Initials/Date

5.3.4 (Cont'd)

_____/________ 4. Establish emergency teams to meet the following criteria:

_____/________ a. Provide for emergency maintenance.

_____/________ b. Provide for around-the-clock coverage.

_____/________ 5. Establish backup crews for contingency support.

6. The following guidelines should be considered for a Category 5 Hurricane Warning, and may be considered for lesser category hurricanes:

_____/________ a. Assist the Emergency Coordinator in establishing a shift schedule for response personnel, and preposition reliefs to preclude the need to move personnel during the storm.

_____/________ b. Establish a tool and spare parts area in a secure location where a minimum but sufficient number of tools will be available for each maintenance discipline's use.

Initials/Date

5.3.4.6 (Cont'd)

_____/________ c. Discuss with the Emergency Coordinator what additional protection may be required for the following areas:

_____/________ (1) 4KV Bus Rooms:

_____/________ (a) Seal all doors and penetrations on the 18 foot elevation. Consider at least sandbagging, possibly welding the doors.

_____/________ (b) Provide a means for measuring water level in the rooms.

_____/________ (2) AFW Cage:

_____/________ (a) Extend or plug the lube oil reservoir vents to prevent water intrusion.

_____/________ (b) Bag the pump governors to protect against water intrusion.

_____/________ (c) Bag the alternate shutdown communications headset and handset connections.

_____/________ (3) Unit 4 EDG Building:

_____/________ (a) Remove decking and install a ladder so access between the upper and lower levels is possible without travel outside.

_____/________ (b) Seal and sandbag the ground floor doors.

Initials/Date 5.3.4.6.c (Cont'd)

CAUTION

Due to the exposed location of the Unit 3 EDG fuel oil transfer pumps, the Unit 3 EDGs may not be available for an extended period in the storm. Priority should be placed on protecting the Unit 4 EDGs, then protecting Unit 3 EDGs as time permits.

_____/________ (4) Unit 3 EDG Building:

_____/________ (a) Provide as much flood protection as possible without impeding the ability of personnel to evacuate toward the turbine building.

_____/________ (b) Create a sandbag and herculite floodwall to protect from flooding of the radiator compartment.

_____/________ (5) Auxiliary Building:

_____/________ (a) Bag alternate shutdown headset and handset connections.

_____/________ (b) Provide a means for measuring water level in the building.

_____/________ (c) Consider sandbags around MCCs so as to allow access but prevent flooding at low levels.

_____/________ (d) Sandbag pipe trenches under the outer walls of the CCW rooms and the SI pump room as required.

_____/________ (e) Seal outer doors (consider sandbags where appropriate).

_____/________ (f) Consider covering the MCCs under areas where water leakage has been known to occur (under ceiling joints).

Initials/Date

5.3.4.6.c (Cont'd)

_____/_________ (6) Auxiliary Building 10 Foot Elevation:

_____/_________ (a) Bag alternate shutdown headset and handset connections.

_____/_________ (7) Electrical Equipment Room:

_____/_________ (a) Provide a means for measuring water level in the room.

_____/_________ (b) Sandbag at the door to the Auxiliary Building so as to allow access but prevent flooding at low levels.

_____/_________ (8) Component Cooling Water Pump Rooms:

_____/_________ (a) Protect components from water and wave action as much as possible (e.g., via sandbagging).

_____/_________ (b) Check that area deckplates are bolted down and hurricane clips installed.

_____/_________ (9) A MCCs:

_____/_________ (a) When Operations no longer requires access, shield or wrap the MCCs in protective material to minimize water intrusion.

_____/_________ (b) Sandbag to allow access but prevent flooding at low levels.

_____/_________ (10) B MCC Rooms:

_____/_________ (a) Seal the doors when Operations no longer requires access.

_____/_________ (11) Computer Room:

_____/_________ (a) Seal the doors when Operations no longer requires access.

Initials/Date

5.3.4.6.c (Cont'd)

_____/_________ (12) Spent Fuel Pit Pumps:

_____/_________ (a) Bag the non-running motors to protect against water intrusion.

_____/_________ (b) Sandbag and herculite the entrance to the heat exchanger rooms.

_____/_________ (13) Non-Vital DC Battery and Bus Rooms:

_____/_________ (a) Seal the doors when Operations no longer requires access.

_____/_________ (14) Turbine Building:

_____/_________ (a) Walkdown and bag appropriate equipment (including alternate shutdown headset and handset connections) to protect against water intrusion.

_____/_________ (b) Verify deckplates are securely bolted down and hurricane clips installed.

_____/_________ (c) Verify any 18 foot elevation outer wall penetrations are securely plugged.

_____/_________ d. Provide support for the remote stations referenced in Enclosure 4:

CAUTION

Portable pumps and generators may be used in manned locations only if exhaust gases can be safely directed outside.

_____/_________ (1) Station Maintenance personnel and equipment (tools, fuses oil, filters) at remote stations that may require dewatering.

Initials/Date

5.3.4.6.d (Cont'd)

(2) **IF** possible, **THEN** position electricians and equipment to provide continuous voltage indication supporting early ground detection at remote stations where ground isolation may be required to measure grounds and voltages.

_____/________ (a) Control Room

_____/________ (b) Cable Spreading Room

_____/________ (c) 480V Load Centers A-D rooms

_____/________ (d) Auxiliary Building

_____/________ (3) Deploy portable generators where needed.

_____/________ (4) Provide materials at remote stations to allow sealing of leaking penetrations (such as door thresholds), water collection and water removal.

_____/________ (5) Ensure adequate food and water is provided at remote stations for the duration of tropical storm force winds.

_____/________ e. Provide facilities for the collection of human waste at remote stations, TSC/OSC and the Control Room (since the sewage system may be out of service).

_____/________ f. If relocation of the OSC/TSC is necessary, and if space permits, coordinate with the Emergency Preparedness Coordinator the relocation of desks and chairs as required to the new OSC/TSC.

5.3.5 TSC Mechanical Supervisor responsibilities include the following:

NOTES

- *The combined capacity of pumps (a) through (f) below should equal or exceed 4900 GPM with pumps (a) and (b) making up the bulk of this capacity. The capacity of pumps (g) and (h) should equal or exceed 250 GPM each.*
- *The installation of drain plugs and portable dewatering pumps is intended for larger hurricanes where the storm surge might result in plant flooding (Category 4 and 5). Full or partial implementation, particularly the installation of dewatering pumps in the condenser pits, may be considered for lesser storms.*

1. Install portable dewatering pumps, portable electric generators with fuel supplies, and associated suction and discharge hoses in the following areas:

Initials/Date

5.3.5.1 (Cont'd)

_____/_________ a. Unit 3 Condenser Pit Sump (locate at northeast corner near existing sump; suction 2-25', 1-90 degree elbow, 1-30' with strainer and footer valve; discharge 2-25').

_____/_________ b. Unit 4 Condenser Pit Sump (locate at northeast corner near existing sump; suction 4-25', 2-90 degree elbows, 1-30' with strainer and footer valve; discharge 2-25').

NOTE

All other pumps should have the following associated equipment; suction 2-25' with strainer and footer valves, discharge 4-25'.

_____/_________ c. On the floor, just east of Unit 3 HDP.

_____/_________ d. On the floor, just east of Unit 4 HDP.

_____/_________ e. By Unit 3 Blowdown Flash Tank.

_____/_________ f. In Catch Basin #15 (in RCA west of Unit 4 West Electrical Penetration Room).

_____/_________ g. Unit 3 CCW Pump Room north end.

_____/_________ h. Unit 4 CCW Pump Room south end.

_____/_________ i. Unit 3 RHR Room Sump.

_____/_________ j. Unit 4 RHR Room Sump.

_____/_________ k. Auxiliary Building Sump.

_____/_________ l. Unit 3 EDG Floor Drains.

CAUTION

If exhaust gases can be safely directed outside, portable pumps and generators may be used in manned locations.

_____/_________ m. Unit 3 4KV A and B Bus Switchgear Room.

_____/_________ n. Unit 4 4KV A and B Bus Switchgear Room.

_____/_________ o. Radwaste Building Truck Bay with discharge to Radwaste Building Floor Drain to #2 WHT.

Initials/Date 5.3.5 (Cont'd)

NOTES

- *Drain plug installation should not be initiated unless the approaching hurricane is judged to present imminent potential of external flooding.*
- *Early rains may cause standing water in some areas which obscures drains and hampers drain plug installation. Installation must start early, but should be worked after or concurrent with the deployment of portable dewatering pumps.*

_____/________ 2. Install drain plugs per Enclosure 2 after or during installation of portable dewatering pumps as necessary based on the potential for flooding (normally category 4 or 5).

NOTES

- *Stoplog installation should not be initiated unless the approaching hurricane is judged to present imminent potential of external flooding.*
- *Sandbags should be placed at the bottom of the stoplogs, as necessary, to prevent water intrusion through gaps between stoplog and floor.*
- *Sandbag dikes may be used to fortify either side of a stoplog.*
- *" *" indicates with Hold Down Pin installed.*
- *TPCW areas do not require flood protection. Floodwalls are identified in Drawing 5610-C-1695.*
- *Do not install stoplogs that may impede personnel from performing other duties until preparations have been completed.*

_____/________ 3. Install stoplogs on plant flood protection walls as follows:

_____/________ a. Stoplogs 1* and 2 - South of Unit 4 Steam Generator Feed Pump Room.

_____/________ b. Stoplog 3 - Southeast of Unit 4 Lube Oil Reservoir.

_____/________ c. Stoplog 5 - Entrance to Unit 4 Condenser Pit.

_____/________ d. Stoplogs 6 and 7 - East of Unit 4 Main Transformer.

Initials/Date

5.3.5.3 (Cont'd)

_____/_________ e. Stoplog 8 - Southeast of Unit 3 Lube Oil Reservoir.

_____/_________ f. Stoplogs 9* and 10 - South Wall of Unit 3 Condenser Pit.

_____/_________ g. Stoplog 11 - Entrance to Unit 3 Condenser Pit.

_____/_________ h. Stoplogs 12 and 13 - East of Unit 3 Main Transformer.

_____/_________ i. Stoplogs 14 and 15* - Between Unit 3 4160 Volt Switchgear Room and EDG Building.

_____/_________ j. Stoplog 16* - Entrance to Unit 3 Spent Fuel Pit Heat Exchanger Room (sandbags as required at both lower corners).

_____/_________ k. Stoplog 17* - Entrance to Unit 3 New Fuel Storage Area.

_____/_________ l. Stoplog 18* - Entrance to Auxiliary Building Chemical Storage Area (East door to BAST Room).

_____/_________ m. Stoplog 19* - Entrance to Unit 3 Component Cooling Water Pump Area.

_____/_________ n. Stoplog 20* - Entrance to Unit 4 Component Cooling Water Pump Area.

_____/_________ o. Stoplog 21* - Entrance to Unit 4 New Fuel Storage Area.

_____/_________ p. Stoplog 22* - Entrance to Unit 4 Spent Fuel Pit Heat Exchanger Room.

_____/_________ q. Radwaste Building Stoplogs.

_____/_________ (1) Stoplog SL-1 - Northeast door to Radwaste Building.

_____/_________ (2) Stoplog SL-2 - Southeast door to Radwaste Building.

_____/_________ (3) Stoplog SL-4 - Top and Bottom - Overhead doorway Truck Ramp to Radwaste Building.

Initials/Date 5.3.5 (Cont'd)

CAUTION

Prior to sandbagging manhole covers, ensure no personnel are in the tendon galleries.

_____/________ 4. Ensure east tendon gallery manhole covers (one per unit) are installed and covered with sandbags.

_____/________ 5. Remove sandblast booth.

6. Close the following outside doors, inflate seals and install latch pins where applicable:

_____/________ a. Cable Spreading Room (Doors 132-1, 132-2 and 104-3 to roof)

_____/________ b. Unit 3 New Fuel Storage Room (rollup door)

_____/________ c. Unit 4 New Fuel Storage Room (rollup door)

_____/________ d. Unit 3 Spent Fuel Pit/Install Latch Pins

_____/________ e. Unit 4 Spent Fuel Pit/Install Latch Pins

_____/________ f. Unit 3 CCW Surge Tank Room

_____/________ g. Unit 4 CCW Surge Tank Room

_____/________ h. West Auxiliary Building Main Passageway to Turbine Building (Door 58-2)

_____/________ i. Unit 3 480 V Load Center Room (Door 96-1)

_____/________ j. Unit 4 480 V Load Center Room (Door 94-1)

_____/________ k. Unit 3 4160V Switchgear Room (Doors 70-1, 70-2, 71-1)

_____/________ l. Unit 4 4160 V Switchgear Room (Doors 67-1, 67-2, 68-1)

Initials/Date	5.3.5.6 (Cont'd)	
____/____	m.	CVCS Holdup Tank Enclosure (2)
____/____	n.	3A EDG Room (Doors 73-1, 75-1)
____/____	o.	3B EDG Room (Doors 72-1, 74-1)
____/____	p.	East Auxiliary Building Main Passageway to Unit 4 CCW Room (Door 58-1)
____/____	q.	Control Building Elevator Vestibule (4)
____/____	r.	Containment Purge Supply Fan Room
____/____	s.	Auxiliary Building Laundry Room (Door 46-2)
____/____	t.	Intake Storage Room (1)
____/____	u.	Unit 3, B MCC Room (Doors 63-1, 63-2)
____/____	v.	Unit 4, B MCC Room (Doors 61-1, 61-2)
____/____	w.	Unit 3 Electrical Penetration Rooms (Doors 20-1 South, 19-1 West)
____/____	x.	Unit 4 Electrical Penetration Rooms (Doors 26-1 North, 27-1 West)
____/____	y.	Generator Exciter Switchgear Enclosures (2)
____/____	z.	Radwaste Building Doors (East, North, Loading Ramp, Elevator)
____/____	aa.	Condensate Polisher/E Load Center/B43 MCC Building
____/____	bb.	Computer Room (Doors 62-1, 62-2)
____/____	cc.	DC Enclosure Building
____/____	dd.	Boric Acid Storage Room (Door 41-1)

Initials/Date

5.3.5.6 (Cont'd)

_____/_________ ee. Safety Injection Pump Rooms (2)

_____/_________ ff. Amertap Control Center/4G MCC Enclosure (2)

_____/_________ gg. C Bus - 4160 Volt Switchgear Enclosure (2)

_____/_________ hh. Nuclear Gas House (1)

_____/_________ ii. Control Room to Auxiliary Building Roof (Door 108 A-2)

_____/_________ jj. Control Room to Fan Room (Doors 108 A-3, 108 A-4)

_____/_________ kk. Load Center F & G Enclosures (2)

_____/_________ ll. Unit 4 EDG Building (Doors 133-1, 133-3, 138-1, 138-2, 136-1, 141-1)

_____/_________ mm. Dry Storage Warehouse

7. Verify the following roof hatches are installed and bolted in place.

_____/_________ a. Auxiliary Building - Stairwell to 10 ft. elevation

_____/_________ b. Auxiliary Building - RHR Pump and Hx Rooms

_____/_________ c. Auxiliary Building - Monitor Tank Room

_____/_________ d. Auxiliary Building - Demin Cubicles

_____/_________ e. Auxiliary Building - BA Evaporator Rooms

_____/_________ f. Radwaste Building

_____/_________ 8. Ensure main passageways are cleared.

[illegible]

Initials/Date 5.3.5 (Cont'd)

NOTE

If unable to secure any of the items in Substeps 5.3.5.9 through 5.3.5.10 below, store them in the Machine Shop, Maintenance Shop or Dry Storage Building.

9. Remove items from areas subject to high winds, for example:

_____/_________ a. Loose trash and debris

_____/_________ b. Tools

_____/_________ c. Sheet metal

_____/_________ d. Empty containers, trash cans, drums

_____/_________ e. Unnecessary hoses, electrical cords, welding cable

_____/_________ f. Temporary power panels

_____/_________ g. Lumber, pallets, platforms, work stations

_____/_________ h. Cleaning equipment

_____/_________ i. Portable resin funnels on Auxiliary Building roof

10. Tie down or secure the following loose equipment:

_____/_________ a. Gas trailers (N_2 Trailer in RCA, etc.)

_____/_________ b. Portable dewars

_____/_________ c. Ladders

_____/_________ d. Needed hoses, electrical cords

_____/_________ e. Gang boxes

_____/_________ f. Signs

Initials/Date 5.3.5 (Cont'd)

NOTE

Chemicals/oil should be stored securely above any expected flood level and in locations which will withstand expected winds.

_____/________ 11. Store all chemical drums in the chemical waste building or other secure building, and oil drums in the oil house and/or chemical waste building.

_____/________ 12. Fuel and tie down the diesel instrument air compressors and stage additional secured fuel drums/tanks adjacent to the compressors.

_____/________ 13. Consult Engineering for additional preparation requirements for empty tanks (i.e., installing temporary tie down anchors). Engineering will provide such additional requirements on a cases by cases basis.

_____/________ 14. Check and if necessary, clean fuel oil tank roof vents to assure adequate pressure relief.

_____/________ 15. Bolt or otherwise secure the hatches on the chemical feed tanks.

_____/________ 16. IF the Unit 3 OR Unit 4 Hydrogen Recombiner is in operation, THEN the Hydrogen Recombiner shall be secured from service AND the attached hoses isolated and disconnected from the permanently installed piping flanges.

_____/________ 17. Clean the intake trash pit.

_____/________ 18. Tie down intake trash rakes and hoists in such a manner that they are secure, yet readily available if needed.

_____/________ 19. Dog the intake area gantry crane, the cask crane and the turbine deck gantry crane and ensure the hooks are fully raised.

Initials/Date

5.3.5 (Cont'd)

20. Designate storm duty vehicles and perform the following:

_____/________ a. Establish a designated location for storm duty vehicles inside the Protected Area and RCA.

_____/________ b. Ensure these vehicles are serviced and fueled.

_____/________ c. Move unnecessary vehicles outside the Protected Area.

_____/________ 21. Remove or adequately secure scaffolding that would be exposed to high winds.

_____/________ 22. Tie down or remove portable toilets, air compressors, and gangboxes; wire the gangboxes shut.

_____/________ 23. Disassemble and remove temporary buildings not having tie-downs (i.e., the wooden buildings at the containment equipment hatches).

_____/________ 24. Move valuable equipment to high ground.

_____/________ 25. **IF** winds greater that 120 mph are expected, **THEN** ensure the Water Treatment Plant ECOLOCHEM trailers are tied down.

_____/________ 26. Move Hydrazine Tank into small Chemical Storage Building east of Unit 4 EDGs.

_____/________ 27. Ensure personnel/equipment ramps over conduits on Aux Building Roof, Control Room Roof, and other locations are, bolted down, tied down, or removed and stored in secure locations.

_____/________ 28. Secure any plywood doors on the Issues Warehouse.

_____/________ 29. Take portable bedding to Control Room six hours before hurricane is projected to hit.

_____/________ 30. Establish emergency staffing to meet the staffing plans outlined in Attachment 1.

_____/________ 31. Perform the site facilities duties of Step 5.3.13.

Initials/Date

5.3.6 TSC I&C Supervisor responsibilities include the following:

____/____ 1. Position sandbags in the following areas to control any potential flooding or inleakage that may develop as necessary based on the potential for flooding, normally a Category 4 or 5 (numbers are approximate):

NOTE

When constructing dikes use Figure 1 for guidance.

____/____ a. 4KV A and B Bus Switchgear Rooms (50 each door)

____/____ b. Turbine Area 18 ft Elevation - North and South Ends (500 each)

____/____ c. Computer Room (60)

____/____ d. Auxiliary Building East - West Hallway/Laundry Room Door, SI Pump Room Doors (50 each door)

____/____ e. BAST Room Door (30)

____/____ f. Radwaste Building Doors (50 each door)

____/____ g. HP Building, Maintenance Building, Nuclear Administration Building, Nuclear Entrance Building, Training Building doors (30 each)

____/____ h. CCW Rooms (200 each)

____/____ i. Dry Storage Warehouse (100)

____/____ j. TSC (100)

____/____ k. If resources permit, the following areas may also be done:

____/____ (1) Machine Shop

____/____ (2) Nuclear Materials Issue Warehouse

____/____ (3) Central Receiving Facility

Initials/Date

5.3.6.1.k (Cont'd)

_____/________ (4) Main Truck Gate Entry Building

_____/________ (5) Water Treatment Gate Entry Building

_____/________ (6) Security Emergency Diesel Generator Enclosure.

_____/________ 2. Verify the gas cylinders are properly secured in the Gas House inside the RCA (East of Unit 4 Dearator).

_____/________ 3. Establish emergency staffing to meet the staffing plans outlined in Attachment 1.

5.3.7 TSC Electrical Supervisor responsibilities include the following:

_____/________ 1. Ensure all doors to plant transformer control panels, outdoor electrical cabinets, etc. are closed and secured.

_____/________ 2. Coordinate with System Protection to ensure the switchyard is prepared for severe weather.

_____/________ 3. Determine if prestaging of portable generators is necessary (OSC, etc.).

_____/________ 4. Provide tarpaulins and ropes at various locations throughout the Auxiliary Building, and a supply of plastic film (pliofilm) in the Control Room, Cable Spreading Room, 4KV Switchgear Rooms and Computer Room.

_____/________ 5. Verify that the hatch cover/grating above each Heater Drain Pump, Condensate Pump, Steam Generator Feed Pump, and Auxiliary Transformer is secured.

Initials/Date 5.3.7 (Cont'd)

NOTES

- *Before locking dampers closed or installing protective covers, ensure Operations will not require use of the blocked fans.*
- *When the vent fans listed in Substep 5.3.8.17 are stopped, the following air intake, exhaust, or vent openings should be closed off.*
- *Protective covers on these dampers are required only if the dampers are inoperable.*

6. Verify that the dampers of those openings equipped with dampers are locked in the closed position.

_____/_________ a. Spent Fuel Pit Inlet Air Vents

_____/_________ b. New Fuel Storage Room Fan Inlet Vent

_____/_________ c. Spent Fuel Pit Heat Exchanger Room Fan Inlet Vent

_____/_________ d. Spent Fuel Pit Heat Exchanger Room Exhaust Vent

_____/_________ e. Containment Purge Supply Fan Air Intake

_____/_________ 7. Secure electrical service to temporary facilities.

_____/_________ 8. Protect the phone equipment rooms located in the support buildings (i.e., sandbags, visqueen, caulking).

NOTES

- *Removal of the microwave dish antenna may require crane support.*
- *The microwave dish antenna on the NAB should be removed if winds are projected to exceed 140 mph.*

_____/_________ 9. Coordinate removal of the microwave dish on the NAB.

_____/_________ 10. Provide weather protection for Lighting Panels, Fire Protection Panels, and Distribution Panels as appropriate.

_____/_________ 11. Establish emergency staffing to meet the staffing plans outlined in Attachment 1.

_____/_________ 12. Perform the site facilities duties of Step 5.3.13.

Initials/Date

5.3.8 TSC Operations Manager responsibilities include the following:

_____/_______ 1. Ensure the Emergency Coordinator is kept informed of the preparation status.

NOTE

Individuals appointed to emergency teams with personal considerations that can be addressed by the Company should be identified to the Human Resources Manager.

_____/_______ 2. Solicit volunteers for emergency staffing to resolve any personal conflicts and coordinate staffing with the Emergency Preparedness Coordinator.

_____/_______ 3. Establish emergency teams to meet the staffing plans outlined in Attachment 1.

NOTES

- *Substeps 5.3.8. 4 through 5.3.8.14 are commitments. [Commitment - Step 2.3.3]*
- *Station Blackout commitments do not allow the use of RHR when only 1 EDG is available to power both units, therefore, if more than 1 EDG starts and picks up load following the Loss of Offsite Power, RHR may be restarted.*

_____/_______ 4. Place the units in an optimum configuration to maintain plant safety in preparation for the arrival of the hurricane. To determine the optimum plant configuration, consideration should be given to the probability of the storm being a Categories 3, 4 and 5 prior to landfall, diameter of the projected area involving hurricane force winds, the uncertainty of the projected track of the hurricane, the timeframe between forecast and projected landfall, the current plant operating configuration, and the timeframe for Operations to make the desired mode change.

_____/_______ a. For storms projected to reach a Category 1 or 2, the unit(s) shall be placed in HOT STANDBY (Mode 3) at least two (2) hours before the projected onset of sustained hurricane force winds at the site and both units shall remain off-line for the duration of the hurricane force winds (or restoration of reliable offsite power). Continued cooldown in accordance with Substep 5.3.8.5.b. is also acceptable.

Initials/Date

5.3.8.4 (Cont'd)

_____/________ b. For storms projected to reach Category 3, 4, or 5 prior to landfall, the units shall be shutdown, maintaining RCS temperature between 343°F and 350°F Tavc. and steam generator pressure greater than 85 psig. RHR should be placed in service and AFW should be aligned and operable. These plant conditions shall be established at least two (2) hours before the projected onset of sustained hurricane force winds at the site and both units shall remain off-line for the duration of the hurricane force winds (or restoration of reliable offsite power).

_____/________ 5. Perform a review of the EOOSL for equipment out of service for maintenance or testing to identify those whose redundancy is desired to support reliable plant operation during the storm, and ensure work is prioritized to promptly restore such equipment to an operable status.

_____/________ 6. Review 0-OSP-200.1, Schedule of Plant Checks and Surveillances, and 0-ADM-215, Plant Surveillance Tracking Program, for Technical Specification surveillance requirements, and conduct all surveillances, if possible, that will come due during the storm.

_____/________ 7. Determine if and when operator rounds on outside equipment are to be temporarily suspended during the storm, and document instructions in the Night Orders.

NOTE

EDG's should be run for at least one hour at greater than 50 percent load.

_____/________ 8. Perform an operability run of each EDG using 3/4-OSP-023.1, Diesel Generator Operability Test, AND return the diesel generators to standby service at least 24 hours prior to projected onset of sustained hurricane force winds at the site.

Initials/Date	5.3.8 (Cont'd)
	9. Fill the following tanks:
____/______	a. Condensate Storage Tanks
____/______	b. Raw Water Tanks
____/______	c. Demineralized Water Storage Tank
____/______	d. Primary Water Tanks
____/______	e. Refueling Water Storage Tanks
	f. Circulating Water Pump Lube Water Storage Tank
____/______	10. Verify battery chargers and applicable station vital batteries are operational using 0-OP-003.1, 125V VITAL DC SYSTEM.
____/______	11. Ensure that adequate inventories of nitrogen, and carbon dioxide are available to accommodate a unit shutdown and subsequent startup.
	12. Review the following procedures in preparation for a Station Blackout, loss of Instrument Air, loss of offsite power or loss of intake cooling water:
____/______	a. 3/4-ONOP-004, Loss of Offsite Power
____/______	b. 0-ONOP-013, Loss of Instrument Air
____/______	c. 3/4-ONOP-019, Intake Cooling Water Malfunction
____/______	d. 3/4-ONOP-041.7, Shutdown LOCA [Mode 3 (less than 100 psig) or Mode 4]
____/______	e. 3/4-ONOP-041.8, Shutdown LOCA [Mode 5 or 6]
____/______	f. 3/4-ONOP-050, Loss of RHR
____/______	13. Remind FPL System Operations of the importance of expeditiously re-establishing power to the site if a Loss of offsite Power or Station Blackout occurs.
____/______	14. Perform a test run of the Security diesel using 0-OP-026, CAT 400 OPERATION.
____/______	15. Make all permissible liquid and gaseous releases before the hurricane is within two hours of the plant to minimize waste water and waste gas inventories.
____/______	16. Open redundant outdoor 480V receptacle circuit breakers using Enclosure 1, and issue a clearance to the NPS on all breakers opened.

Initials/Date 5.3.8 (Cont'd)

NOTES

- *Fans may be operated on a selected basis as operating conditions dictate.*
- *Do not allow Maintenance to secure dampers on fans which may be needed.*

17. Stop the vent fans listed below so the TSC Electrical Supervisor may lock close dampers and install protective covers:

_____/_________ a. Spent fuel pit ventilation fan

_____/_________ b. New fuel storage room vent fan

_____/_________ c. Spent fuel pit heat exchanger room vent fan

_____/_________ d. Containment purge supply and exhaust fans

_____/_________ e. Auxiliary building supply vent fans

_____/_________ f. Containment penetration cooling fans, if not required

_____/_________ g. Diesel generator room vent fans - verify in automatic

_____/_________ 18. Consult Engineering for additional preparation requirements for empty tanks (i.e., filling of tank) on a case by case basis and ensure tanks are vented to atmosphere where practicable.

_____/_________ 19. Ensure adequate inventories of chemicals (such as boric acid, ammonia, hydrazine) are available and staged in a secure area that will minimize exposure to high winds and water.

20. <u>IF</u> personnel are relocated to areas containing Halon Systems, <u>THEN</u> perform the following steps:

_____/_________ a. Issue a clearance to the NPS to isolate Halon Systems including battery backup power supplies.

_____/_________ b. Notify the TSC Fire Protection Supervisor to issue required Fire Protection Impairments.

[illegible]

Initials/Date

5.3.8 (Cont'd)

_____/________ 21. Verify Unit 3 and Unit 4 cask washdown area drains are closed by having drain covers installed and bolted.

_____/________ 22. Shutdown Amertap Systems and tag open power supply breakers to all pumps and valves. Issue a clearance to the NPS.

_____/________ 23. **IF** applicable, **THEN** suspend all fuel movement **AND** place all refueling equipment in a safe condition.

_____/________ 24. When the hurricane is less than six (6) hours from the plant, arrange to have portable bedding brought to the Control Room and other suitable locations.

_____/________ 25. Start all traveling screens at the approach of the storm.

_____/________ 26. Ensure the CAT 400 Security Diesel is in standby using 0-OP-026, Cat 400 Operation, prior to the evacuation of CAS/SAS.

_____/________ 27. Issue a clearance to the NPS on the Intake Gantry Crane, Cask Crane, and Turbine Gantry Crane to require post hurricane testing.

_____/________ 28. Perform a test run of the diesel driven SSGFP using 0-OSP-74.3, Standby Steam Generator Feed Pumps Availability Test.

_____/________ 29. Perform a test run of the diesel driven fire pump using 0-OSP-016.23, Diesel Driven Fire Pump Operability Test.

_____/________ 30. Perform a test run of the diesel driven service water pump using 0-OSP-012.1, Diesel Driven Service Water Pump Operability Test.

_____/________ 31. Perform a test run of the Diesel Instrument Air Compressors using 3/4-OP-013, Instrument Air System.

_____/________ 32. Ensure nitrogen bottles for MSIVs, steam dump to atmosphere valves, and AFW flow control valves are filled and properly secured.

Initials/Date

5.3.8 (Cont'd)

33. The following guidelines should be considered for a Category 5 Hurricane Warning, and may be considered for lesser category hurricanes:

_____/_________ a. Assist the Emergency Coordinator in establishing a shift schedule for response personnel and preposition reliefs to preclude the need to move personnel during the storm.

_____/_________ b. Determine with the Emergency Coordinator and/or NPS, if any of the guidelines from Enclosure 3, Operations Guidelines for Category 5 Hurricane with Significant Flooding, and Enclosure 4, Loss of Communications - Remote Station Guidelines, should be implemented,

_____/_________ 34. Annotated steps of this procedure and applicable plant procedures may be used to restore the plant to a normal configuration upon discontinuation of the emergency.

5.3.9 TSC Chemistry Supervisor responsibilities include the following:

_____/_________ 1. Arrange to have the fuel oil storage tanks for the Emergency Diesel Generators topped off.

_____/_________ 2. **IF** required, **THEN** isolate acid and caustic sources when adequate inventories of acid and caustic are available.

_____/_________ 3. **WHEN** the hurricane is less than two hours from the plant, **THEN** ensure the NPS has terminated all radioactive release permits.

_____/_________ 4. Ensure Staffing Plans are in place to meet the positions specified in Attachment 1.

_____/_________ 5. Perform the site facilities duties of Step 5.3.13.

5.3.10 TSC Health Physics Supervisor responsibilities include the following:

_____/_________ 1. Instruct Health Physics personnel to inspect outside areas for radioactive materials that need to be stored inside or protected from severe weather.

_____/_________ 2. Instruct Health Physics personnel to inspect the low level Radwaste Storage Warehouse and Radwaste Building and consider moving highly contaminated components stored at ground level to a higher elevation.

Initials/Date | 5.3.10 (Cont'd)

____/________ 3. Temporarily store all contaminated waste at the RCA Waste Segregation Building in a C-van and coordinate securing C-vans.

4. The following guidelines should be considered for a Category 5 Hurricane Warning, and may be considered for lesser category hurricanes:

____/________ a. Perform detailed surveys of the main passageways and establish suitable work areas if the TSC/OSC is relocated to the Auxiliary Building.

____/________ b. Locate sufficient HP supplies and equipment (including monitoring instrumentation) in the Auxiliary Building to support the emergency teams.

____/________ c. Temporarily relocate the RCA control point to the door between the New Electrical Equipment Room and the Auxiliary Building two hours prior to the approach of the storm and secure the normal entrances to the RCA.

____/________ 5. Determine the need for batteries to support air sampling and acquire from Issues Warehouse as necessary.

____/________ 6. Acquire the Health Physics instrumentation list for inventory tracking purposes.

____/________ 7. Ensure radioactive waste processing and ventilation is terminated prior to and during the hurricane.

____/________ 8. Collect radioactive sources from buildings not designed as Class 1 structures (Issues Warehouse, Florida City Substation, Nuclear Maintenance Building, etc.), and store them in the Auxiliary Building, or other suitable structures. (Special Nuclear Materials may remain in the warehouse based on location and size).

____/________ 9. Distribute assigned dosimetry to personnel assigned to stay onsite during the hurricane.

____/________ 10. Ensure survey instruments are staged in the sheltering locations.

____/________ 11. Ensure Staffing Plans are in place to meet the positions specified in Attachment 1.

____/________ 12. Perform the site facilities duties of Step 5.3.13.

Initials/Date

5.3.11 TSC Security Supervisor responsibilities include the following:

_____/_________ 1. Ensure that all visitors have been evacuated in an orderly manner form the Owner Controlled Area in accordance with 0-EPIP-20110, Criteria for and Conduct of Owner Controlled Area Evacuation.

_____/_________ 2. Maintain an accurate list of personnel who are to remain on site and verify this list against a Security printout of personnel on site.

_____/_________ 3. Coordinate the deployment of Security personnel during the severe weather.

_____/_________ 4. Verify that the CAT 400 Security Diesel is in standby.

_____/_________ 5. Prepare for the Suspension of Safeguards, as necessary.

_____/_________ 6. Perform the site facilities duties of Step 5.3.13.

_____/_________ 7. If safe to do so, have outside patrol make frequent checks of Palm Drive between the plant and SW 117th Avenue to ensure that roadway is open. Advise the NPS if the road is closed. When patrol must be suspended, bring the patrol vehicle inside the protected area.

_____/_________ 8. Open FPL parking lot to all employees and make announcement over Plant Page encouraging employees to move their vehicles to the highest available parking area.

5.3.12 TSC Fire Protection Supervisor responsibilities include the following:

_____/_________ 1. Fuel all fire protection equipment.

_____/_________ 2. Relieve personnel as directed.

3. Conduct a tour of Fire Watch Posts and the Plant to ensure the following are performed:

_____/_________ a. Fire protection equipment storage areas are secured.

_____/_________ b. All fire hose cabinet doors are shut and secured.

_____/_________ c. All fire hose reels are secured from moving.

_____/_________ d. All local alarm panel doors are closed.

_____/_________ e. All compensatory hoses are tied down.

_____/_________ f. All portable fire extinguishers are properly secured or tied down.

Initials/Date 5.3.12 (Cont'd)

____/______ 4. Ensure at least two crews of fire watch personnel are available onsite to support post hurricane activities immediately following the hurricane.

____/______ 5. Document a review of the transient combustibles placed in the power block per 0-ADM-016.1, Transient Combustible and Flammable Substances Program.

____/______ 6. Upon notification of recovery process, the Fire Watch Shift Supervisor should:

____/______ a. Notify and call in needed personnel.

____/______ b. Conduct a tour of all posts.

____/______ c. Return to normal shift schedule and staffing.

5.3.13 Site Facilities Responsibilities:

____/______ 1. Responsibility for the site facilities are as follows:

a. Emergency Preparedness Coordinator:

____/______ (1) Central Receiving Facility

____/______ (2) Issues Warehouse

____/______ (3) Overflow Building

____/______ (4) Nuclear Processing Building

____/______ (5) Old I&C Building (with the exception of the TSC)

____/______ (6) Fab Shops/Trailers (as assigned)

b. TSC Mechanical Supervisor:

____/______ (1) Nuclear Administration Building

____/______ (2) Machine Shop Building

Initials/Date	5.3.13.1 (Cont'd)
	c. TSC Electrical Supervisor:
____/________	(1) Nuclear Maintenance Building
	d. TSC Chemistry Supervisor:
____/________	(1) WTP Nuclear Chemistry/Chemical Storage
____/________	(2) Cold Chemistry Lab
	e. TSC Health Physics Supervisor:
____/________	(1) RCA Control Point Building
____/________	(2) Dry Storage Warehouse
____/________	(3) Radwaste Building
____/________	(4) RCA Dressout Building
	f. TSC Security Supervisor:
____/________	(1) Nuclear Entrance Building
____/________	(2) Main Truck Gate Entry Building
____/________	(3) Water Treatment Gate Entry Building
____/________	(4) Security Emergency Diesel Generator Enclosure
	g. TSC Supervisor:
____/________	(1) Technical Support Center
	h. TSC Technical Assistant to the Emergency Coordinator:
____/________	(1) Nuclear Training Building

Initials/Date 5.3.13 (Cont'd)

_____/________ 2. Ensure that the following steps are taken to secure the facility prior to evacuation:

NOTE

The individuals responsible for these actions are listed in Substep 5.3.13.1.

_____/________ a. Verify high value items are stored off the ground floor and away from windows:

_____/________ (1) Computers and peripherals

_____/________ (2) Laboratory equipment

_____/________ (3) Instruments

_____/________ (4) Photocopying equipment

_____/________ (5) Communications equipment

_____/________ b. Verify that plant documents are stored off of the ground floor and away from windows:

_____/________ (1) Plant procedures

_____/________ (2) Engineering drawings

_____/________ (3) Quality Assurance records

_____/________ (4) Personnel records

_____/________ (5) Procurement documentation

_____/________ (6) Contracts, invoices, budget information

_____/________ (7) Maintenance documents

_____/________ (8) FSAR, Tech Specs, Vendor Manuals

_____/________ c. Verify that sandbags required per Substep 5.3.6.3 have been or are being installed satisfactory.

Initials/Date

5.3.13.2 (Cont'd)

____/________ d. Nonessential equipment is deenergized.

____/________ e. Windows and glass doors are boarded over, as time permits.

____/________ f. Window blinds are closed.

____/________ g. Doors to rooms having windows are closed.

____/________ h. Outside doors are shut securely.

____/________ i. Grounds around the facility are free of potential hazards.

5.4 Earthquake

5.4.1 When information is received that an earthquake has occurred, the Emergency Coordinator should perform the following:

NOTES

- *The Seismic Recorders are located in the Unit 3 South Electrical Penetration Room approximately four feet below 18' elevation deck plates.*
- *I&C personnel should reference 0-PMI-103.1, Seismograph Quarterly Functional Check and Tri-Annual Battery Replacement, for developing film from the Seismic Recorder.*
- *The Seismograph can detect if an earthquake has occurred and the severity of the event. When determining severity, the Recorder's film must be developed. The film can determine if the Seismic Design Basis was exceeded and if the plant may continue safe operation.*

____/________ 1. Notify I&C Department to develop film from the Seismic Recorder.

____/________ 2. Have I&C forward developed film to Engineering to evaluate seismic event against the seismic design basis.

____/________ 3. Perform plant walkdowns/inspections to determine any detrimental effects from the event.

____/________ 4. Implement the Emergency Plan as necessary in accordance with 0-EPIP-20101, Duties of Emergency Coordinator.

Initials/Date

NOTE

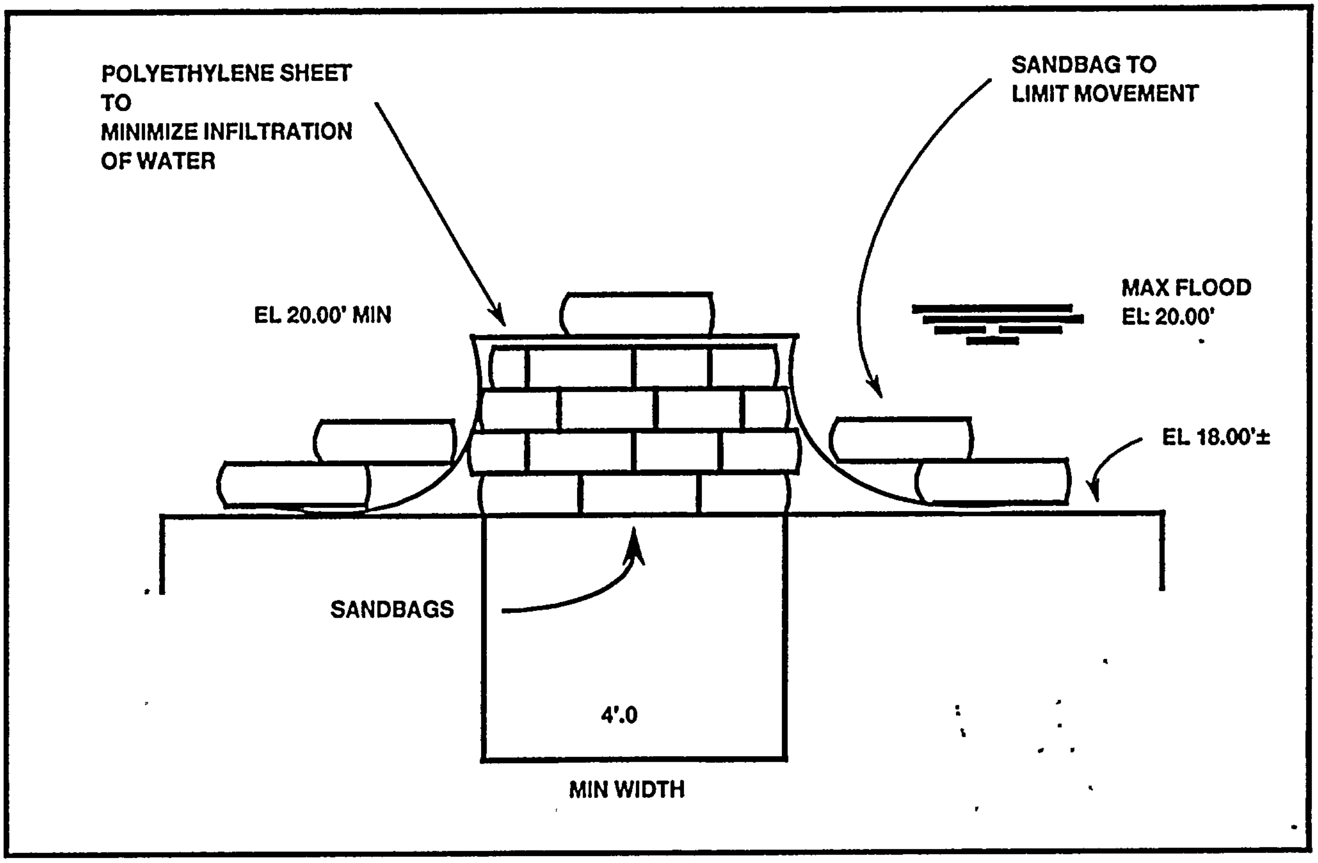
The effects of earthquake shock waves can create relay chatter which can result in alarms and equipment out of service due to relay actuation. Mercury level switches also exhibit momentary earthquake shock wave actuations and can create false level alarms (high or low).

_____/________ 5.4.2 Use the sequence of events recorders to identify relay chatter events and level switch related problems. Resetting of the relays may have been automatic or may require manual resetting if the relay has a lockout feature.

END OF TEXT

FIGURE 1
(Page 1 of 1)

DETAILS FOR FLOOD PROTECTION DIKE



Side View of Typical Sandbag Dike

NOTES:

1. The location of dikes placed along walls shall be chosen to limit obstructions with the mounted items to walls. Care shall be used when placing dikes to insure equipment/components are not obstructed.

2. Polyethylene sheets should have a minimum thickness of 4 mils.

3. Sandbag size and placement should be determined by field personnel based on availability and positioned to provide dike dimensions similar to those shown above.

4. Position sandbags used to protect doors on the side of the door that will allow opening the door and maintaining access.

ENCLOSURE 1
(Page 1 of 2)

480 VOLT RECEPTACLE LIST

NOTE

The following breakers are to be verified tagged and opened per Substep 5.3.8.17 of this procedure. The TSC Operations Manager has responsibility to ensure this is completed.

BREAKER NO.	RECEPTACLE NO./LOCATION
30653	17 and 17A, Unit 3 Containment
30661	5, West End, Aux. Building East-West Passageway
30674	6, 6A and 6B East End and Exterior East Wall of Aux. Bldg
30736	7, North End, Aux. Building North-South Passageway
30905	11 and 12, North End of Intake Area
30760	8, Unit 3 Cask Wash Area (See Footnote 1)
34341	Unit 3 Condensate Polisher Area Receptacles
40653	17 and 17A, Unit 4 Containment
40903	15 and 16, Intake Area (at Traveling Screens)
44341	Unit 4 Condensate Polisher Area Receptacles
0870	9, South End of Aux. Building North-South Passageway
0871	10, Unit 4 Cask Wash Area (See Footnote 1)
1023	13, Water Treatment Plant Area
B1605	01 and 02 Radwaste Control Area, West Wall
B1704	03, Radwaste North-South Passageway, North End
B2028	Radwaste North-South Passageway, South End and Outside Receptacles

ENCLOSURE 1
(Page 2 of 2)

480 VOLT RECEPTACLE LIST

BREAKER NO.	RECEPTACLE NO./LOCATION
Panel 3P14, Bkr 1	Two Receptacles Outside North Wall and Two Outside East Wall of No. 3 4160 Switchgear Room
Panel 3P14, Bkr 2	One receptacle at Southeast Corner No. 3 Auxiliary Transformer
Panel 3P14, Bkr 3	One Receptacle at No. 3 Bowser Filter One Receptacle West of 3A MSRH One Receptacle at Southwest Corner of Condensate Retubing Pit, Ground Level (See Footnote 2)
Panel 3P14, Bkr 4	One Receptacle in Auxiliary Feedwater Pump Area One Receptacle East of 3D MSRH
Panel 3P14, Bkr 5	One Receptacle, Turbine Deck, West Side Between Units 3 & 4 One Receptacle Under South End of Steam Platform
Panel 3P14, Bkr 6	One Receptacle on Mezzanine Level at Panel 3P14 One Receptacle at Northeast Corner of Turbine Deck
Panel 3P14, Bkr 7	One Receptacle at Northwest Corner of Turbine Deck
Panel 4P14, Bkr 1	One Receptacle at East Wall No. 4 4160 Room
Panel 4P14, Bkr 2	One Receptacle at Southeast Corner No. 4 Auxiliary Transformer
Panel 4P14, Bkr 3	One Receptacle at South Side of Condensate Retubing Pit, Ground Level One Receptacle East of Bowser Filter One Receptacle West of 4A MSRH
Panel 4P14, Bkr 4	One Receptacle East of 4D MSRH One Receptacle East of No. 4 SGFW Pump Room
Panel 4P14, Bkr 5	One Receptacle at Southwest Corner of Turbine Deck One Receptacle Under South Edge of Steam Platform
Panel 4P14, Bkr 6	One Receptacle on Mezzanine Level at Panel 4P14 One Receptacle on Turbine Deck, South of Control Room Door
DP10-5	Fan Room Area Receptacles
DP10-6	Fan Room Area Receptacles and DP441

Footnote 1: Power Supply to Emergency Spent Fuel Pit Cooling Water Pumps
Footnote 2: Power Supply to Lube Oil Reservoir Oil Renovators (DeLaval)

ENCLOSURE 2
(Page 1 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

NOTE

If a drain plug cannot be properly installed in a drain, install a sandbag dike at least two feet high around the drain.

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
2	2"	Equipment Drain	South of No. 4 Instrument Air Compressor	Remove pipe clamps and relocate equip drain lines
3	2"	Equipment Drain	On the east side of the Unit 4 Instrument Air Receiver	Loosen threaded drain pipe and loosen clamp on half-inch drain pipe
5	4"	Floor Drain	West of 4B Heater Drain Pump	Cut off the TPCW drain; unthread and remove the Heater Drain Pump drain pipe
6	4"	Hub Drain	East of 4S Instrument Air Compressor	Cut Instrument Air drains; relocate small drain tube
9	4"	Floor Drain	East of CV-4-1515 (by FI-4-5120)	None
11	4"	Hub Drain	Under 4-30-788 (South of 4A RHDT)	Inflatable plug
12	4"	Floor Drain	Under B Breathing Air Compressor	Inflatable plug
13	4"	Hub Drain	South side of 4B RHDT	None
14	4"	Floor Drain	By CV-4-1504	None
15	2"	Equipment Drain	Inside Unit 4 Silica Analyzer cabinet	None
16	4"	Floor Drain	West of Unit 4 Silica Analyzer cabinet	None
18	4"	Floor Drain	By column J-35 in the walkway outside of the Unit 4 SGFW Pump Room	None
19	4"	Hub Drain	Under valve 4-60-212 (CV-4-2203 bypass valve)	None
20	4"	Floor Drain	South of Unit 4 Generator Hydrogen Gas Dryer	None

ENCLOSURE 2
(Page 2 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
21	4"	Hub Drain	South of 4A MCC by the corner of the wall	None
22	4"	Floor Drain	North of 4A Isophase Bus Fan	None
23	4"	Equipment Drain	South of #3 Instrument Air Compressor	Cut drain pipes or loosen clamps; turn threaded drains out of the way; inflatable plug needed
24	4"	Floor Drain	By valve 3-50-562 (3B HDP suction valve)	None
25	2"	Equipment Drain	On the northeast corner of the Unit 3 Instrument Air Dryer	Loosen clamp and move threaded drain out of the way; inflatable plug needed
26	2"	Equipment Drain	On the west side of the U3 Heater Drain Pump Foundation	Move threaded drains out of the way
27	4"	Floor Drain	East of CV-3-1515	None
29	4"	Hub Drain	Under Valve 3-30-788 (South of 3A RHDT)	Inflatable plug
30	4"	Floor Drain	West of the Chemical Addition pumps	None
32	2"	Hub Drain	East of Chemical Addition Tanks	None
33	2"	Hub Drain	East of Chemical Addition Tanks	None
34	4"	Hub Drain	South of 3B RHDT	None
35	4"	Floor Drain	By CV-3-1504	None
38	4"	Floor Drain	Outside the entrance to 4B 4160 Volt Switchgear Room	None
39	2"	Equipment Drain	Inside the Unit 3 Silica Analyzer cabinet	None
40	4"	Floor Drain	In the Walkway by Fire Locker Number 1	None
41	4"	Floor Drain	West of C AFW Pump in the Walkway	None
44	2"	Equipment Drain	At the south end of the Unit 4 Gland Steam Condenser	Loosen clamp and move drain pipe
45	4"	Floor Drain	By the Unit 3 Generator Hydrogen Alarm Panel	None
46	4"	Hub Drain	Behind Valve 3-60-212 (CV-3-2203 Bypass Valve)	None
47	4"	Floor Drain	South of the Unit 3 Generator Hydrogen Gas Dryer	None

[illegible]

ENCLOSURE 2
(Page 3 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
48	4"	Floor Drain	North of the 3A Isophase Bus Fan	None
49	4"	Hub Drain	South of the 3A MCC Non-vital side	None
52	4"	Floor Drain	Outside the entrance to 3A 4160 Volt Switchgear Room	None
63	8"	Outlet pipe of Catch Basin 15	In the RCA, West of the Unit 4 West Electrical Penetration Room	Install temporary pump in the catch basin with discharge routed to outside the Flood Protection Barrier concurrent with plug installation
68	4"	Floor Drain	North end of Unit 3 CCW Room in the Valve Pit	None
69	4"	Floor Drain	By the North Pedestal of 3B CCW Heat Exchanger	None
70	4"	Floor Drain	Just south of 3B CCW Heat Exchanger	None
71	4"	Floor Drain	Unit 3 CCW Room by 3B CCW Pump	None
72	4"	Floor Drain	Unit 4 CCW Room just east of the Aux Building Doors	None
73	4"	Floor Drain	Unit 4 CCW Room in the Pump Area	None
74	4"	Floor Drain	Unit 4 CCW Room just North of 4B CCW Heat Exchanger	None
75	4"	Floor Drain	By the South Pedestal of 4B CCW Heat Exchanger	None
76	4"	Floor Drain	South end of Unit 4 CCW Room in the valve pit	None
77	3"	Floor Drain	Unit 4 Bowser Lube Oil Conditioner under Valve 4-40-020 in the southeast corner	None
78	3"	Floor Drain	Unit 4 Bowser Lube Oil Conditioner on the north side of the conditioner under FG-4-3401	None
79	3"	Hub Drain	Unit 4 Bowser Lube Oil Conditioner to the east of the Unit 4 Lube Oil Transfer Pump	None
80	3"	Hub Drain	Outside the northeast corner of the Unit 4 Bowser Lube Oil Conditioner pit	Cut drain line

ENCLOSURE 2
(Page 4 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
83	3"	Floor Drain	In the Unit 4 SGFW Pump Room on the south end between the motors	None
84	3"	Equipment Drain	Just North of 4A SGFW Pump	Unthreaded drain pipe; use inflatable plug
85	3"	Floor Drain	In the Unit 4 SGFW Pump Room just west of valve 4-20-218 (4B SGFW Pump discharge check valve) under the deck plate	None
86	2"	Equipment Drain	Just north of 4B SGFW Pump	Unthreaded drain pipe; use inflatable plug
87	2"	Equipment drain	In the southwest corner of the Unit 4 Generator Seal Oil Pit	Loosen clamps to move drain pipe; use inflatable plug.
88	3"	Floor Drain	In the northwest corner of the Unit 4 Auxiliary Transformer Pit	None
89	3"	Floor Drain	Just north of the Unit 4 Auxiliary Transformer Pit	None
90	3"	Hub Drain	In the southeast corner of the Unit 3 Bowser Lube Oil Conditioner Pit under Valve 3-40-025.	Inflatable plug
91	3"	Floor Drain	In the Unit 3 Bowser Lube Oil Conditioner Pit just north of the conditioner under FG-3-3401	None
92	3"	Hub Drain	In the Unit 3 Bowser Lube Oil Conditioner Pit just east of the Unit 3 Lube Oil Transfer Pump	None
93	3"	Hub Drain	In the northeast corner of the Unit 3 Bowser Lube Oil Conditioner Pit	Cut Pipe
96	3"	Floor Drain	In the Unit 3 SGFW Pump Room on the south end between the motors	None
97	3"	Equipment Drain	Just north of 3A SGFW Pump	Loosen unions and threaded drain pipe if required; use inflatable plug.
98	3"	Floor Drain	In the Unit 3 SGFW Pump Room just west of Valve 3-20-218 (3B SGFW Pump discharge check valve) under the deck grating	None
99	2"	Equipment Drain	Just north of 3B SGFW Pump	Loosen unions to move drain pipe out of the way.

ENCLOSURE 2
(Page 5 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

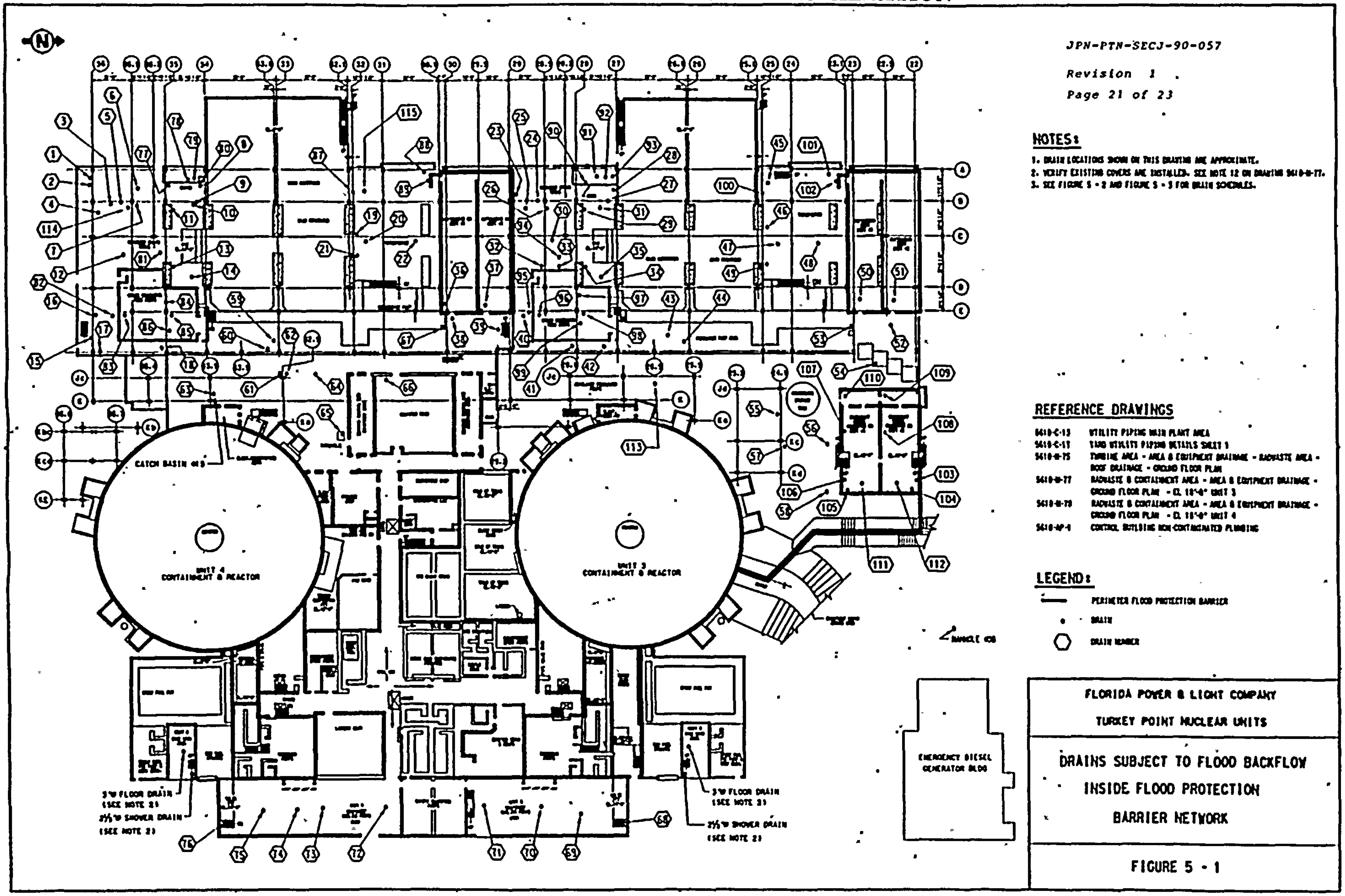
DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
100	3"	Equipment Drain	In the southwest corner of the Unit 3 Generator Seal Oil enclosure	None
101	3"	Floor Drain	In the northwest corner of the Unit 3 Auxiliary Transformer Pit	None
102	3"	Floor Drain	Just north of the Unit 4 Auxiliary Transformer Pit	None
103	2"	Hub Drain	In the 3A EDG Room under C air receiver	Move threaded drains out of the way; use inflatable plug.
106	2"	Hub Drain	In the 3B EDG Room under C air receiver	Inflatable plug
107	3"	Floor Drain	In the 3B EDG Room just east of the electrical control room	None
108	4"	Floor Drain	In the 3A EDG Room just east of the Electrical Control Panel	None
109	2"	Hub Drain	In the 3A EDG Radiator Room on the southeast side of the radiator	None
110	2"	Hub Drain	In the 3B EDG Radiator Room on the southeast side of the radiator	None
111	4"	Floor Drain	In the 3B EDG Room under the air dryer skid	None
112	4"	Floor Drain	In the 3A EDG Room under the air dryer skid	None
114	2"	Equipment Drain	Between the 4A and 4B Heater Drain Pumps on the west side of the foundation	None
115	4"	Floor Drain	To the northeast of the Unit 4 Generator Hydrogen Alarm Panel	None

ENCLOSURE 2
(Page 6 of 8)

DRAIN PLUGS LOCATIONS AND INSTALLATION

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
NNA	12"	Manhole #3B Inlet Pipe	West of the New Unit 4 EDG Building	Buried Plug inlet pipe on west side of the manhole.
NNA	2"	Floodwell Drain	Unit 3 CCW Pipe Trench	Plug 2" drain line in bottom of trench Floodwell. Drain line is north of centerline in Floodwell. Coordinate removing deckplates with Mechanical Maintenance or Projects Department. Contact Health Physics prior to entering the trench.
NNA	2"	Floodwell Drain	Unit 4 CCW Pipe Trench	Plug 2" drain line in bottom of trench Floodwell. Drain line is south of centerline in Floodwell. Coordinate removing deckplates with Mechanical Maintenance or Projects Department. Contact Health Physics prior to entering the trench.
NNA	8"	Catch Basin #15 Outlet Pipe	West of Unit 4 West Electrical Penetration Room near Column Line K-33.9	Plug 8" Outlet Pipe in Catch Basin.

ENCLOSURE 2
(Page 7 of 8)
DRAIN PLUGS LOCATIONS AND INSTALLATION



ENCLOSURE 2
(Page 8 of 8)
DRAIN PLUGS LOCATIONS AND INSTALLATION

FIGURE 1
DETAIL FOR PLUGGING FLOOR DRAINS

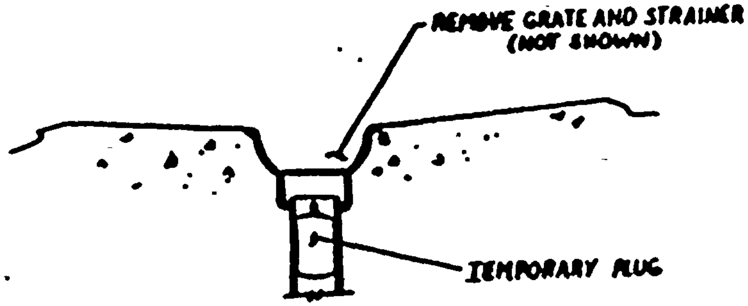


FIGURE 2
DETAIL FOR PLUGGING HUB DRAINS
AND EQUIPMENT DRAINS

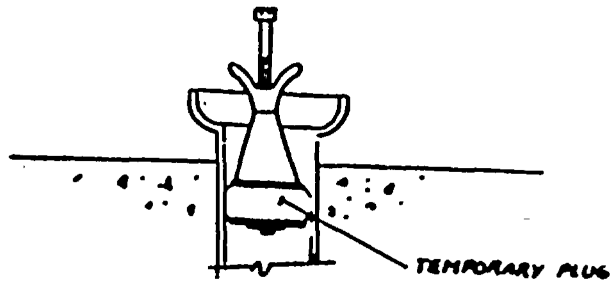


FIGURE 3
DETAIL FOR PLUGGING CATCH BASIN
OR MANHOLE DRAIN PIPE

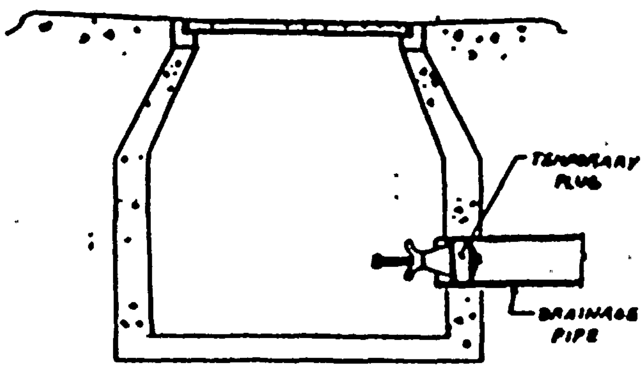
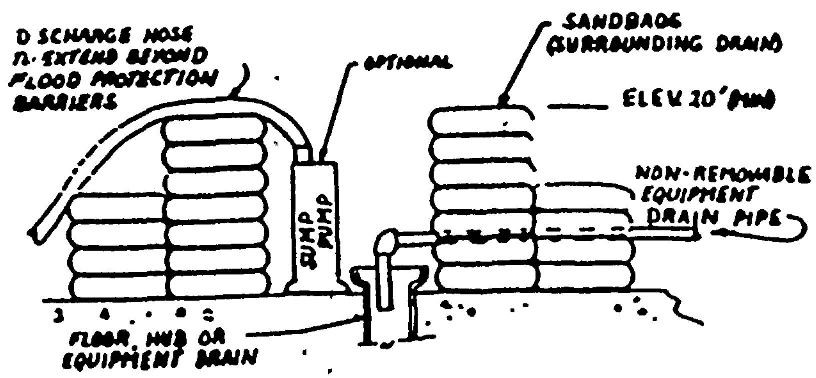


FIGURE 4
DETAILS FOR FLOOD PROTECTION
IN WHICH
DRAIN CANNOT BE PLUGGED



ENCLOSURE 3
(Page 1 of 15)

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

1.0 DISCUSSION

1.1 This enclosure provides guidelines for Plant Operations before, during, and after a Category 5 hurricane with significant flooding outside of the design basis. The degree to which these guidelines are used is per NPS discretion after consultation with the Emergency Coordinator.

1.2 The guidelines address plant damage - particularly from flooding - outside of the plant design basis. The focus is on personnel safety and maintaining the RCS below 350°F to minimize RCP seal degradation. The following core cooling contingencies are addressed for the units initially in Mode 5:

1.2.1 RHR Loops

1.2.2 AFW Train 2

1.2.3 AFW Train 1 (pre-throttled)

1.2.4 Bleed and Feed

1.3 In addition, measures are presented for maintaining essential equipment and instrumentation and safely deploying personnel at remote stations.

2.0 PREPARATION

2.1 Modes 1-4

2.1.1 Shutdown/cooldown to approximately 300°F in accordance with *-GOP-103, Power Operation to Hot Standby/*-GOP-305 Hot Standby to Cold Shutdown:

1. Do not open the main generator disconnects in the switchyard; do open the main generator links in case backfeed is required later.

2. Purge the generator with carbon dioxide; shutdown seal oil and lube oil systems.

3. Isolate steam generator blowdown.

4. Maintain steam generators at approximately 70 percent narrow range level.

ENCLOSURE 3
(Page 2 of 15)

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

NOTE

The following evolution throttles auxiliary feedwater and steam flows under natural circulation conditions with the RCS at approximately 300°F. The purpose is to prepare for a beyond-design scenario where neither RHR cooling nor AFW flow control valve operation are possible. The objective is to throttle flows to maintain RCS temperature and steam generator levels at near-equilibrium.

2.1.2 Throttle steam flow and AFW train 1 flow for natural circulation conditions with the RCS at approximately 300°F. If both units were initially in Modes 1-4, coordinate between units to perform this evolution simultaneously:

1. Place AFW train 1 flow control valves in manual with zero demand.
2. Start AFP "A" in accordance with *-OP-075, Auxiliary Feedwater System.
3. Open all MSIV Bypass MOVs.
4. Open *-043 and *-044, hogger jet ejector main steam isolation valves.
5. Stop all running NCC and CRDM fans.
6. Stop all running RHR pumps and RCPs for up to one hour per Tech Spec 3.4.1.3.
7. Verify natural circulation:
   a. RCS subcooling based on core exit TCs - Greater than 30°F
   b. S/G pressures - Stable or Decreasing
   c. RCS hot leg temperatures - Stable or Decreasing
   d. Core exit TCs - Stable or Decreasing
   e. RCS cold leg temperatures - Within 35°F of saturation temperature for S/G Pressure.

ENCLOSURE 3

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.1.2 (Cont'd)

8. Make the following adjustments until steam generator levels and RCS average temperature are as close as possible to equilibrium.

    a. Close the steam dump to atmosphere valves.

    b. Throttle open *-072, hogger jet ejector main steam isolation valve. If needed, add other dummy steam loads (such as water box air ejectors or steam trap drains) to allow throttling of *-072.

    c. Take local control of CV-*-2816, CV-*-2817, and CV-*-2818, AFW train 1 flow control valves, and throttle them open while closing the main feedwater bypass valves.

    d. Continue Steps b and c until steam generator levels are maintained at approximately 70 percent and RCS average temperature is maintained at approximately 300°F with steam dump to atmosphere valves and main feedwater bypass valves closed.

    e. Lock the train 1 AFW flow control valves in the throttled position.

9. Stop AFP "A" in accordance with *-OP-075, Auxiliary Feedwater System, and maintain steam generator levels with the main feedwater bypass valves.

10. Return AFW to standby in accordance with *-OP-075, Auxiliary Feedwater System, leaving the train 1 AFW flow control valves locked in the throttled position.

11. Start desired RHR pump.

12. Start desired NCC and CRDM fans.

ENCLOSURE 3

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.1.3 Continue plant cooldown to Mode 5 in accordance with *-GOP-305, Hot Standby to Cold Shutdown:

1. Fill the pressurizer to 90 percent narrow range level.

CAUTIONS

- *Do not make up to the RCS during the cooldown (except to compensate for known leakage) or an overfill situation may result upon plant heat up.*
- *Maintain pressurizer temperature as high as possible above RCS temperature without challenging the OMS set point or exceeding a 320°F differential.*

2. Cooldown on RHR until pressurizer level drops to 22 percent.
3. Maintain the plant on RHR in Mode 5; do not heat up.

2.1.4 See Subsection 2.4, Prepare Equipment and Station Personnel on Each Unit, for further preparatory guidelines.

ENCLOSURE 3

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.2 Mode 5

2.2.1 IF the RCS is NOT filled and vented, THEN perform the following:

CAUTION

Drain down condition with steam generators unavailable and RCS integrity breached is the most dangerous plant configuration during the storm. The following actions should begin early and be given high priority:

1. Commence immediate action to restore steam generator operability (replace man ways, etc.).
2. Simultaneously commence action to restore RCS integrity (if breached)
3. When RCS integrity is achieved, commence fill and vent per *-OP-041.8, Filling and Venting the Reactor Coolant System.

2.2.2 IF the RCS is filled and vented, THEN perform the following:

1. Establish containment integrity as soon as possible.
2. Maintain RCS temperature as low as possible.
3. Draw a pressurizer bubble per *-OP-041.2, Pressurizer Operation.
4. Maintain pressurizer temperature as high as possible above RCS temperature without challenging the OMS set point or exceeding a 320°F differential.
5. Secure steam generators from wet lay up, if applicable.
6. Maintain steam generators at approximately 70 percent narrow range level.
7. Line up AFW and place it in standby per *-OP-075, Auxiliary Feedwater System.
8. See Subsection 2.4, Prepare Equipment and Station Personnel On Each Unit, for further preparatory guidelines.

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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.3 Mode 6

2.3.1 IF the reactor is NOT defueled, THEN perform the following:

1. Terminate all fuel transfer operations and secure fuel transfer equipment.
2. Transfer the conveyor cart to the spent fuel pit.
3. Close the tube gate valve.
4. Establish containment integrity.
5. Maintain RCS temperature as low as possible.
6. Fill the cavity to normal band.
7. Select further preparatory actions as applicable from Subsection 2.4, Prepare Equipment and Station Personnel On Each Unit.

2.3.2 IF the reactor is defueled, THEN perform the following:

1. Maintain the spent fuel pit temperature as low as possible.
2. Verity the spent fuel pit level is in the normal band.
3. Verify the transfer canal is filled (at least on the spent fuel pit side) with the transfer tube gate valve closed.
4. Select further preparatory actions as applicable from Subsection 2.4, Prepare Equipment and Station Personnel On Each Unit.

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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.4 Prepare Equipment and Station Personnel On Each Unit:

2.4.1 Determine whether splitting the CCW headers is necessary to minimize missile vulnerability of exposed piping and/or splitting CCW to the Safety Injection Pumps so that each unit supplies its own Safety Injection Pumps.

2.4.2 Observing *-OP-30, Component Cooling Water System, precautions, isolate CCW to selected non-essential de-energized equipment.

2.4.3 Isolate containment to the extent practical.

2.4.4 Verify the spent fuel pit level and temperature are satisfactory.

2.4.5 Test the Diesel Driven Fire Pump in accordance with 0-OSP-012.1, Diesel Driven Service Water Pump Operability Test.

2.4.6 To allow pressurizer backup heater operation, place the keylock switch on the back of 3D/4D load center in bypass and reset the lockout relay in the appropriate electrical penetration room.

2.4.7 Personnel should be positioned at the following remote stations to perform local actions:

1. Auxiliary Building (if tenable)-1 SRCO/SRO, 4 SNPO/NO
2. Each unit's 480V Vital Load Center Room (also includes 4kv rooms)-1 SRCO/SRO, 2 SNPO/NPO/TO's
3. Unit 3 EDG Building-2 SNPO/NPO/TO's
4. Unit 4 EDG Building -4 SNPO/NPO/TO's
5. Cable Spreading Room-1 SRCO/SRO, 4 SNPO/NPO/TO's
6. Inverter Room-2 NWE/SRCO/RCO's not involved in Control Room duties.

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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

2.4.8 Determine whether assigning experienced supervisory operators to the remote stations is necessary.

2.4.9 Ensure these personnel are in position prior to the arrival of the storm and have appropriate safety equipment, materials to stop flooding or make minor repairs, and needed keys (such as ICCS, vital area).

2.4.10 Ensure remote station personnel responsible for ground isolation have a copy of the breaker list and relevant ONOPs.

NOTE

Enclosure 4 provides guidance for personnel at remote stations in case all communications with the control room are lost. Each station should have a full copy so that each knows what the others plan to do if communications are lost.

2.4.11 Instruct remote station personnel to continuously monitor local conditions and equipment status; Enclosure 4 is to be used if (and only if) all communication between the control room and remote stations is lost.

2.4.12 Turn off selected non-essential loads to minimize the potential for bus grounding in accordance with Technical Specification requirements.

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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

3.0 MITIGATION

CAUTION

As the hurricane passes, no personnel should be allowed to leave stations. Exceptions should be conducted using applicable guidance contained in 0-EPIP-20111, Re-Entry.

NOTES

- *EOPs and ONOPs should be carefully evaluated during a Category 5 hurricane since these procedures assume that most areas of the plant are accessible. Deviations from procedures shall comply with approved administrative procedures.*
- *Control Room personnel should constantly monitor their equipment in case it grounds or is secured by an operator performing ground isolation from a remote station.*

3.1 IF Offsite Power is lost, THEN perform the following:

3.1.1 Consult *-ONOP-004, Loss of Offsite Power.

3.1.2 Locally open *-358 and close LCV-*-115C since LCV-*115C will fail as is.

3.2 IF all AC is lost, THEN perform the following:

3.2.1 Consult *-ONOP-004, Loss of Offsite Power, and *-ONOP-050, Loss of RHR.

3.2.2 IF RHR was is service, THEN see loss of RHR guidance below.

3.2.3 Determine the need to save sufficient capacity to start an EDG prior to using the spare battery for DC loads.

ENCLOSURE 3
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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

3.3 IF all DC power is lost in addition to loss of all AC, THEN perform the following:

3.3.1 Consult the TSC about the possibility of having I&C obtain instrumentation readings from the Hagan racks and other locations.

3.3.2 Consult the TSC about the possibility of having Electrical operate MOV's from dead breakers using portable generators/transformers.

3.4 IF RHR is lost, THEN perform the following:

NOTE

If RCS temperature rises above the value initially established in Section 2, Preparation, of Enclosure 4, pressurizer level should be allowed to rise. The plant should stabilize at approximately the conditions established during the natural circulation evolution performed in Section 2.

3.4.1 Consult *-ONOP-050, Loss of RHR.

3.4.2 IF use of AFW becomes necessary, THEN train 2 should be used as long as possible.

3.4.3 Determine whether using other available control valves or the manual isolation valves to the hogger jet ejector are necessary if steam dump to atmosphere valves cannot be used to throttle steam.

3.4.4 Maintain steam generators between 40 percent and 70 percent narrow range level and RCS average temperature less than 350°F.

3.4.5 IF AFW train 2 is lost, THEN perform the following:

1. Consult *-ONOP-075, Auxiliary Feedwater System Malfunction.
2. Open MOV-*-1403.
3. Close MOV-*-1405.

3.4.6 Maintain steam generators between 40 percent and 70 percent narrow range level and RCS average temperature less than 350°F.

ENCLOSURE 3

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

3.4.6 (Cont'd)

NOTE

After running an auxiliary feedwater pump, approximately three hours is required for the governor oil pressure to completely bleed down. While less than three hours bleed-down time may be adequate to prevent overspeed upon restart, the risk of losing the pump or having to perform a local reset of the overspeed trip must be weighed against the benefit gained and the alternatives available.

1. Cycle MOV-*-1403 for steam generator level control if necessary.
2. If local actions appear necessary, consult the Emergency Coordinator.
3. Request the TSC to begin researching bleed and feed contingencies.

3.5 IF CCW is lost, THEN perform the following:

3.5.1 Stop any running RHR pump.

3.5.2 Consult *-ONOP-030, Component Cooling Water Malfunction.

3.5.3 If CCW is lost on one unit, determine whether cross-tying CCW system is necessary.

3.5.4 If CCW is lost on both units, connect service water to the charging pumps. If service water is not available and charging pump operation is required, alternate charging pumps to minimize pump heat up.

3.5.5 Review loss of RHR and loss of spent fuel pit cooling guidance.

3.6 IF ICW is lost, THEN perform the following:

3.6.1 Stop any running RHR pump

3.6.2 Consult *-ONOP-019, Intake Cooling Water Malfunction.

3.6.3 Review loss of CCW guidance.

[illegible]

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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

3.7 IF Instrument Air is lost, THEN perform the following:

3.7.1 Consult 0-ONOP-013, Loss of Instrument Air.

3.7.2 After verifying letdown isolation and any running charging pump go to maximum speed, perform the following:

1. Stop any running charging pump.
2. Open *-358, manual bypass around LCV-*-115B
3. Close LCV-*-115C.

3.7.3 After verifying HCV-*-758 failed open resulting in RCS cooldown and pressurizer level drop, perform the following:

1. Throttle CCW to the RHR heat exchanger to return RCS temperature and pressurizer level to the values initially established in Section 2, Preparation, of Enclosure 3.

3.7.4 Cycle charging pumps as needed to maintain the desired pressurizer level.

NOTE

AFW flow control valves, PORVs, and steam dump to atmosphere valves will go to backup nitrogen upon a loss of Instrument Air.

3.7.5 Place AFW Train 2 flow controllers in MANUAL to conserve nitrogen.

3.8 IF Spent Fuel Pit Cooling is lost and boiling occurs, THEN possible sources of makeup include RWST purification pumps, primary water pumps, CVCS holdup tank pumps, the water treatment plant, service water, fire water, and portable pumps.

ENCLOSURE 3

OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

NOTE

0-ONOP-16.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions, contains valuable information on equipment in rooms and their power supplies. This information may be useful if a room is flooding and equipment in it needs to be de-energized.

3.9 IF plant flooding is imminent, THEN perform the following:

3.9.1 For Auxiliary building flooding:

1. De-energize the remaining MCCs
2. Open *-358 and close LCV-*115C on both units
3. Evacuate through the New Electrical Equipment Room to the Cable Spreading Room.

3.9.2 For Turbine Building Flooding, start the 3A EDG and run it in idle in case the 3A MCC floods.

3.9.3 For Computer Room flooding, de-energize ERDADS.

3.10 Refer to Enclosure 4, Loss of Communications - Remote Station Guidelines, if all onsite communications are lost.

ENCLOSURE 3
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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

4.0 **RECOVERY**

CAUTION

The site is likely to present unforeseen hazards to recovery teams, such as weakened structures, faulted piping, electrical hazards, dispersed hazardous chemicals, and an absence of fire fighting capability. Recovery teams and general access must be controlled to minimize risk.

4.1 Dispatch, as necessary, teams to search for missing personnel, assess damage, and perform repairs on critical systems once tropical storm force winds recede.

4.2 Determine which of the following guidelines are applicable before energizing plant equipment:

NOTE

If electrical equipment is needed for plant or public safety before a full operability assessment can be completed.

4.2.1 No electrical equipment should be re-energized until it is checked by an electrician.

4.2.2 IF reactor safety is challenged AND time does not permit equipment recovery actions (such as rinse and dry, megger), THEN energize the minimum equipment necessary to meet the challenge and, if possible, station a watch at a safe distance from the equipment.

4.2.3 Spare motors may be available from the nuclear units, fossil units, or Issues Warehouse, and if time permits, install spares to allow wetted motors to be recovered.

ENCLOSURE 3
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OPERATIONS GUIDELINES FOR CATEGORY 5 HURRICANE WITH SIGNIFICANT FLOODING

4.2.4 For electrical components wetted by the storm surge or wave action, have Electrical perform a fresh water rinse, dry, and megger, as necessary, and after successful meggering, energize any installed heaters.

4.2.5 For electrical components wetted, by rain, have Electrical dry and megger the equipment, as necessary, and after successful meggering, energize any installed heaters.

4.3 Remove all stop logs and drain plugs to allow any trapped water to drain out as soon as practical.

NOTE

Federal, state, or local assistance may be required in the wake of the storm due to damage to plant systems and impaired site access.

4.4 Make required reports and transmit a prioritized list of needs to outside agencies as soon as communications are re-established.

NOTE

Priority must be placed on the restoration of electrical power and establishing or maintaining RCS or spent fuel pit cooling support systems (depending on where the fuel is).

4.5 Restore the plant to a normal configuration upon discontinuation of the emergency, using annotated steps of this procedure and applicable plant procedures.

ENCLOSURE 4

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

1.0 <u>480V LOAD CENTER ROOM OPERATOR</u>

NOTE

These instructions are provided in case all communications are lost between the Control Room and your station. Before resorting to these default instructions, attempt to contact the Control Room on all communications circuits. Use of these instructions must be tempered by your understanding of the current situation and good judgement.

1.1 Monitor the 4KV Bus Rooms for flooding and the 480V Load Center Rooms for water intrusion and attempt to contain or divert minor flooding to keep it away from the buses.

CAUTION

Even if a 4kv bus feeder breaker is tripped, breaker control power is normally present and presents an electrical safety hazard.

1.2 <u>IF</u> flooding of a bus is imminent, <u>THEN</u> trip the feeder breaker for that bus and remain out of that bus's room.

1.3 Continually check the 4KV buses for grounds in accordance with *-ONOP-005.4, 4KV Bus *A, *B, or *D Ground, and if a ground is detected, perform ground isolation:

1.3.1 <u>IF</u> the 4KV ground is isolated to a non-load center load, <u>THEN</u> leave the breaker open.

ENCLOSURE 4
(Page 2 of 9)

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

NOTES

- *If a remote station operator observes that a load center or MCC is deenergized, then he will locally perform ground isolation. He will expect the 480V Load Center Room Operator to reenergize the load center or MCC, as discussed below.*
- *If a ground is localized to H Load Center, both feeder breakers should be opened to isolate the ground. When re-energizing the load center, only one feeder breaker should be closed for the first five minutes. If no ground is detected, then the other feeder breaker may be closed.*

1.3.2 IF the 4KV ground is isolated to a load center, THEN perform the following:

1. IF the 480V ground is isolated to a non-MCC Load, THEN leave the breaker open.
2. IF the ground is isolated to an MCC, THEN perform the following:
   a. Open the MCC's feeder breaker(s) for ten minutes.
   b. Attempt to reclose the feeder breaker(s) after ten minutes.
   c. IF the ground is NOT present, THEN leave the breaker closed.
   d. IF H MCC ground is still clear after 5 minutes, THEN close the other feeder breaker.
   e. IF the ground is still present, THEN reopen the breaker for another ten minutes.
   f. Repeat until the ground disappears or until communications are re-established.

ENCLOSURE 4

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

2.0 AUXILIARY BUILDING OPERATOR

NOTE

These instructions are provided in case all communications are lost between the Control Room and your station. Before resorting to these default instructions, attempt to contact the control Room on all communications circuits. Use of these instructions must be tempered by your understanding of the current situation and good judgement.

2.1 Monitor the Auxiliary Building for flooding. Attempt to contain or divert minor flooding away from the MCCs and the charging pumps.

CAUTION

MCC local feeder breakers are actually disconnect switches; do not interrupt load with them.

2.2 IF flooding of an MCC is imminent, THEN shed all loads on. the MCC and then open the local feeder breaker for that MCC.

2.3 IF water level throughout the Auxiliary Building is rising and all MCCs and charging pumps are threatened, THEN perform the following:

2.3.1 Shed all loads on the MCCs.

2.3.2 Open the MCCs' local feeder breakers.

2.3.3 Open *-358 and close LCV-*-115C on both units.

2.3.4 Evacuate to the Cable Spreading Room via the New Electrical Equipment Room.

ENCLOSURE 4
(Page 4 of 9)

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

NOTES

- *If a load center room operator observes that an MCC is grounded, he will open the load center breaker for that MCC. After ten minutes, the operator will reclose the breaker. He will repeat this until the ground is isolated by the Auxiliary Building Operator or until communications are re-established.*
- *Coordinate any ground isolation efforts on the 3D MCC with the Cable Spreading Room Operator.*

CAUTIONS

- ***Ensure the MCC local feeder breaker (disconnect) is open when ground isolation is being performed.***
- ***All applicable safety precautions for working with energized equipment must be followed. Electricians troubleshooting grounds and measuring voltages need to be very careful to prevent injury. Emergency medical response may be delayed and will be limited by the hurricane.***

2.4 IF an MCC voltage suddenly goes to zero, THEN perform the following:

2.4.1 Open the local feeder breaker for that MCC.

2.4.2 Have an electrician check whether the MCC is grounded.

2.4.3 IF the MCC is grounded, THEN have an electrician determine which load is grounded.

2.4.4 Open the grounded load breaker.

ENCLOSURE 4
(Page 5 of 9)

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

2.4.5 **IF** the voltage to the MCC is still zero, **THEN** close the MCC local feeder breaker, **OR** perform the following:

1. Recording all changes made, shed all loads on the MCC.
2. Close the MCC's local feeder breaker.
3. Except for the grounded load, restore MCC loads.

2.4.6 **IF** the ground is not isolable, **THEN** leave the local feeder breaker open.

2.5 **IF** no ground is found on a de-energized MCC, **THEN** close the local feeder breaker.

2.6 **IF** the MCC remains de-energized for ten minutes, **THEN** repeat Subsection 2.4 every thirty minutes until the MCC is re-energized **OR** until communications are re-established.

3.0 CABLE SPREADING ROOM OPERATOR

NOTE

These instructions are provided in case all communications are lost between the Control Room and your station. Before resorting to these default instructions, attempt to contact the Control Room on all communications circuits. Use of these instructions must be tempered by your understanding of the current situation and good judgement.

3.1 Monitor the Cable Spreading Room for water intrusion and periodically open all DC bus and MCC enclosures in the Cable Spreading and Electrical Equipment Rooms to check for water.

ENCLOSURE 4
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LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

NOTE

Timely ground isolation is required to protect against double grounds which are much harder to locate.

3.2 Continuously monitor DC bus voltage and ground indication in accordance with 0-ONOP-003.10, 125 VDC System - Location of Grounds, and 0-ONOP-003.11, Auxiliary 125 VDC System - Location of Grounds.

3.3 **IF** a DC ground is detected, **THEN** perform ground isolation in accordance with applicable off-normal procedure.

3.4 Continuously monitor voltage in the Electrical Equipment Room:

NOTE

If a Load Center Room Operator observes that a load center or MCC is grounded, he will open the breaker for that load center or MCC. After ten minutes, the operator will reclose the breaker. He will repeat this until the ground is isolated by the Cable Spreading Room Operator or until communications are reestablished.

3.4.1 **IF** voltage is lost to an H load center, **THEN** open both local feeder breakers and have an electrician determine grounded load(s):

1. **IF** the 480V ground is isolated to a non-MCC load, **THEN** leave that load's breaker open.

NOTE

If the ground is isolated to 3D vital MCC, coordinate ground isolation efforts with the Auxiliary Building operator.

2. **IF** the ground is isolated to a D vital MCC, **THEN** perform the following:

   a. Open the MCC's feeder breaker.

ENCLOSURE 4

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

3.4.1 (Cont'd)

3. **WHEN** ground is isolated, **THEN** reclose the H Load Center feeder breakers

   a. Verify that the grounded load breaker is open.

   b. **IF** the ground is isolated, **THEN** reclose the MCC feeder breaker and restore loads as necessary.

   c. **IF** the ground is not isolable, **THEN** leave the MCC feeder breaker open.

3.4.2 Frequently check 120V AC panels to be energized.

3.4.3 **IF** the 120V AC panel is de-energized or grounded, **THEN** perform the following:

1. Open the local feeder breaker.
2. Have an electrician determine grounded load(s).
3. Open grounded load breaker(s)
4. **WHEN** grounded loads are clear, **THEN** close the feeder breaker.

ENCLOSURE 4
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LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

4.0 UNIT 3 EDG OPERATOR

NOTE

These instructions are provided in case all communications are lost between the Control Room and your station. Before resorting to these default instructions, attempt to contact the Control Room on all communications circuits. Use of these instructions must be tempered by your understanding of the current situation and good judgement.

CAUTION

Stand clear of the EDGs since they may start at any time.

4.1 Monitor the rooms for water intrusion and attempt to contain or divert minor flooding that threatens the safe operation of an EDG.

4.2 IF flooding in a room threatens energized electrical equipment, THEN open appropriate local breakers.

4.3 IF the electrical equipment cannot be isolated locally due to flooding, THEN attempt to isolate the equipment from a remote power source (i.e., Load Breaker at MCC, LC for MCC, 4KV Bus for LC, EDG for 4KV Bus) stopping the EDG and remaining on elevated platforms above the flooding.

4.4 IF the room becomes untenable, THEN evacuate to the Cable Spreading Room or Load Center Room.

4.5 Continuously monitor running EDGs, AND IF trouble is noted, THEN consult 3-ONOP-023.2, Emergency Diesel Generator Failure for guidance and attempt to rectify the problem.

4.6 IF the EDG load suddenly drops to zero, THEN check the EDG output breaker, AND IF open, the bus is probably grounded.

4.7 IF an EDG runs unloaded for four hours AND no communications from the Control Room or Load Center Room are received, THEN stop the EDG and place it in standby.

ENCLOSURE 4
(Page 9 of 9)

LOSS OF COMMUNICATIONS - REMOTE STATION GUIDELINES

5.0 <u>UNIT 4 EDG OPERATOR</u>

NOTE

These instructions are provided in case all communications are lost between the Control Room and your station. Before resorting to these default instructions, attempt to contact the Control Room on all communications circuits. Use of these instructions must be tempered by your understanding of the current situation and good judgement.

CAUTION

Stand clear of the EDGs since they may start at any time.

5.1 Monitor the rooms for water intrusion and attempt to contain or divert minor flooding that threatens the safe operation of an EDG.

5.2 <u>IF</u> flooding in a room threatens energized electrical equipment, <u>THEN</u> open appropriate local breakers.

5.3 <u>IF</u> the electrical equipment cannot be isolated locally due to flooding, <u>THEN</u> attempt to isolate the equipment from a remote power source (i.e. Load Breaker at MCC, LC for MCC, 4KV Bus for LC, EDG for 4KV Bus) stopping the EDG and remaining out of the room.

5.4 Continuously monitor running EDGs. <u>IF</u> trouble is noted, <u>THEN</u> consult 4-ONOP-023.2, Emergency Diesel Generator Failure, for guidance and attempt to rectify the problem.

5.5 <u>IF</u> EDG load suddenly drops to zero, <u>THEN</u> check the EDG output breaker. If open, the bus is probably grounded. <u>IF</u> an EDG runs unloaded for four hours, and no communications from the Control Room or load center room are received, <u>THEN</u> stop the EDG and place it in standby.

5.6 Continually check the D 4KV buses for signs of grounds. <u>IF</u> any grounded equipment is discovered, <u>THEN</u> secure that load immediately.

ATTACHMENT 1
(Page 1 of 2)
RECOMMENDED MINIMUM HURRICANE STAFFING LEVELS

TSC

*EC
Primary____________________
Alternate

*TSC Tech Asst. to EC
Primary____________________
Alternate

*TSC HP Supervisor
Primary____________________
Alternate

*TSC Maint Mgr or TSC Mech Supv
Primary____________________
Alternate

*TSC Chem Supv
Primary____________________
Alternate

*TSC ENS Comm
Primary____________________
Alternate

*TSC Dose Assess Tech
Primary____________________
Alternate

*TSC Reactor Engineer
Primary____________________
Alternate

*TSC Elec Supv
Primary____________________
Alternate

(4) Damage Assessment Engineers
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate

Other
Protection & Control

Communications Rep.

*Minimum Staffing Required for Facility Activation

CR

(1) NPS
Primary____________________
Alternate

(2) ANPS
Primary____________________
Alternate____________________
Primary____________________
Alternate

(3) RO's
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate

(6) NLO's
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate____________________
Primary____________________
Alternate

EOF

*RM
Primary____________________
Alternate

*RM Ops Advisor
Primary____________________
Alternate

*ERDAD's Operator or TSC Communicator
Primary____________________
Alternate

*(2) Dose Assessment Coord
Primary____________________
Alternate____________________
Primary____________________
Alternate

*HRD Communiator
Primary____________________
Alternate

*/2:2/JLR/bsc/sw

ATTACHMENT 1
(Page 2 of 2)
RECOMMENDED MINIMUM HURRICANE STAFFING LEVELS

* OSC	
*OSC Supervisor Primary______ Alternate	(12) HP Techs *Primary______ *Alternate______ *Primary______ *Alternate______ *Primary______ *Alternate______ *Primary______ *Alternate______ *Primary______ *Alternate______ *Primary______ *Alternate______ Primary______ Alternate______ Primary______ Alternate
(5) Mechanics *Primary______ *Alternate______ *Primary______ *Alternate Primary______ Alternate______ Primary______ Alternate______ Primary______ Alternate	
(1) Foreman Primary______ Alternate	
(2) Utility Workers Primary______ Alternate______ Primary______ Alternate	(2) I&C Supervisors Primary______ Alternate______ Primary______ Alternate
(1) Chief Primary______ Alternate	(4) I&C Specialist *Primary______ *Alternate______ Primary______ Alternate______ Primary______ Alternate______ Primary______ Alternate
(3) Electricians *Primary______ *Alternate______ *Primary______ *Alternate______ *Primary______ *Alternate	(2) Chem Techs *Primary______ *Alternate______ *Primary______ *Alternate
Materials Management Primary______ Alternate______ Primary______ Alternate	
*Minimum Staffing Required for Facility Activation	

Completed By:________________ Date:________

FINAL PAGE

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4
EMERGENCY PLAN IMPLEMENTING PROCEDURE 20126
January 24, 1995

1.0 Title:

OFFSITE DOSE CALCULATIONS

2.0 Approval and List of Effective Pages:

2.1 Approval:

Change Dated 1/24/95 Reviewed by Plant Nuclear Safety Committee 95-009

Approved by Plant General Manager: 1/24/95 Periodic Review Due: 9/23/97

Implementation Date: 2/17/95

2.2 List of Effective Pages:

Page	Revision Date	Page	Revision Date	Page	Revision Date	Page	Revision Date
1	01/24/95	14	01/24/95	27	01/24/95	40	01/24/95
2	01/24/95	15	01/24/95	28	01/24/95	41	01/24/95
3	01/24/95	16	01/24/95	29	01/24/95	42	01/24/95
4	01/24/95	17	01/24/95	30	01/24/95	43	01/24/95
5	01/24/95	18	01/24/95	31	01/24/95	44	01/24/95
6	01/24/95	19	01/24/95	32	01/24/95	45	01/24/95
7	01/24/95	20	01/24/95	33	01/24/95	46	01/24/95
8	01/24/95	21	01/24/95	34	01/24/95	47	01/24/95
9	01/24/95	22	01/24/95	35	01/24/95	48	01/24/95
10	01/24/95	23	01/24/95	36	01/24/95	49	01/24/95
11	01/24/95	24	01/24/95	37	01/24/95		
12	01/24/95	25	01/24/95	38	01/24/95		
13	01/24/95	26	01/24/95	39	01/24/95		

3.0 Scope:

3.1 Purpose:

3.1.1 This procedure provides a method for estimating Emergency Offsite Doses to support Protective Action Recommendation (PAR) formulation.

3.1.2 This procedure provides a method for reporting Reportable Quantities (RQ) of radionuclides releases pursuant to 40 CFR 302 and 40 CFR 355.

.Ss 1253, 87-1452, 88-1473, 89-0630, 90-2373, 91-0399, 92-0446, 93-1700P, 94-0328
RTSs 95-0004

Spot Change, ... prior to use
Date verified __________ Initials __________

1:5/ds/ev/ev

3.2 Discussion:

3.2.1 During any emergency involving release of radioactivity to the environment, the Emergency Plan requires that Emergency Offsite Doses to areas within ten miles be calculated. This information will be used in making Protective Action Recommendations and will be an input to the State of Florida Division of Emergency Management (DEM) in determining what offsite protective actions should be taken. When the Technical Support Center or the Emergency Operations Facility are operational, the function of dose calculation will be shifted to one of these locations.

3.2.2 The Chemistry Department Representative should use the computer dose calculation model in the Technical Support Center, when time and manpower resources are available, along with this procedure for estimating Emergency Offsite Doses when releases of radioactivity occur during an emergency. The computer model closely parallels this procedure. Instructions for use of computer are located in the Emergency Dose Calculation User's Manual located in the HP/Chemistry Support Area of the TSC.

3.2.3 The various meteorological data processing methods deal with sea-breeze. Sea-breeze is a coastal phenomena where an artificial ceiling may exist. Our methods assume that this ceiling acts as a limit to vertical mixing; that is, the plume is below the ceiling. This leads to a slightly higher concentration for a given stability class. The computer program will state Sea-breeze: Yes when the procedure states No impact. The computer model is stating that sea-breeze may exist although there is no impact; the ceiling is too high to affect the vertical mixing within 10 miles of the plant.

3.2.4 The various release rate determination methods in the procedure and computer program require asking the Emergency Coordinator if the core is overheating or melting (typical indications listed in Subsection 3.4). The purpose of the question is to determine, a) if there is a core damage sequence in progress, or b) if the damage has gone beyond gap failure? IF there is overheating or melting in progress, THEN the off-site TEDE dose multiplier is increased to 4.4 to reflect the additional dose from the presence of particulates in the plume.

3.2.5 Pursuant to 40 CFR 302, Radionuclides are designated as a hazardous substance, which if released, other than federally permitted, (within Technical Specification limits) in a quantity equal to or greater than the revised Reportable Quantities (RQ) Table requires notification to various Agencies.

3.2.6 This procedure has six (6) appendices:

Appendix A Provides methods to adjust or replace the LOCA default release rates based on known plant parameters. Guidance is provided for coping with containment failure releases, either rapid depressurization or estimated penetration size failure. Additionally, dose determination, consistent with the NRC Response Technical Manual (RTM-91), is included for catastrophic containment failure.

Appendix B Provides methods to adjust the SGTR default release rates based on known plant parameters. Guidance is also provided for coping with an unmonitored release.

Appendix C Provides a method, using factors in this procedure, to estimate a release rate from field team centerline survey meter readings.

Appendix D Provides conversion factors, system parameters, and other data that may be useful during emergency response.

Appendix E Provides guidance in starting up the computerized version of this procedure.

Appendix F Reportable Quantity (RQ) Radioactive Release Data Sheet.

3.3 Authority:

This procedure implements the Turkey Point Plant Radiological Emergency Plan.

3.4 Definitions:

3.4.1 Release - During any declared emergency any effluent monitor increase of approximately 10 times or one decade above pre-transient values, or Health Physics detected airborne radioactivity levels in excess of 25 percent DAC outside of plant buildings due to failure of equipment directly associated with the declared plant emergency.

3.4.2 Emergency Offsite Doses - The Total Dose (TEDE) and Thyroid Dose (CDE), both rates of exposure to the dose commitment and the total dose committed from the release.

NOTE: The computerized version of this procedure also estimates a plume immersion dose (DDE), which is a best estimate of an in-plume survey meter reading.

3.4.3 Total Dose (TEDE) - The Total Effective Dose Equivalent, the sum of the doses to the whole body from immersion in a plume containing radioactive material, the CEDE from inhaling the plume, and an assumed four days of exposure to plume deposition (fallout).

3.4.4 Thyroid Dose (CDE) - The Committed Dose Equivalent to an adult thyroid from inhaling the radioiodines in the plume.

3.4.5 Core Overheating/Melting - Severe core damage, beyond gap failure, typically indicated by:

a. The core being uncovered, by coolant, for 30 minutes or more; or

b. CHRRM reading 1.3 E+4 R/hr or more; or

c. Valid Core Exit Thermocouple reading(s) in excess of 1700°F.

3.4.6 Deep Dose Equivalent (DDE) - Applies to External Whole Body Exposure and is the dose equivalent at a tissue depth of 1cm.

.0 Precautions:

4.1 Doses determined in this procedure will be given to the Emergency Coordinator, who will evaluate doses and plant conditions with criteria listed in EPIP-20101, Duties of Emergency Coordinator.

4.2 Dose Projections should be made on a best estimate basis by projecting the duration of the release if possible. If no reasonable duration of release can be projected, the default value listed in part D of Attachment 3 should be used.

4.3 Releases greater than Technical Specifications or Reportable Quantities shall require reports or notifications to the NRC even if no offsite action is required. Ensure reports are performed as required by 0-ADM-115, Notification of Plant Events.

5.0 Responsibilities:

5.1 The Emergency Coordinator is responsible for directing that Emergency Offsite Doses are calculated during an emergency which involves a release of radioactivity to the environment.

5.2 The Chemistry Department representatives are responsible for performing the following:

5.2.1 Calculations in accordance with this procedure.

5.2.2 Ensuring that the Emergency Coordinator receives the most current dose calculations as soon as possible after request of emergency offsite dose information.

5.2.3 Performance of RQ calculations, as necessary.

5.2.4 Notifying the Chemistry Supervisor or designee as soon as practical for verification of release data. Notification to the Emergency Coordinator will not be delayed because of notification process with the Chemistry Supervisor.

5.2.5 Ensuring that the initial EOF Responders are updated with copies (e.g., facsimile) of dose calculations. The dose calculation summary sheet, if using the computer method, contains the minimum information needed by the initial EOF Responders. The applicable Dose Calculation Worksheet from Attachment 2 contains the minimum information needed if using the manual calculation method.

6.0 References/Commitment Documents:

6.1 References

6.1.1 Technical Specification

1. Section 3/4.11.1
2. Section 3/4.11.2
3. Table 3.3-8
4. Table 4.11-1
5. Table 4.11-2

6.1.2 Plant Procedures

1. 0-ADM-115, Notification of Plant Events
2. EPIP-20101, Duties of Emergency Coordinator

6.1.3 Miscellaneous Documents (i.e., PC/M, Correspondence)

1. Turkey Point Plant Radiological Emergency Plan
2. Emergency Dose Calculation System User's Manual
3. 10 CFR 20, Appendix B
4. 40 CFR 302, Reportable Quantity Adjustment-Radionuclides
5. 40 CFR 355, Emergency Planning and Notification
6. EPA-520, Rev 6/79
7. NRC Response Technical Manual, RTM-91
8. JPE-PTPO-85-74
9. JPE-LR-87-033

6.2 Commitment Documents

6.2.1 None

7.0 Records and Notification:

7.1 Records of meteorological conditions used to calculate dose rates and doses shall be kept on the attached worksheets or forms containing similar information.

7.2 A copy of the completed Dose Calculation Worksheet, or computer generated forms conveying similar information, shall be given to the Emergency Coordinator, and shall contain:

7.2.1 Meteorological conditions (wind speed, wind direction, and stability);

7.2.2 Emergency Offsite Doses at 1, 2, 5 and 10 miles, including sectors affected; and

7.2.3 Default values or actual measurements that were used for dose estimates.

7.3 Completed copies of the below listed item(s) constitute Quality Assurance Records and shall be transmitted to QA Records for retention in accordance with Quality Assurance Records Program Requirements:

7.3.1 Dose Calculation Worksheets or computer generated forms conveying similar information.

8.0 Instructions:

NOTES:
- ERDADS may be used to display effluent monitor and meteorological data required by this procedure and the computerized calculation procedure.
- The following steps apply to the use of the procedure. As soon as possible, the computerized Emergency Offsite Dose Calculation method should be used for dose calculations. The instructions for using the computer program, which parallels this procedure, are in Appendix E.

8.1 Meteorological Conditions Determination. Complete applicable worksheets in Attachment 1. The three methods listed are in preferential order. Use the next method, in order, to supplement any missing data. Indicate the method used on the selected Dose Calculation Worksheet.

CAUTIONS:
- All Met Tower Data for Wind Speed, Wind Direction, Delta Temperature, and Sigma-Theta are averaged over 15 minutes by the instrumentation for display on the strip charts and ERDADS.
- Meteorological Wind Speed, Wind Direction, Delta Temperature, and Sigma-Theta values should vary with time, i.e., Chart Recorders in the Control Room should not be straight lining. Investigate data that is unchanging.

8.1.1 Plant Meteorology Towers - Data from the primary and backup met towers is evaluated by following the instructions on the Plant Meteorology Data Worksheet (Attachment 1, Part A). Use primary met tower data, with backup met tower data being used to supplement any primary met tower data.

NOTE: Meteorological data from the NWS is not required to be averaged.

8.1.2 National Weather Service (NWS) - Meteorological observations taken at the NWS are evaluated by following the instructions on the NWS Meteorology Worksheet (Attachment 1, Part B).

8.1.3 Default Values - Daytime and nighttime default values are listed in the Default Met Worksheet (Attachment 1, Part C).

8.2 Select the Dose Calculation Worksheet from Attachment 2. The worksheets, numbered 1 through 10, are tied to the Stability Class and Seabreeze impact; the class and impact are noted on the first row of the worksheet.

8.3 Release Rate Determination. Perform Release Rate Calculations using Worksheets in Attachment 3. The following methods are listed in preferential order. Indicate the method used on the selected dose calculation worksheet.

NOTES:
- Although grab sampling is the primary method, it is unlikely that results will be available in the early phases of an emergency situation. Dose assessment cannot be held up waiting grab sample results; therefore, the Effluent Monitor method should be used in the initial dose assessment. Grab Sampling should be performed as soon as possible.
- If the accident is a Loss Of Coolant Accident (LOCA), a release estimate using the CHRRM Data Worksheet should be added to the release rates determined by Grab Sampling or Effluent Monitor Readings to account for the potential of unmonitored leakage; for example, through penetrations.

8.3.1 Grab Sample - Grab Sample results are evaluated by following the instructions on the Grab Sample Data Worksheet (Attachment 3, Part A).

NOTES:
- Effluent Monitor Data should be used when Grab Sample Data is not available or if there is insufficient time to perform Method 1, as in the early phases of an emergency situation.
- Since it will be difficult to analyze grab samples quickly, Effluent Monitor Data should be computed throughout the release and related to Grab Sample Data. This will permit a continuous release rate estimate even when grab sample data is unavailable. Iodine release rate factors may be modified if two or more grab samples indicate that the factors should be modified.

8.3.2 Effluent Monitors - Effluent Monitor readings are evaluated by following the instructions on the Effluent Monitor Data Worksheet (Attachment 3, Part B). SPING-4 data should be used in preference to associated PRMS data.

8.3.3 Containment High Range Radiation Monitor (CHRRM) - CHRRM readings are evaluated by following the instructions on the CHRRM Data Worksheet (Attachment 3, Part C).

NOTE: The CHRRM monitor should be used in addition to Methods 1 or 2 if a loss of coolant accident (LOCA) has occurred. For example, if the CHRRM reading is high but the plant vent monitor reading is approximately normal, this probably indicates that containment isolation is preventing a release from containment to the plant vent. However, the FSAR design leak rate from containment should still be taken into consideration, as leakage from other penetrations may not register on effluent monitors.

8.3.4 Default Values - default noble gas and iodine release rates are listed in the Default Data Table (Attachment 3, Part D) for the following accidents:

1. Loss of Coolant (LOCA)

2. Steam Generator Tube Rupture (SGTR)

3. Spent Fuel Handling

8.3.5 Appendices A, B, C - Provides methods for either modifying the default values for a LOCA or SGTR, or estimating the magnitude of release rates for unmonitored releases, or configuring a release rate from field monitoring survey results.

8.4 Dose rates and projected doses are calculated by following the instructions on the Dose Calculation Worksheet (Attachment 2) selected at Subsection 8.2.

NOTE: Contact Chemistry Supervisor or designee as soon as practical to verify release data after giving a copy of the dose calculation worksheet to the Emergency Coordinator. Do not delay notifications to the Emergency Coordinator.

8.5 Offsite Dose Calculations using Computer Program.

8.5.1 As soon as practical the computerized Emergency Offsite Dose Calculation method should be used for dose calculations, (in preference to manual method). See Appendix E for instructions on use of computer program.

8.6 Evaluating EPA Reportability

NOTE: Appendix F contains forms to assist in this activity.

8.6.1 Determine if any of the following conditions have occurred during the Radioactive release:

NOTE: A Nuclear Incident means any occurrence of bodily injury, sickness, disease, death, loss of or damage to property or loss of use of property (Offsite Evacuation) resulting from the radioactive, toxic, explosive, or other hazardous properties of source, special nuclear or byproduct material.

1. Dose exceeds any applicable Technical Specification,

AND

2. The release is not exempt under a nuclear incident.

8.6.2 If the above conditions are not met, proceed to Subsection 8.7.

8.6.3 Using Radionuclide RQs listed in Appendix B to 40 CFR 302.4, determine if a RQ limit has been exceeded using the following criteria.

1. If the identity and quantity (in curies) of each Radionuclide in a mixture or solution is known, the ratio between the quantity released and the RQ for the Radionuclide must be determined for each Radionuclide. An RQ is reached if the sum of the ratios of the Radionuclides is equal to or greater than one. [Grab Sample method only]

2. If the identity of each Radionuclide in a released mixture or solution is known, but the quantity of one or more of the radionuclides is unknown, a RQ is reached if the total quantity (in curies) of the mixture or solution released is equal to or greater than the lowest RQ of any Radionuclide in the mixture or solution. [Methods other than Grab Sample]

3. If the identity of one or more of the Radionuclides in a released mixture or solution is unknown, a RQ is reached if the total quantity (in curies) released is either equal to or greater than one curie or the lowest RQ of any known individual Radionuclide in the mixture or solution, which ever is lower. [Methods other than Grab Sample]

8.6.4 If the release exceeds the permissible RQ limits, immediately complete Appendix F accordingly.

8.6.5 Request Chemistry Supervisor to notify agencies, listed in Appendix F, of the release.

1. Provide each agency with the information required in Appendix F.

2. Record date/time and name of person contacted for each agency.

8.6.6 This event shall be reportable to the NRC. Ensure notifications and reports required by 0-ADM-115, Notification of Plant Events, are made.

8.7 Continue Monitoring and Evaluation of Releases.

NOTE: Significant wind direction changes (into new sector) or wind speed changes should be brought to the attention of the Emergency Coordinator for evaluation.

8.7.1 The Emergency Coordinator or designee shall monitor release rates and meteorological conditions.

8.7.2 If using the Manual Method (e.g.; worksheets), dose rate estimates should be updated once every hour unless:

1. Monitor reading increases by two or more times

2. Stability class changes by one or more classes.

Then dose calculations should be re-evaluated.

8.7.3 If using the computerized version, dose calculations forecasts (to obtain projected dose PARs) should be performed every 30 or 15 minutes, depending on the selected Advection Step.

8.7.4 Comparisons between field monitoring results and plume calculations should be performed; the results of the comparisons may be used to modify the input data for the procedural or computerized dose calculations.

8.7.5 This continuance will stay in effect until the Emergency Coordinator approves otherwise.

ATTACHMENT 1
(Page 1 of 7)

PART A - MET TOWER WORKSHEET

NOTE: Complete only the applicable Part of this Attachment:

Part A - Met Tower Worksheet

Part B - NWS Worksheet

Part C - Default Met Worksheet

1. Date and Time of observations: ____/____/____ , ________

NOTE: If using ERDADS, then press the purple RAD key on the ERDADS keyboard. To change from one unit to the other; type PUP (space) UNIT# (where # is either 3 or 4) and press EXEC (execute).

2. Copy the observations into the following table:

Desired Data	Source of the Met Data		Value	Unit
	Primary	Backup		
Wind Speed	10m Tower	So Dade Tower		mph
Wind (from) Direction	10m Tower	So Dade Tower		degrees
Primary Stability Class Indicator	So Dade Tower Delta-T, ΔT	////////////////////		deg F / 50 meters
Alternate Stability Class Indicator	////////////////////	10m Tower Sigma-Theta		degrees
Ambient Air Temperature	ERDADS	Airport		degrees F

3. Using the Wind (from) Direction, circle the Affected Sectors in the table:

NOTE: If the wind direction is directly on the edge of two sectors (e.g., 11°, 33°, 56°, etc.), an additional sector should be added to the protective action recommendations. For example, if the wind direction is from 78°, then the affected sectors for PARs should be L, M. N, and P.

Wind From	Affected Sectors	Wind From	Affected Sectors	Wind From	Affected Sectors
348 - 11	H J K	123 - 146	P Q R	258 - 281	D E F
11 - 33	J K L	146 - 168	Q R A	281 - 303	E F G
33 - 56	K L M	168 - 191	R A B	303 - 326	F G H
56 - 78	L M N	191 - 213	A B C	326 - 348	G H J
78 - 101	M N P	213 - 236	B C D	**Note:**	
101 - 123	N P Q	236 - 258	C D E	there is no sector I and O	

ATTACHMENT 1
(Page 2 of 7)

PART A - MET TOWER WORKSHEET

4. Using the Stability Class Indicator, determine and circle the Stability Class:

If using Delta-T, ΔT	If using Sigma-Theta, σ_θ	Stability Class
$\Delta T \leq -1.7$	$\sigma_\theta \geq 22.5$	A
$-1.7 < \Delta T \leq -1.5$	$22.5 > \sigma_\theta \geq 17.5$	B
$-1.5 < \Delta T \leq -1.4$	$17.5 > \sigma_\theta \geq 12.5$	C
$-1.4 < \Delta T \leq -0.5$	$12.5 > \sigma_\theta \geq 7.5$	D
$-0.5 < \Delta T \leq +1.4$	$7.5 > \sigma_\theta \geq 3.8$	E
$+1.4 < \Delta T \leq +3.6$	$3.8 > \sigma_\theta \geq 2.1$	F
$+3.6 < \Delta T$	$2.1 > \sigma_\theta$	G

5. Evaluate Seabreeze Impact, if any of the following four is No, then Impact is NO.

CIRCLE IMPACT: YES NO

a. Stability Class is A, B, or C

b. Time of day is 6 a.m. to 7 p.m.

c. Wind is from between 20 degrees through EAST to 220 degrees.

d. Observed Air Temperature is above value in table (default is YES)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
66	68	73	77	80	84	86	85	84	80	74	69

6. Select the Dose Calculation Worksheet (Attachment 2).

If Stability Class is	And Seabreeze Impact is	Then Use Worksheet #	If Stability Class is	And Seabreeze Impact is	Then Use Worksheet #
A	YES	1	C	NO	6
A	NO	2	D	N/A	7
B	YES	3	E	N/A	8
B	NO	4	F	N/A	9
C	YES	5	G	N/A	10

7. Copy information to the selected Dose Calculation Worksheet, Attachment 2:

a. WIND DIRECTION, AFFECTED SECTORS and METHOD to Line A.

b. WIND SPEED to Lines 2 and 9.

8. This worksheet is completed, proceed to release rate determination, Attachment 3.

ATTACHMENT 1
(Page 3 of 7)

PART B - NWS WORKSHEET

In the event data is unavailable from the meteorological strip chart recorder or ERDADS, use the following procedure:

1. GATHER DATA

   A. Date:__________ Time:__________

   B. Phone National Weather Services, using the commercial phone AND ask to be connected to lead forecaster. Commercial phone numbers are available in the Emergency Response Directory.

   C. Copy Current weather conditions as follows:

      Temperature:........ ________ °F
      WIND DIRECTION:..... ________ Degrees
      WIND SPEED:......... ________ (Units: MPH or Knots)

      Sky Condition: Clear or Scattered:.....__________
      Broken:........__________
      Overcast:......__________

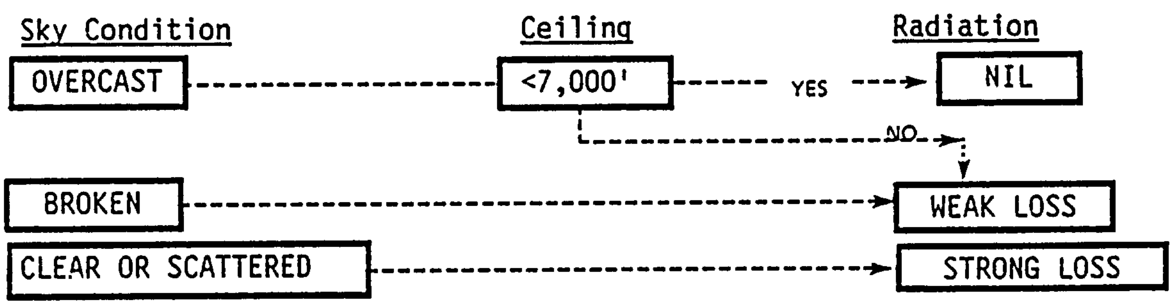
      IF Broken or overcast,
      THEN copy ceiling height:.........__________Ft.

   D. IF wind speed is in knots, THEN multiply by 1.15 to obtain WIND SPEED ________mph

2. IF DAYTIME (1 hour after sunrise to 1 hour before sunset), THEN go to Step 4 (next page).

3. NIGHTTIME CALCULATIONS

   A. Determine Solar Radiation Characteristics:



   B. Circle Stability Category (D through G)

Solar Radiation	Wind Speed (knots) 0,1	2,3	4,5	6	7	8,9	10	11	>11
Nil	D	D	D	D	D	D	D	D	D
Weak Loss	F	F	E	E	D	D	D	D	D
Strong Loss	G	G	F	F	E	E	E	D	D

   C. Seabreeze Impact = No

   D. Go to Step 5

ATTACHMENT 1
(Page 4 of 7)

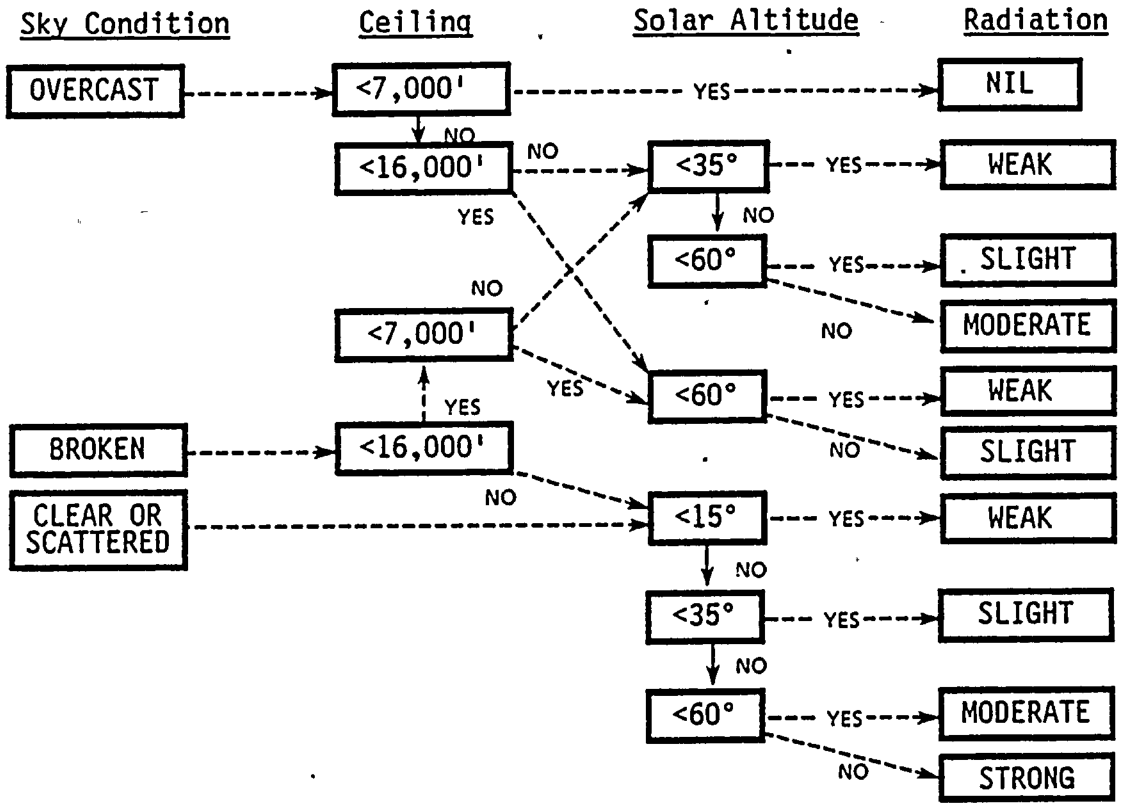
PART B - NWS WORKSHEET

4. DAYTIME CALCULATIONS:

A. Determine solar altitude (angle of sun above horizon) using Figure A-1 of this Attachment.

Circle Solar Altitude = <15 15 to <35 35 to <60 ≥60

B. Determine Solar Radiation Characteristics: (Place check mark next to appropriate box in radiation column)



C. Circle Stability Category (A through D)

Solar Radiation	Wind Speed (knots) 0,1	2,3	4,5	6	7	8,9	10	11	>11
Strong	A	A	A	B	B	B	C	C	C
Moderate	A	B	B	B	B	C	C	C	D
Slight	B	B	C	C	C	C	D	D	D
Weak	C	C	D	D	D	D	D	D	D
Nil	D	D	D	D	D	D	D	D	D

D. IF stability class is A, B, or C AND wind direction is from 20 degrees through east to 220 degrees, THEN seabreeze impact = Y, otherwise impact = N.

ATTACHMENT 1
(Page 5 of 7)

PART B - NWS WORKSHEET

5. Using the Wind (from) Direction, circle the AFFECTED SECTORS in the table:

NOTE: If the wind direction is directly on the edge of two sectors (e.g., 11°, 33°, 56°, etc.), an additional sector should be added to the protective action recommendations. For example, if the wind direction is from 78°, then the affected sectors for PARs should be L, M. N, and P.

Wind From	Affected Sectors	Wind From	Affected Sectors	Wind From	Affected Sectors
348 - 11	H J K	123 - 146	P Q R	258 - 281	D E F
11 - 33	J K L	146 - 168	Q R A	281 - 303	E F G
33 - 56	K L M	168 - 191	R A B	303 - 326	F G H
56 - 78	L M N	191 - 213	A B C	326 - 348	G H J
78 - 101	M N P	213 - 236	B C D	**Note:**	
101 - 123	N P Q	236 - 258	C D E	there is no sector I or O	

6. Select the Dose Calculation Worksheet (Attachment 2).

If Stability Class is	And Seabreeze Impact is	Then Use Worksheet #	If Stability Class is	And Seabreeze Impact is	Then Use Worksheet #
A	YES	1	C	NO	6
A	NO	2	D	N/A	7
B	YES	3	E	N/A	8
B	NO	4	F	N/A	9
C	YES	5	G	N/A	10

. Copy information to the selected Dose Calculation Worksheet, Attachment 2.

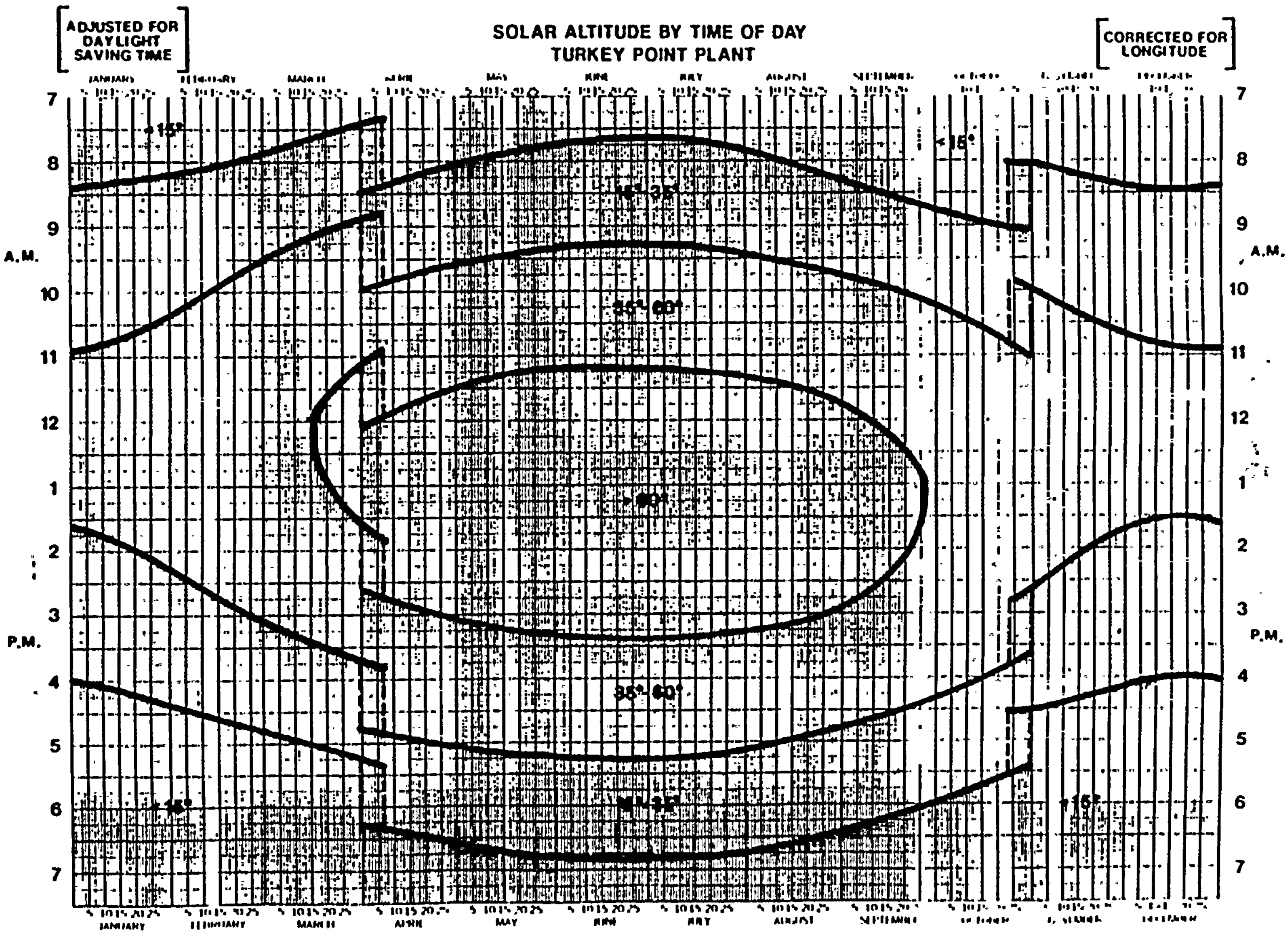
a. WIND DIRECTION, AFFECTED SECTORS and METHOD to Line A.

b. WIND SPEED to Lines 2 and 9.

8. This worksheet is completed, proceed to release rate determination, Attachment 3.

ATTACHMENT 1
(Page 6 of 7)

PART B - NWS WORKSHEET
FIGURE A-1



PART C - DEFAULT MET WORKSHEET

NOTE: This method is to be used only if Site Tower and National Weather Service Data is not available.

1. **WIND DIRECTION** may be based on local observations or other suitable methods of estimation. If Wind Direction is available, determine Affected Sectors, using the table below.

   IF WIND DIRECTION DATA IS NOT AVAILABLE, THEN AFFECTED SECTORS IS ALL (SECTORS)

   Observed Wind Direction ______, Affected Sectors ______

   NOTE: If the wind direction is directly on the edge of two sectors (e.g., 11°, 33°, 56°, etc.), an additional sector should be added to the protective action recommendations. For example, if the wind direction is from 78°, then the affected sectors for PARs should be L, M, N, and P.

Wind From	Affected Sectors	Wind From	Affected Sectors	Wind From	Affected Sectors
348 - 11	H J K	123 - 146	P Q R	258 - 281	D E F
11 - 33	J K L	146 - 168	Q R A	281 - 303	E F G
33 - 56	K L M	168 - 191	R A B	303 - 326	F G H
56 - 78	L M N	191 - 213	A B C	326 - 348	G H J
78 - 101	M N P	213 - 236	B C D	**Note:**	
101 - 123	N P Q	236 - 258	C D E	there is no sector I or O	

2. IF Daytime Hours (1 hour after sunrise and 1 hour before sunset) THEN:

   Select DOSE CALCULATION WORKSHEET 8, (Stability Class E, Seabreeze Impact = N/A)

   Check DEFAULT method in Line A

   Wind Speed = 5 mph in line 2 and 9

   Copy Affected Sectors, from step 1, to Line A

   Use of this method is complete, proceed to release rate determination, Attachment 3

3. IF Not Daytime Hours THEN:

   Select DOSE CALCULATION WORKSHEET 9, (Stability Class F, Seabreeze Impact = N/A)

   Check DEFAULT method in Line A

   Wind Speed = 5 mph in line 2 and 9

   Copy Affected Sectors, from step 1, to Line A

   Use of this method is complete, proceed to release rate determination, Attachment 3

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 1

STABILITY CLASS = A SEABREEZE IMPACT = YES UNIT ______

A. Met Summary: Wind Direction (from)________ Affected Sectors ________

Check method used: ______ Met Tower ______ NWS ______ Default

B. Release Rate determined by: ______ Grab ______ Effluent Mon ______ Default

______ CHRRM ______ Appendix

Date and time of starting calculations: ________________/________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	2.2 E + 4	8.1 E + 3	2.2 E + 3	7.8 E + 2	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	6.1	2.3	0.64	0.22	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 2

STABILITY CLASS = A SEABREEZE IMPACT = NO UNIT ______

A. Met Summary: Wind Direction (from)________ Affected Sectors __________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: __________________/__________

Follow the instructions to calculate doses @						Use Code*
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	3.6 E + 3	1.8 E + 3	7.7 E + 2	3.9 E + 2	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	1.0	0.5	0.22	0.11	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE), mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses					

ATTACHMENT 2
(Page 3 of 10)

DOSE CALCULATION WORKSHEET - 3

STABILITY CLASS = B SEABREEZE IMPACT = YES UNIT ________

A. Met Summary: Wind Direction (from)________ Affected Sectors __________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: __________________/__________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	3.0 E + 4	1.1 E + 4	3.0 E + 3	1.1 E + 3	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	8.3	2.9	0.84	0.30	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 4

STABILITY CLASS = B SEABREEZE IMPACT = NO UNIT ________

A. Met Summary: Wind Direction (from)________ Affected Sectors ________

Check method used: ______ Met Tower ______ NWS ______ Default

B. Release Rate determined by: ______ Grab ______ Effluent Mon ______ Default

______ CHRRM ______ Appendix

Date and time of starting calculations: ________________/________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	2.3 E + 4	5.9 E + 3	1.1 E + 3	5.7 E + 2	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	6.4	1.6	0.31	0.15	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 5

STABILITY CLASS = C SEABREEZE IMPACT = YES UNIT ________

A. Met Summary: Wind Direction (from)________ Affected Sectors ________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: ________________/_________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	5.9 E + 4	1.7 E + 4	3.7 E + 3	1.5 E + 3	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	16.0	4.6	1.1	0.42	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 6

STABILITY CLASS = C SEABREEZE IMPACT = NO UNIT ______

A. Met Summary: Wind Direction (from)________ Affected Sectors __________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: __________________/__________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	5.9 E + 4	1.7 E + 4	3.1 E + 3	9.1 E + 2	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	16.0	4.6	0.88	0.26	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 7

STABILITY CLASS = D SEABREEZE IMPACT = N/A UNIT ______

A. Met Summary: Wind Direction (from)________ Affected Sectors __________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: ________________/__________

Follow the instructions to calculate doses @						Use Code*
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	1.6 E + 5	5.9 E + 4	1.6 E + 4	5.7 E + 3	
5	Multiply Line 3 by Line 4 to obtain **THYROID DOSE (CDE) RATE, mrem/hr**					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain **THYROID DOSE (CDE)**, *mrem*					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	44.0	17.0	4.4	1.6	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain **TOTAL DOSE (TEDE) RATE, mrem/hr**					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain **TOTAL DOSE (TEDE), mrem**					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed: continue monitoring releases and assessing doses.					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 8

STABILITY CLASS = E   SEABREEZE IMPACT = N/A   UNIT ________

A. Met Summary: Wind Direction (from)________ Affected Sectors ________

Check method used: ________ Met Tower ________ NWS ________ Default

B. Release Rate determined by: ________ Grab ________ Effluent Mon ________ Default

________ CHRRM ________ Appendix

Date and time of starting calculations: ________________/________

Line	Follow the instructions to calculate doses @ Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	Use Code *
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	2.9 E + 5	1.2 E + 5	3.6 E + 4	1.5 E + 4	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR

* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)

Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	Use Code
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	81.0	33.0	10.0	4.0	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses					

ATTACHMENT 2
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DOSE CALCULATION WORKSHEET - 9

STABILITY CLASS = F SEABREEZE IMPACT = N/A UNIT ______

A. Met Summary: Wind Direction (from)________ Affected Sectors __________

Check method used: _______ Met Tower _______ NWS _______ Default

B. Release Rate determined by: _______ Grab _______ Effluent Mon _______ Default

_______ CHRRM _______ Appendix

Date and time of starting calculations: ___________________/_________

Follow the instructions to calculate doses @						Use Code *
Line	Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	5.2 E + 5	2.3 E + 5	7.7 E + 4	3.6 E + 4	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	1.5 E + 2	6.6 E + 1	2.2 E + 1	9.5 E 0	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 2
(Page 10 of 10)

DOSE CALCULATION WORKSHEET - 10

STABILITY CLASS = G SEABREEZE IMPACT = N/A UNIT ________

A. Met Summary: Wind Direction (from)________ Affected Sectors ________

Check method used: ______ Met Tower ______ NWS ______ Default

B. Release Rate determined by: ______ Grab ______ Effluent Mon ______ Default

______ CHRRM ______ Appendix

Date and time of starting calculations: ________________/________

Line	Follow the instructions to calculate doses @ Instructions for THYROID DOSES	1 mile	2 miles	5 miles	10 miles	Use Code *
1	Enter the Iodine Release Rate, Ci/sec					SNF
2	Enter the Wind Speed, mph					SNF
3	Divide Line 1 by Line 2					
4	Iodine Dose Factors	9.1 E + 5	4.6 E + 5	1.7 E + 5	7.7 E + 4	
5	Multiply Line 3 by Line 4 to obtain THYROID DOSE (CDE) RATE, mrem/hr					SNF
6	Enter Duration of release, hours					SNF
7	Multiply Line 5 by Line 6 to obtain THYROID DOSE (CDE), mrem					PAR
* SNF (State Notification Form); PAR (Protective Action Recommendation Worksheet)						
Line	Instructions for TOTAL WHOLE BODY DOSES	1 mile	2 miles	5 miles	10 miles	
8	Enter Noble Gas Release Rate, Ci/sec					SNF
9	Enter the Wind Speed, from Line 2 above					
10	Divide Line 8 by Line 9					
11	Enter the Particulate Factor (PF)					
12	Multiply Line 10 by Line 11					
13	Noble Gas Dose Factors	2.4 E + 2	1.2 E + 2	4.8 E + 1	2.2 E + 1	
14	Multiply Line 12 by Line 13					
15	Enter (Line 5 multiplied by 0.04)					
16	Add Line 14 and Line 15 to obtain TOTAL DOSE (TEDE) RATE, mrem/hr					SNF
17	Enter Duration of release, hours					
18	Multiply Line 16 by Line 17 to obtain TOTAL DOSE (TEDE), mrem					PAR
19	Forward this worksheet (or a copy) to the Emergency Coordinator {RM if done in EOF}					
20	Dose Calculations completed; continue monitoring releases and assessing doses.					

ATTACHMENT 3
(Page 1 of 4)
PART A - GRAB SAMPLE DATA WORKSHEET

1. Date: ____________ and Time ______________ of Data, Unit ____________
2. Ask the Emergency Coordinator for the following:
   a. Accident Type: ______________________________
   b. Potential Duration of Release (if unknown, use default): ________ hours
   c. Is the core overheating/melting? (circle): YES NO
3. IF the core is overheating or melting, THEN Particulate Factor (PF) = 4.4, else PF = 1.0; enter PF ________
4. Enter the Gross Noble Gas and Iodine-131 Deq, in µCi/cc for the affected/sampled pathways, into the table below:
   a. IF Iodine results are not available, THEN Iodine = Noble Gas (µCi/cc) times the Iodine release rate factor, found on chart below.
5. Determine pathway flow in cc/sec for plant vent and steam lines (if affected).
   a. For Plant Vent: Use Plant Vent Sping channel 10 (cfm) times 472 to get cc/sec. IF Plant Vent Sping ch. 10 data is not available, THEN use Plant Vent Fan Configuration Table on the Default Data Table, Attachment 3, Part D, Item B.
   b. For Main Steam Lines:
      i) Atmospheric Dump Valves (3) = 1.33 E4 cc/sec each, 4.0 E 4 cc/sec (all three)
      ii) Each S/G safety relief valve (4 per steam line) = 1.1 E 5 cc/sec each
      iii) Each AFW pump = 3.4 E 3 cc/sec
      iv) IF time and data permits, THEN average the flow as shown below table otherwise assume constant flow rate
6. Calculate Release Rates:

Pathway	Type	µCi/cc	x Flow cc/sec	x µCi to Ci =	Release Rate, Ci/sec Noble Gas	Release Rate, Ci/sec Iodine
Plant Vent	Noble Gas			1E-6		//////////////
	Iodines				//////////////	
Main Steam Lines	Noble Gas			1E-6		//////////////
	Iodines				//////////////	
Cond Air Ejector	Noble Gas		1.42E 4	1E-6		//////////////
	Iodines				//////////////	
U-3 Fuel Pool Vent	Noble Gas		9.43E 6	1E-6		//////////////
	Iodines				//////////////	

7. Calculate Site Release Rate:

Total the Release Rates using this Worksheet		
Enter other Release Rates (e.g. CHRRM/Other Unit)		
Add to obtain Site Release Rate		

Enter the Site Release Rates in the selected Dose Calculation Worksheet (Attachment 2).
   a. Enter the Unit number using this method to the left of Grab in Line 8.
   b. Enter the Noble Gas Release Rate into Line 8.
   c. Enter the Iodine Release Rate into Line 1.
   d. Enter the Duration (if 2 affected units, use longest) into Line 6 and Line 17.
   e. Enter the PF (Particulate Factor) (if 2 affected units, use largest) into Line 11.
9. This worksheet is done, follow the instructions on the selected Dose Calculation Worksheet (Attachment 2).

Iodine Release Rate Factors (IRRF)
LOCA and Emergency Containment Filter(s) is in use: 0.011; Emergency Containment Filter(s) not in use 0.063
Fuel Handling: 0.001
S/G Tube Rupture: 0.004
Gas Decay Tank or VCT: 1E-6

Main Steam Line Flow Averaging Method		
Pathway x cc/sec	Amount of OPEN time, sec or min / Averaging Period: 1800 sec or 30 min	
________ cc/sec	x ________ =	________ cc/sec

ATTACHMENT 3
(Page 2 of 4)
PART B - EFFLUENT MONITOR DATA WORKSHEET

1. Date: ____________ and Time ____________ of Data, Unit ____________
2. Ask the Emergency Coordinator for the following:
   a. Accident Type: ____________
   b. Potential Duration of Release (if unknown, use default): ______ hours
   c. Is the core overheating/melting? (circle): YES NO
3. IF the core is overheating or melting, THEN Particulate Factor (PF) = 4.4, else PF = 1.0; enter PF ______
4. Enter the monitor readings for the affected pathways in the table below:
   a. SPING-4 reading preferred over R-14, R-15.
   b. IF using R-14, R-15, THEN estimate average of 4 chart points over prior 15 minutes.
   c. IF using SPING-4, DAM-1, THEN use indicated reading (already averaged).
5. Determine pathway flow in cc/sec for Plant Vent and Steam Lines (if affected).
   a. For Plant Vent: use Plant Vent Sping channel 10 (cfm) times 472 to get cc/sec. IF Plant Vent Sping ch. 10 data is not available, THEN use Plant Vent Fan Configuration Table on the Default Data Table, Attachment 3, Part D, Item B.
   b. For Main Steam Lines:
      i) Atmospheric Dump Valves (3) = 1.33 E4 cc/sec each, 4.0 E 4 cc/sec (all three)
      ii) Each S/G safety relief valve (4 valves per steam line) = 1.1 E 5 cc/sec each valve
      iii) Each AFW pump = 3.4 E 3 cc/sec
      iv) IF time and data permits, THEN average the flow as shown below table otherwise assume constant flow rate
6. Enter the Iodine Release Rate Factor (IRF) in to the table below, Factors listed on chart below.
7. Calculate Release Rates:

Pathway		Monitor Reading	x Cal x	Flow cc/sec x	µCi to Ci =	Noble Gas Rel. Rate	x IRF =	Iodine Rel. Rate
Plant Vent	R-14		5 E-9		1 E-6			
	SPING		1.0		1 E-6			
Main Steam	DAM-1		1.0		1 E-6			
Cond Air Ejector	R-15		2.47E-8	1.42E 4	1 E-6			
	SPING		1.0	1.42E 4	1 E-6			
#3 SFP Vent	SPING		1.0	9.43E 6	1 E-6			

8. Calculate Site Release Rate:

Total the Release Rates using this Worksheet		//////	
Enter other Release Rates (e.g. CHRRM/Other Unit)		//////	
Add to obtain Site Release Rate		//////	

. Enter the Site Release Rates in the selected Dose Calculation Worksheet (Attachment 2).
   a. Enter the Unit number to the left of Effluent Mon in Line B to indicate this method.
   b. Enter the Noble Gas Release Rate into Line 8.
   c. Enter the Iodine Release Rate into Line 1.
   d. Enter the Duration (if 2 affected units, use longest) into Line 6 and Line 17.
   e. Enter the PF (Particulate Factor) (if 2 affected units, use largest) into Line 11.
10. This worksheet is done, follow the instructions on the selected Dose Calculation Worksheet (Attachment 2).

Iodine Release Rate Factors
LOCA and Emergency Containment Filter(s) is in use: 0.011; Emergency Containment Filter(s) not in use 0.063
Fuel Handling: 0.001
S/G Tube Rupture: 0.004
Gas Decay Tank or VCT: 1E-6

Main Steam Line Flow Averaging Method	
Pathway x cc/sec	Amount of OPEN time, sec or min / Averaging Period: 1800 sec or 30 min
______ cc/sec x ______ =	______ cc/sec

ATTACHMENT 3
(Page 3 of 4)

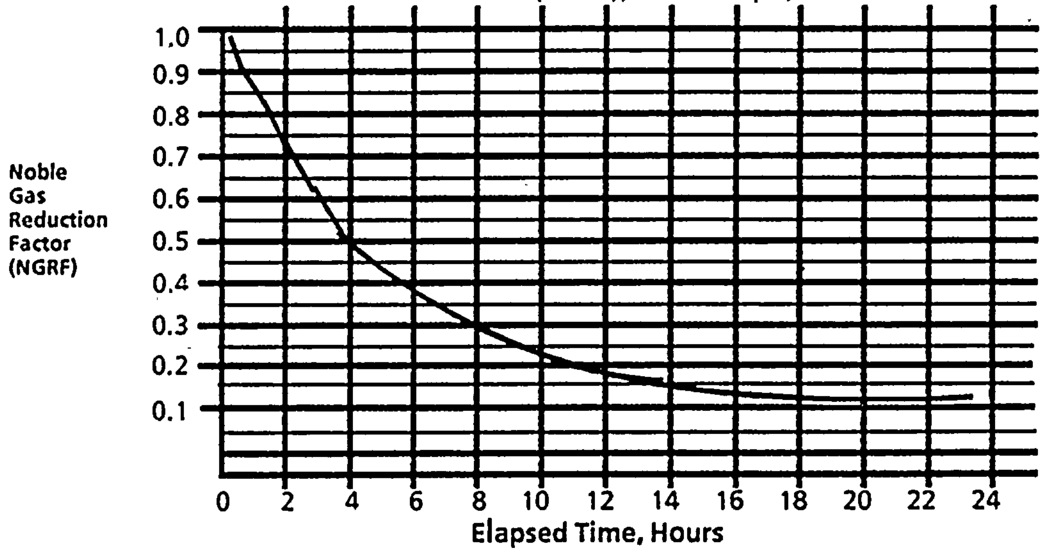
PART C - CONTAINMENT HIGH RANGE RADIATION MONITOR (CHRRM) DATA WORKSHEET

(If both units are using this method, then complete one worksheet for each unit)

1. Date and time of starting this worksheet: ____________________/____________
2. Ask the Emergency Coordinator for the following:
   a. Is the core overheating/melting? (circle): YES NO
   b. Potential Duration of Release (if unknown, use default):__________hours
3. IF the core is overheating or melting, THEN Particulate Factor (PF) = 4.4, else PF = 1.0; enter PF __________
4. Obtain: Highest CHRRM reading:__________R/hr, Elapsed time since Reactor Trip:__________hours
5. Select the Conversion Factor (CF) using the Elapsed time for use in Step 6.

Elapsed Time, Hr	Conversion Factor	Elapsed Time, Hr	Conversion Factor
ET = Ø	1.6 E-6	2.0 < ET ≤ 4.0	9.0 E-6
Ø < ET ≤ 0.5	2.2 E-6	4.0 < ET ≤ 8.0	1.8 E-5
0.5 < ET ≤ 1.0	3.2 E-6	8.0 < ET	4.8 E-5
1.0<ET ≤ 2.0	5.0 E-6		

6. CHRRM ____________________R/hr X CF ______________ = ______________(CFA) for use in Steps 8 and 10.
7. Determine Noble Gas Reduction Factor (NGRF), from Graph; NGRF = ____________, for use in Step 8.



NOTE: Use the value of NGRF corresponding to the beginning of the calculation period. For example: when calculating doses for one period from 1 to 2 hours a value of NGRF = 0.88 should be used.

CFA = Core Fraction Airborne

ICV = Iodine Conversion Value

8. Calculate:________(CFA) X ________(NGRF) X 10.2 Ci/sec = ________ Noble Gas Release Rate, Ci/sec.
9. IF the Emergency Containment Filter(s) IS in use, THEN (ICV) = 0.11; if NOT in use, then (ICV) = 0.63.

0. Calculate:__________(CFA) X ________(ICV) = __________ Iodine Release Rate, Ci/sec.

11. Calculate Site Release Rate, Ci/sec:

		Noble Gas	Iodine
a.	Enter the Release Rates determined from this Worksheet		
b.	IF the other unit is AFFECTED, THEN enter its release rates		
c.	Add 11.a and 11.b to obtain Site Release Rates		

12. Enter the Site Release Rates in the selected Dose Calculation Worksheet (Attachment 2).
    a. Enter the Unit number to the left of CHRRM in Line B to indicate this method.
    b. Enter the Noble Gas Release Rate into Line 8.
    c. Enter the Iodine Release Rate into Line 1.
    d. Enter the Duration (if 2 affected units, use longest) into Line 6.
    e. Enter the PF (Particulate Factor) (if 2 affected units, use largest) into Line 11.
13. This worksheet is done, follow the instructions on the selected Dose Calculation Worksheet (Attachment 2).

ATTACHMENT 3
(Page 4 of 4)
PART D - DEFAULT VALUES FOR RADIOACTIVE RELEASES

A. Default Radioactivity Release Rate Values, listed by accident type. Copy these values to the selected Dose Calculation Worksheet (Attachment 2) and enter the Unit number to the left of Default in Line B to indicate this method.

Loss Of Coolant Accident:
Compare hours after reactor trip to table below; see Appendix A for methods to adjust these values based on known plant parameters.

Hours post-trip	Duration	Noble Gas, Ci/sec	Iodine, Ci/sec
0-2	2 hours	10.2	0.11
>2-8	2 hours	5.4	0.06
more than 8	2 hours	1.6	0.02

Steam Generator Tube Rupture:
Use the listed values until the affected steam generator is isolated; see Appendix B for methods to adjust the values based on known plant parameters.

Duration	Noble Gas, Ci/sec	Iodine, Ci/sec
1/2 hour	4.2	0.0037

Fuel Handling:
Multiply the estimated/known number of damaged bundles by the per bundle rates shown below.

Duration	Noble Gas, Ci/sec per bundle	Iodine, Ci/sec per bundle
1/4 hours	17.0	0.0047

B. Default Plant Vent Flow Values:

NOTE: This table should only be used if the plant vent SPING flow channel is out-of-service.

PLANT VENT FAN CONFIGURATION TABLE					
CONTAINMENT PURGE	AUXILIARY BUILDING_	SPENT FUEL PIT	RADWASTE BUILDING	LAUNDRY SYSTEM	PLANT VENT FLOW
Exhaust	Exhaust	Exhaust	Exhaust	Exhaust	cc/sec
0	0	1	2	1	1.45×10^7
0	1	1	2	1	3.82×10^7
0	2	1	2	1	4.31×10^7
1	1	1	2	1	4.74×10^7
1	2	1	2	1	5.07×10^7
2	1	1	2	1	5.66×10^7
2	2	1	2	1	5.99×10^7

APPENDIX A
(Page 1 of 5)

LOCA Release Rate Determinations

Provides methods to adjust or replace the LOCA default release rates based on known plant parameters. Guidance is provided for coping with containment failure releases, either rapid depressurization or estimated penetration size failure. Additionally, dose determination, consistent with the NRC Response Technical Manual (RTM-91), is included for catastrophic containment failure.

Note: The following methods are provided for guidance. Conditions may warrant an approach different than shown; use the factors presented here and elsewhere in this procedure, as necessary, to estimate releases. Document the calculations in the applicable facilities logbook.

It must be understood that the methodology provided in appendix A includes conservative assumptions, and is intended to provide a means to estimate an upper bound to the release, not an exact release rate.

This appendix has four (4) methods (LOCA-1 to LOCA-4), select the one that most closely matches the conditions listed below:

IF the CHRRM is operational AND containment integrity is not good AND an equivalent penetration diameter (0.25 to 2 inches) leak has been postulated, THEN a release rate can be estimated using the CHRRM method and LOCA-1.

Note: The next two methods are in response to a rapid decrease in containment pressure or rapid decrease in the CHRRM reading that was determined, by Operations or Engineering, not due to changes in equipment operation (e.g., additional containment sprays, coolers, etc.).

IF the CHRRM is operational AND containment pressure appears to have rapidly (~30 min.) fallen AND the CHRRM reading also fell during the same period as the pressure fall, THEN a release rate can be estimated using LOCA-2.

IF the CHRRM is operational AND containment pressure appears to have rapidly (~30 min.) fallen AND the CHRRM reading was either constant or increased during the same period as the pressure fall AND Engineering can estimate the percent (%) mass lost, THEN a release rate can be estimated using LOCA-3.

IF there is no radiological data (e.g., CHRRM, containment grab sample, etc) AND the core is suspected of overheating or melting AND the containment has undergone catastrophic failure (e.g., know there should be pressure and there is none) THEN a release rate can be estimated using LOCA-4.

APPENDIX A
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Method LOCA-1

Use this method IF the CHRRM is operational AND containment integrity is not good AND an equivalent penetration diameter leak has been postulated.

METHOD: DATE:____________, TIME:____________, Unit:____________

1. Determine the release rates using the CHRRM worksheet, copy the noble gas and iodine release rates to line 4a and 4b, respectively.

2. Enter the equivalent penetration diameter:_______inches and the containment pressure: ________PSIG

3. From the table below, find and enter the release multiplier on line 4a and 4b.

Pen. dia. (inches)	Containment Pressure (if psig is between values, use next highest)			
	5 psig	10 psig	25 psig	50 psig
0.25	5.5	8	14	23
0.50	16	23	46	75
0.75	36	50	83	140
1.00	57	92	150	250
1.25	100	150	250	400
1.50	160	225	375	600
1.75	225	300	500	825
2.00	275	400	650	1000

4. Calculate Estimated Release Rate:

(CHRRM method) (multiplier) (Estimated Release Rates)

a. Noble Gas ____________ Ci/sec x __________ = ____________Noble Gas, Ci/sec

b. Iodine ______________ Ci/sec x __________ = ____________Iodine, Ci/sec

5. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter A LOCA-1 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

Basis: Multipliers are a ratio of the flow rates from engineering letter JPE-PTPO-85-74, Figure XIII A, to the design basis flow (0.25%/day of 1.5E6 ft^3 ->1229 cc/sec)

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Method LOCA - 2

Use this method IF the CHRRM is operational AND containment pressure appears to have rapidly (~30) min.) fallen AND the CHRRM reading also fell during the same period as the pressure fall.

NOTE 1: A CHRRM drop of about 3 percent per hour may be due to radiological decay.

NOTE 2: The CHRRM may drop by as much as 10 percent very quickly if containment spray is actuated, due to Iodine washout.

METHOD:

1. Date and time of starting this worksheet: ______________/__________, Unit ______

2. Calculate Delta-CHRRM:

   Start CHRRM __________ - End CHRRM _________ = _________ Delta-CHRRM, R/hr

3. Calculate Duration:

   a. Clock Time End ________ - Clock Time Start ________ - ________ Delta-Clock (hours and/or minutes)

   b. Convert Delta-Clock to Delta-Seconds: __________ Δ sec

4. Estimate Curies Lost:

   Delta-CHRRM _______ R/hr × 565 Ci N.G. per R/hr = ________ Noble Gas Curies Lost

5. Estimate Noble Gas Release Rate (loss rate):

   Noble Gas Curies lost _________ ÷ _________ Δ sec = _________ Noble Gas Ci/sec

6. Estimate the Iodine Release Rate (IRRF = Iodine Release Rate Factor, see Page 1 of Attachment 3):

   N.G. Ci/sec _________ × _________ (IRRF) = _________ Iodine Ci/sec

7. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter A LOCA-2 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

Basis: Assumes CHRRM responding only to noble gas
Assumes rate of curies from core << curies lost through leak
6.25 E+5 R/hr = 100% core inventory noble gas ($1 \div C_{T=0}$, CF from 21026 CHRRM method)
3.53 E+8 curies = 100% core inventory noble gas (PTN UFSAR)
565 = 3.53 E+8 Ci ÷ 6.26 E+5 R/hr

APPENDIX A
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Method LOCA - 3

Use this method IF the CHRRM is operational AND containment pressure appears to have rapidly (~30 min.) fallen AND the CHRRM reading was either constant or increased during the same period as the pressure fall AND Engineering can estimate the percent mass lost.

NOTE: Request Engineering to evaluate the percent mass lost in the release.

METHOD:

1. Date and time of starting this worksheet: ____________________/__________

2. Calculate average CHRRM reading (if CHRRM was constant, enter reading as Avg.)

   (Start CHRRM ____ + End CHRRM ____) ÷ 2 = ____ Avg CHRRM, R/hr

3. Estimate Noble Gas Curies in the containment:

   Avg CHRRM R/hr ________ × 565 Ci N.G. per R/hr = _____ Noble Gas Curies in ctmt

4. Calculate Duration:

   a. Clock Time End _________ - Clock Time Start ______ = ______ Delta-Clock (hours and or minutes)

   b. Convert Delta-Clock to Delta-Seconds: __________ Δ sec

5. Estimate Curies Lost:

   N.G. Curies in ctmt _______ × _______ % mass lost ÷ 100 = ________ Noble Gas Curies Lost

6. Estimate Noble Gas Release Rate (loss rate):

   Noble Gas Curies lost _______ ÷ ________ Δ sec = ________ Noble Gas Ci/sec

7. Estimate the Iodine Release Rate (IRRF = Iodine Release Rate Factor, see Page 1 of Attachment 3):

   N.G. Ci/sec _________ × _________ (IRRF) = _________ Iodine Ci/sec

8. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter A LOCA-3 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

Basis: Assumes rate of curies from core = curies lost through leak (constant CHRRM), or assumes rate of curies from core >curies lost through leak (increasing CHRRM), and same remaining assumptions as in LOCA-2.

APPENDIX A
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Method LOCA - 4

Use this method IF there is not radiological data (e.g., CHRRM, containment grab sample, etc) AND the accident has progressed past gap failure AND the containment has undergone catastrophic failure (e.g., know there should be pressure and there is none).

Note that the following method provides DOSES, not release rates. Doses based on stability class D and four m.p.h. wind speed.

REACTOR ACCIDENT CONSEQUENCE OVERVIEW
Containment Leakage

Core Condition	Containment Status	Mitigating System Status (*)	Acute Dose (rem) 1 Hour Release @ 1 mile (**) WB	THY
MELT Release From Core 4500°F	Early Total Failure (< 1hr)	No Mitigation	1000 +	10^5 +
		Mitigated	250	10^4
	Late Total Failure (2-12hr)		250	10^4
	Major Leakage (100% / day)		10	10^3
	Design Leakage		10^{-2}	1
Gap Release From Core 1500°F	Early Total Failure (< 1hr)	No Mitigation	50	10^4
		Mitigated	10	10^3
	Late Total Failure (2-12hr)		5	10^3
	Major Leakage (100% / day)		10^{-1}	10
	Design Leakage		10^{-4}	10^{-2}

* Sprays, filters
** 1 hour cloud immersion and inhalation plus 3 hours of ground shine

BASIS: NRC's Response Technical Manual RTM-91 Vol. 1, Rev. 1, pg C-2

APPENDIX B
(Page 1 of 2)

Use this method to estimate release rates for a Steam Generator Tube Rupture Accident.

NOTE: The following methods are provided for guidance. Conditions may warrant an approach different than shown; use the factors presented here and elsewhere in this procedure, as necessary, to estimate releases. Document the calculations.

The default release rate is based on:

NOTE: If it is determined that the break is above the waterline or the S/G has boiled dry, the iodine release rate could be five times higher.

1. Complete tube break at the tube sheet, which is under water.
2. 380 gpm primary to secondary leak rate (average over 30 minute accident period).
3. 1 percent failed fuel.
   and
4. 100 percent of the noble gas in the RCS discharged to the steam generator is released to the atmosphere.
5. 5 percent of the iodine in the RCS discharged to the steam generator is released to the atmosphere.

IF any, or all, of the first three default basis are known to be different than stated above, THEN adjust the default release rate by using method SGTR-1 (on this page).

IF RCS grab sample results, and 1° - 2° leak rate are known, THEN estimate the release rate using method SGTR-2 (top-half next page)

IF secondary concentrations and steaming rates are known, THEN estimate the release rate using method SGTR-3 (bottom-half next page)

METHOD SGTR - 1

METHOD:

1. Calculate multiplier:

   ______ (Actual # failed tubes) x ______ 380 (Actual 1° - 2° leak rate, gpm) x ______ (Actual % failed fuel) = ______ (multiplier)

2. Adjust the noble gas release rate

   (default rates) (multiplier) = (adjusted)

   4.2 Ci/sec noble gas x ______ = ______ Noble Gas Ci/sec

3. Adjust the iodine release rate (If break is above water p-mod = 5, if not p-mod = 1)

   (default rates) (p-mod) (multiplier) = (adjusted)

   3.7 E-3 Ci/sec iodine x ______ x ______ = ______ iodine Ci/sec

4. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter B SGTR-1 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

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METHOD SGTR -2

Use this method if RCS grab sample results and 1° - 2° leak rate are known

METHOD:

1. Enter the RCS activities, 1° - 2° flow, select and enter the partition factor modifier (p-mod) (see basis below) for iodine (If break is above water p-mod = 5, if not p-mod=1), and complete the calculation (multiplication):

	RCS activity μCi/cc	x 1° - 2° flow gpm	x p-mod	x partition	x unit conversion	= Estimated Release Rates, Ci/sec
Noble Gas			1	1	6.3 E-5	
Iodine				0.05	6.3 E-5	

2. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter B SGTR-2 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

METHOD SGTR -3

Use this method if secondary concentrations and steaming rates are known

METHOD:

.. Enter the secondary activities, steaming rate, select and enter the p-mod for iodine (If break is above water p-mod = 5, if not p-mod = 1), and complete the calculation (multiplication):

Steaming Rate: Samples are liquid, need to know equivalent liquid release rate.
IF in lbm/hr:__________lbm/hr x 0.126 =______________ cc (liquid)/sec
IF in lbm/sec:__________lbm/sec x 454 =______________cc (liquid)/sec
IF in volumetric units (e.g., Ft^3/time, then get Engineering to calculate liquid rates)

	Sec activity μCi/cc	x Steaming Rate, cc/sec	x p-mod	x partition	x μCi to Ci	= Estimated Release Rates, Ci/sec
Noble Gas			1	1	1 E-6	
Iodine				0.05	1 E-6	

2. Enter the Estimated Release Rates into the previously selected Dose Calculation Worksheet (enter B SGTR-3 next to Appendix as method), or enter release rates as Direct entry if using the computer, to estimate Offsite doses.

Basis: 380 gpm =((7E+4 lbm ÷ 46 lbm/ft^3) * 7.48 gal/ft^3) ÷ 30 min
p-mod = partition factor modifier, Westinghouse Study on effect of rupture site not covered by water indicates about a 4.6 times higher iodine release rate.
6.3E-5 = 1E-6 Ci/μCi x 3785 cc/gal ÷ 60 sec/min
0.126 = (lbm/hr * 453.6 grams/lbm) ÷ (1 gram/cc liquid * 3600 sec/hr)
addn'l ref.: UFSAR analysis and JPE-LR-87-033

APPENDIX C
(Page 1 of 1)

Release Rate from Field Team Measurements

NOTE: Survey meter Gamma (closed window) results must be from plume centerline; that is, the maximum value from a lateral transverse of the plume.

METHOD:

1. Date and time of starting this worksheet: ____________________/__________

2. IF the survey meter measurement was at 1 mile value, THEN go to Step 4.

3. Estimate the 1 mile value:

   Estimated 1 mile value = Survey meter results × (downwind distance, miles)^{z}

   Where the exponent Z = 2 for Stability Class A, B
   1.5 for Stability Class C, D
   1.0 for Stability Class E, F, G

   ________ mr/hr × (________ miles)$^{(\_\_\_\_\_\_ Z)}$ = ________ Estimated 1 mile mr/hr
   meter results   downwind distance

4. Select the Dose Calculation Worksheet (DCW) for the met conditions at time of sampling.

   a. Use Wind Speed in Miles Per Hour, mph

   b. Copy from Line 13, the 1 mile Noble Gas Dose factor (NGDF) for use in Step 5.

5. Estimate Noble Gas Release Rate: Estimated 1 mile mr/hr ÷ NGDF × Wind Speed
   ________ mr/hr ÷ ________ (NGDF) × ________ mph = ________ Noble Gas Ci/sec

6. Estimate Iodine Release Rate (IRRF = Iodine Release Rate Factor, see Page 1 of Attachment 3):

   N.G. Ci/sec __________ × _________(IRRF) = __________ Iodine (131 Deq) Ci/sec

. Utilize the current meteorological conditions and appropriate Dose Calculation Worksheets (enter C next to Appendix as method), or enter release rates as Direct if using the computer, to estimate Offsite Doses from this appendix.

NOTE: Dose rates at other distances (e.g., 1, 2, 5, 10 miles) can be rapidly estimated using the following relationship as referenced, EPA-520 Rev. 6/79, page 5.10.

Estimated Dose Rate @ Dist × = Measured Dose rate times (DWD ÷ Dist ×)^{z}
Where: DWD = Measurement downwind distance, miles
Dist × = other distance, miles
z = exponent based on stability class

APPENDIX D
(Page 1 of 2)

Conversion Factors and System Parameters

The following system parameters and conversion factors are provided for use in emergency response activities. Some values may be approximated in that the values have been rounded to the nearest tenth of an order of magnitude; for example, 1.2 E+04 rather than 12,345.

System Volumes

Containment 4.4 E+10 cc
Spent Fuel Pit: 60,000 ft3 (1.7 E+9 cc) Level Indicator: 650 gal/in. 40 ft=312,000 gal
Accumulators 6545 gal each
RCS 70,000 gal
Steam Generators secondary 40,000 gal max 20,000 gal operating, primary 6921 gal max
Pressurizer 9725 gal max 5835 gal operating
RWST 320,000 gal
VCT 748 gal liquid and 200 ft3 gas
CCW 35,000 gal
Gas Decay Tank 525 ft3
Containment Sump 629,326 gal max 10 gal/in 0-32 in. 1376 gal/in 32-489 in.

System Flows

Steam Dump @ 1100 psi	28 lbm/sec	Each ADV = 1.3 E-4 cc/sec
Aux Feed Flow	800 gpm each	
Standby Feedwater	1350 gpm	
Containment Exhaust 7000 scfm (3.304 E+6 cc/sec)		
Spent Fuel Pit Exhaust 20,000 scfm (9.44 E+6 cc/sec)		
RCP 88,500 gpm per pump		
Air ejector	30 scfm (1.42 E-4 cc/sec)	
Instrument Air Bleed	U-3 20 scfm (9440 cc/sec)	U-4 25 scfm (11800 cc/sec)
Safety Injection	375 gpm	
Charging Pump	77 gpm each	

Process Radiation Monitoring System

Monitor	Description	Units	Range Min - Max	Typical Background	Typical response factor (uCi/cc/cpm)
R-11	Containment Particulate	uCi/cc	1.0E-09 - 1.0E-06	1.0E-08	7.36E-12
R-12	Containment Gas	uCi/cc	1.0E-06 - 1.0E-03	1.0E-05	3.48E-08
R-14	Plant Vent Gas	cpm	0-300,000	500	5.0E-09
R-15	Air Ejector Gas	cpm	0-300,000	400	2.5E-08
R-17	CCW	cpm	0-250,000	750	2.0E-07
R-18	Liquid Rad Waste	cpm	0-250,000	5000	2.0E-08
R-19	S/G Blowdown	cpm	0-250,000	750	5.0E-09
R-20	Letdown	mr/hr	0.1 - 10,000	100	------------
DAM-1	Main Steam	uCi/cc	1.0E+00 - 1.0E+05	1.0E-01	------------
SPINGs					
Ch-5	Low Range Noble Gas	uCi/cc	1.0E-07 - 6.0E-02	5.0E-07	------------
Ch7	Mid Range Noble Gas	uCi/cc	2.5E-02 - 4.0E+02	1.0E-04	------------
Ch-9	High Range Noble Gas	uCi/cc	1.0E+00 - 1.0E+05	1.0E-01	------------

APPENDIX D
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CONVERSION FACTORS AND SYSTEM PARAMETERS

The Core:
≈ 8.7 E 7 Curies DEQ I-131 DEQ (assume 15% in the gap for estimating purposes)
≈ 3.5 E 8 Curies of 'core mix'(gross) noble gas

For LOCA

25% of total core iodine inventory is assumed to be available for release.
100% of total core gas inventory is assumed to be available for release.
Design base leak rate is 1273 cc/sec. (0.25% per day)
Dose at the site boundary for a LOCA is 93 Rem thyroid and 3.1 Rem whole body.

For Steam Generator Tube Rupture

Isolation of steam generators should occur within 30 minutes.
70,000 lbs of RCS will leak into the steam generator.
57,000 lbs of steam will be discharged into the atmosphere.
With 1% defective fuel:
9,500 equivalent curies of Xe-133 are released
3.9 equivalent curies of I-131 are released
78 equivalent curies of I-131 are deposited in the steam generator
Dose at the site boundary <1.0 Rem thyroid, <0.1 Rem whole body

Primary to Secondary Leak Rate

$$\text{Leak Rate (gallons/hour)} = \frac{\text{S/G } \mu\text{Ci/ml}}{\text{RCS } \mu\text{Ci/ml}} \times \frac{\text{Blowdown (lbm/hr)}}{\text{8.33 (lbm/gallon)}}$$

Ci/sec = (Leak Rate, gph)*(3785 ml/gal)*(2.78 E-04 hr/sec)*(RCS µCi/ml)*(1.0 E-6 Ci/µCi)

Conversion Factors

1 gallon = 8.33 lbm (@STP)=3785 ml $\quad$ 1 Ft^3 = 28317 cm^3

1 lb/Ft^3 x 0.0160 = g/cm^3 $\quad$ 1CFM x 472 = cc/sec

1 lbm/hr steam x 0.126 = ml/sec condensed liquid

1 lb x 454 = grams

1 mph x 0.447 = meter/sec $\quad$ 1 meter/sec x 2.23 = miles per hour

1 mph ÷ 1.15 = knot $\quad$ knot x 1.15 = mph $\quad$ 1 mile = 1609 meters

1 µCi/cc equilibrium noble gas = 3.6 E+5 mrem/hr (DDE) immersion dose rate

1 µCi/cc Iodine-131 (or mix as DEQ) = 1.3 E+9 mrem/hr (CDE) Adult Thyroid from inhalation

X/Q (FSAR default) = 1.5 E-4 sec/$meter^3$ $\quad$ (class F, 4.5 mph)

APPENDIX E
(Page 1 of 4)

OFF-SITE DOSE CALCULATIONS - COMPUTER METHOD

1.0 Discussion

1.1 The computer based Class A Dose Calculation Program utilizes inputs and processes similar to the manual procedure. However, the refinements available in the computer based process allow for a wider range of input information and mathematical complexity than available in the manual method. This procedure provides guidance for using the computer based process to derive calculated off-site doses in a manner similar to that discussed for the manual calculation. Personnel having expertise in dose calculation methodology may utilize this expertise in combination with the advanced methods available through the screen driven menus to modify and refine these basic calculations.

NOTE: If the EOF and TSC are manned and operational, dose assessment personnel at these locations should coordinate their efforts in order to calculate the most accurate available off site dose assessment.

A. Computer Startup

1. Energize the uninterruptible power supply to the computer, to prevent data loss if a power interruption occurs.

2. Ensure that the floppy disk drive is empty.

3. Turn on the display monitor, the printer, the computer and the print buffer if attached.

4. Acquire the Class-A User's Manual while computer is starting up.

5. Following system startup, the computer may prompt the user to enter the current date. If the prompt appears, then:

   a. Enter the current date in the displayed format and depress the "ENTER" key.

   b. Enter the current time (to the nearest whole minute) in the displayed format and depress the "ENTER" key.

6. WHEN the computer displays the "C" drive prompt (C>), THEN type "FPL" AND depress the "ENTER" key to initiate the dose assessment program.

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B. Perform Pre-Use QC Check

1. IF time and manpower permit, THEN a pre-use verification check using input data from the User's Manual should be performed prior to conducting dose calculations.

2. Exit the program to the DOS level at the completion of the pre-use check; type FPL and hit "ENTER" to restart the program.

C. Conducting Calculations

1. WHEN the plant site menu is displayed, THEN depress the function key to select "Turkey Point Plant."

2. WHEN the program asks, "Is this an exercise?", THEN answer appropriately and depress the "ENTER" key.

3. WHEN the Main Menu is displayed, THEN select the displayed function key to start calculations.

4. WHEN prompted by the program, THEN depress "Y" and the "ENTER" key to reinitialize the data files.

   NOTE: Thirty minute advection time steps are normally used except for fuel handing accidents, for which fifteen minute advection time steps should be used.

5. Select from the screen functions displayed to edit the reactor trip times and release start times in the format shown on the screen AND depress "ENTER" after each new entry.

   NOTE: Once advection time is selected it should not be changed while running the program to prevent generating errors.

6. WHEN the correct reactor trip and release start times, and advection time steps have been entered, THEN depress the displayed function key to accept the data.

7. WHEN the Run Mode Menu is displayed, THEN depress the displayed function key to enter the Actual Calculation Mode.

8. WHEN the Input Menu is displayed, THEN depress the displayed function key to bring up the Meteorological Data Menu.

   CAUTION: When determining the atmospheric stability class, the Class A computer program will select the most recently entered indicator (Delta-T or Sigma-Theta) of stability. Since Delta-T is the preferred indicator, ensure that Delta-T data is entered last when available.

9. Enter the meteorological data gathered in accordance with this procedure in the format shown using the displayed function keys AND depress "ENTER" after each new entry.

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10. WHEN all necessary meteorological data has been entered, THEN depress the displayed function key to accept the data and return to the Meteorological Data Menu.

11. Depress the displayed function key to accept the data and return to the Input Menu.

12. WHEN the Input Menu is displayed, THEN depress the displayed function key to bring up the Source Term Accident Information Menu.

    NOTE: If editing is required, edit the information in accordance with the displayed instructions.

13. WHEN the Source Term Accident Information Menu is displayed, THEN depress the displayed function key to accept the default accident (LOCA) or to edit this information.

14. WHEN the Source Term Release Rate Menu is displayed, THEN gather release rate information in accordance with this procedure AND enter the release rate information and source of information in accordance with the displayed instructions.

15. WHEN the input of release rate information has been completed, THEN depress the displayed function key to accept the data AND return to the Input Menu.

16. IF a final check of data accuracy is desired, THEN depress the displayed function keys to review the data and to return to the Input Menu.

17. Depress the appropriate function key and answer "Y", "ENTER" to the screen prompt to begin calculations.

18. WHEN the Output Menu is displayed, THEN depress the displayed function key to select the printer.

19. WHEN the Printed Report Menu is displayed, THEN depress the displayed function keys to select the desired reports and radial receptors.

    CAUTION: Ensure that the printer and buffer are on line and ready for use prior to proceeding with the printing task. If either device is not ready for use, the computer will exit the dose assessment program.

20. Depress any key to being printing.

21. WHEN the Output Menu is displayed, THEN depress the displayed function key to select the Run Mode Menu.

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22. WHEN the Run Mode Menu is displayed, THEN depress the displayed function key to select the Forecast Calculation Mode.

    NOTE: Two hour forecast periods are normally used unless the release period is expected to be other than two hours as specified by Emergency Management personnel.

23. Edit the forecast period as desired using the displayed instructions.

24. WHEN the forecast period has been accepted, the Input Menu: Forecast Calculation mode will be displayed, THEN Depress the displayed function keys to edit, review and summarize data as necessary.

25. WHEN all input data is acceptable, THEN depress the displayed function key to perform calculations AND answer "Y", "ENTER" to the screen prompt.

26. WHEN the Forecast Calculation Mode Output Menu is displayed, THEN depress the displayed function key to select the printer.

27. WHEN the Printed Report Menu is displayed, THEN depress the displayed function keys to select the desired reports and radial receptors.

    CAUTION: Ensure that the printer and buffer are on line and ready!

    NOTES:
    - The Emergency Coordinator should normally be provided with a printout of actual calculated doses, forecast calculated doses and protective action recommendations. Dose calculation reports should reflect both whole body and thyroid doses at 1 mile, 2 miles, 5 miles, 7.5 miles and 10 miles (Select "ALL" and "1, 2, 5, 7.5, 10 Rdl Rctrs" from the Printed Report Menu).
    - The technician should generally provide an update to the Emergency Coordinator every thirty minutes during periods of actual or potential off-site releases.

28. WHEN the Actual, Forecast and PAR Reports have been printed, THEN the dose calculation technician may return to the actual run mode menus to update information and repeat the dose assessment process as needed due to meteorological or release rate changes.

29. Return to the Source Term Menu and Input Displays for all subsequent calculations even if the data is not to be changed to review and accept the data, in order to assure that the Noble Gas Reduction factor is reset to its proper value.

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REPORTABLE QUANTITY (RQ) RADIOACTIVE RELEASE DATA SHEET

Brief description of the event: ______________________________

____

____

____

Estimate of Quantity of Substance Released to environment: ________

sotopes released; Quantity and RQ Limit:

Nuclide	Curies	RQ Limit	Nuclide	Curies	RQ Limit
Cs-134	______	1.0	I-133	______	0.1
Cs-137	______	1.0	Xe-133	______	1000
Co-58	______	10.0	Xe-135	______	100
Co-60	______	10.0	______	______	______
I-131	______	0.01	______	______	______

.ime and Duration of release:

Start Date/Time: __________/________ Stop Date/Time: __________/________

Medium released to:

Liquid: a) Discharge Canal (Lake Warren): __________

b) Ground: __________

Airborne Gaseous: a) Wind Speed: ________ MPH

b) Wind Direction (from): __________ degree

c) Downwind Sector: ________

Any known or anticipated Acute or Chronic Health Risks (check one):

______ YES ______ NO ______ Unable to provide information

Any advice regarding medical attention necessary for exposed individual:

____

____

____

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REPORTABLE QUANTITY (RQ) RADIOACTIVE RELEASE DATA SHEET

Any precautions to take as result of release:

____

____

____

Names and telephone number of personnel to be contacted for further information:

Name: ______________ Plant No. ________ Beeper No. ________

______________ ________ ________

______________ ________ ________

NOTE: See ERD for associated phone numbers

Notifications made to:

a. Nuclear Plant Supervisor

1) Date/Time: ________/________

2) Name of person given information: ______________

b. National Response Center

1) Date/Time: ________/________

2) Name of person given information: ______________

c. State Emergency Response Commission

1) Date/Time: ________/________

2) Name of person given information: ______________

d. Local Emergency Response Planning Committee (Community Emergency Coordinator)

1) Date/Time: ________/________

2) Name of person given information: ______________

Completed by:

Name (Print/Initials): ________/________

Date/Time: ________/________