

CATEGORY 1

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SUBJECT: Forwards revisions to EPIP-20106, "Natural Emergencies."
 Provisions for seismic event have been added to address
 GL 87-02.

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JUL 09 1996

L-96-177
10 CFR 50, Appendix E

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

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Emergency Plan Implementing Procedure

In accordance with the requirements of 10 CFR 50, Appendix E, enclosed is one copy of the following revised Emergency Plan Implementing Procedure (EPIP):

<u>Number</u>	<u>Title</u>	<u>Implementation Date</u>
20106	Natural Emergencies	06/21/96

EPIP 20106 was revised to incorporate changes to the hurricane shutdown criteria with respect to storm category. These changes are consistent with the Turkey Point Units 3 and 4 Station Blackout Criteria and the St. Lucie Plant shutdown criteria. Provisions for seismic events, which may cause relay chatter, have also been added to address NRC Generic Letter 87-02 concerns. Please note that EPIP 20106 has been reformatted from the original to the upgrade format. The new procedure number is 0-EPIP-20106.

Should there be any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

OIH

Enclosures

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
(2 copies)
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point Plant
(w/o enclosures)

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PDR ADDCK 05000250
F PDR

SUPERSEDED PGP Per Rev to
EPJP dtd 7/9/96 9607230323

5B-25B

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4
EMERGENCY PLAN IMPLEMENTING PROCEDURE 20106
JANUARY 24, 1995

1.0 Title:

NATURAL EMERGENCIES

2.0 Approval and List of Effective Pages:

2.1 Approval:

Change dated 1/24/95 Reviewed by Plant Nuclear Safety Committee: 95-009
and Approved by Plant General Manager: 1/24/95

Periodic Review Due: 2/10/96 Implementation Date: 3/1/95

Page	Date	Page	Date	Page	Date	Page	Date
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17	02/25/93	34	06/17/93	51	08/11/92		

3.0 Scope:

3.1 Purpose:

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

3.2 Discussion:

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

TSS 91-0293, 90-2452, 91-3460, 91-3680, 92-0777, 92-1344, 93-0266, 93-0867, 95-0037
C/MS 87-212, 89-124, 90-390, 90-449, 92-086 OTSC 6497, 7599

This procedure may be affected by an O T S C (On The Spot Change) verify information prior to use
Date verified _____ Initials _____



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

3.2.3 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 issues 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 NAWAS. The Bulletin will identify areas to be affected by the severe weather, and will be reliable for Control Room notification.

2. The NOAA/NWS issues warnings received by the FPL System Operations Power Coordinator's Office which relays 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 communications channels described in 0-EPIP-20112, Communications Network.

3.2.4 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 Supervisor, who will keep the Emergency Coordinator apprised.

3.2.5 Substantial portions of this procedure support commitments 6.2.1 and 6.2.2. Do not delete material from this procedure without a full review of these commitments.

3.3 Authority:

Turkey Point Plant Emergency Plan

3.4 Definitions:

The following terms are used throughout this procedure:

3.4.1 CATEGORY IV HURRICANE: Hurricane with wind speed between 131 and 155 miles per hour.

3.4.2 CATEGORY V HURRICANE: Hurricane with wind speed greater than 155 miles per hour.

3.4.3 EYE: The center of a hurricane where calm prevails, with winds of no more than 20 - 30 mph and little or no rain.



- 3.4.4 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. ..
- 3.4.5 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.
- 3.4.6 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.
- 3.4.7 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 place where the storm could come inland. It also gives the size, maximum winds, direction and speed of travel.
- 3.4.8 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.
- 3.4.9 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.
- 3.4.10 TORNADO: A violently rotating column of air in contact with the ground, usually developing from severe thunderstorms or hurricanes.
- 3.4.11 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.
- 3.4.12 TORNADO WATCH: Meteorological conditions in the area described as favorable to the formation of tornadoes.
- 3.4.13 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.
- 3.4.14 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.



1/24/95

4.0 Precautions:

- 4.1 Preparations for a hurricane are extensive. Start efforts early and take a conservative approach; pre-hurricane rain and winds may hamper preparation efforts.
- 4.2 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.
- 4.3 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.
- 4.4 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.
- 4.5 The installation of drain plugs and portable dewatering pumps is intended for larger hurricanes where the storm surge might result in plant flooding (Category IV and above). Full or partial implementation, particularly the installation of dewatering pumps in the condenser pits, may be considered for lesser storms.
- 4.6 Do not assume the emergency to be over until the receipt of official word from NOAA/NWS that there is no longer a threat to the area.

5.0 Responsibilities:

- 5.1 It shall be the responsibility of the Emergency Coordinator, Emergency Preparedness Coordinator, TSC Projects Supervisor, TSC Maintenance Manager, TSC Mechanical Supervisor, TSC I&C Supervisor, TSC Electrical Supervisor, TSC Operations Manager, TSC Chemistry Supervisor, TSC Health Physics Supervisor, TSC Security Supervisor and the TSC Fire Protection Supervisor to comply with the steps outlined in Section 8.0 of this procedure to protect personnel and the plant from the effects of the emergency.



References/Commitment Documents:

6.1 References:

- 6.1.1 Turkey Point Plant Radiological Emergency Plan
- 6.1.2 Turkey Point Plant, Units 1 and 2 Hurricane Plans
- 6.1.3 National Oceanic and Atmospheric Administration Information -
information on area tornado and hurricane reports
- 6.1.4 FSAR, Section 2, and Figures 1.2-3 and 1.2-4
- 6.1.5 Plant Procedures
 - 1. 0-ADM-215, Plant Surveillance Tracking Program
 - 2. 3-ONOP-004.1, System Restoration Following Loss of Offsite Power
 - 3. 4-ONOP-004.1, System Restoration following Loss of Offsite Power
 - 4. 3-ONOP-004.2, Loss of 3A 4KV Bus
 - 5. 4-ONOP-004.2, Loss of 4A 4KV Bus
 - 6. 3-ONOP-004.3, Loss of 3B 4KV Bus
 - 7. 4-ONOP-004.3, Loss of 4B 4KV Bus
 - 8. 0-ONOP-103.3, Severe Weather Preparations
 - 9. 0-OP-003.1, 125V Vital DC System
 - 10. 0-OP-031, Black Start Diesel Operation
 - 11. 3-OSP-023.1, Diesel Generator Operability Test
 - 12. 4-OSP-023.1, Diesel Generator Operability Test
 - 13. 0-OSP-102.1, Flood Protection Stoplog Inspection
 - 14. 0-OSP-104.1, Record of Meteorological Forecasts
 - 15. ASP-38, Control of Construction During Power Operations
 - 16. EPIP-20101, Duties of Emergency Coordinator
 - 17. EPIP-20110, Criteria for and Conduct of Owner Controlled Area
Evacuation
 - 18. 0-EPIP-20112, Communications Network



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- 6.1.6 JPN-PTN-SECJ-88-079, Safety Evaluation Temporary External Flood Protection Barriers
- 6.1.7 PC/M 87-212, EDG Enhancement Site Preparation
- 6.1.8 PC/M 89-124, Repair/Replace Stoplogs On East Side of Auxiliary Building
- 6.1.9 5610-C-1695, Network of Barriers for Main Plant External Flood Protection
- 6.1.10 JPN-PTP-90-1902, External Flood Protection Enhancement Program - Plant Drainage Evaluation
- 6.1.11 PC/M 90-390, Plant Perimeter Floodwell Repair
- 6.1.12 PC/M 90-449, CCW Area Pipe Trench Floodwells
- 6.1.13 JPNS-PTN-90-0111, Turkey Point Units 3 and 4 RHR Pump Room Access Hatch Removals
- 6.1.14 Station Blackout:
 - 1. NRC Reg. Guide 1.155, Station Blackout
 - 2. NUMARC 87-00, Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors
- 6.1.15 Security Force Instruction (SFI) 3002, Hurricane Preparedness
- 6.1.16 Technical Specification 3.4.1.3
- 6.1.17 PC/M 92-086, Secondary Containment of Unit 4 Turbine Lube Oil Reservoir



2/25/93

6.2 Commitment Documents:

6.2.1 L-91-184, PRA Transmittal Letter to NRC, dated June 25, 1991

6.2.2 Turkey Point Plant Units 3 & 4 Probabilistic Risk Assessment Individual Plant Examination Final Report, dated June 21, 1991

6.2.3 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

7.0 Records and Notifications:

7.1 The Emergency Coordinator shall ensure notifications are performed per EPIP-20101 for natural emergencies meeting emergency action level criteria.



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1.0 Instructions:

- NOTES:
- This procedure shall be used when the natural emergency meets the criteria in Table 1 of EPIP-20101, Duties of Emergency Coordinator. Natural emergencies that do not meet the criteria of EPIP-20101 shall be handled in accordance with O-ONOP-103.3, Severe Weather Preparations.
 - Annotate in the left-hand margin those steps performed which should be tracked to aid in later restoration of the plant to a normal configuration.
 - 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.

8.1 Tornado:

8.1.1 For either 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:

1. Instruct plant personnel to immediately seek safe shelter.
2. Consult 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.



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8.2 Hurricane Warning:

8.2.1 Emergency Coordinator responsibilities include the following:

1. Consult EPIP-20101, Duties of Emergency Coordinator, for direction.
2. Initiate O-OSP-104.1, Record of Meteorological Forecasts.
3. Order all unnecessary work stopped.
4. Determine the need for additional staffing. Consider alternative means of transportation for callout personnel to minimize the number of personal vehicles on site.

NOTE: 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.

5. Release non-essential personnel in a phased, controlled manner as hurricane preparations are completed or as personal circumstances dictate. Ensure release is far in advance of severe weather to allow personnel to arrive safely at their homes and avoid any undue congestion with the public.
6. Instruct the Human Resources Manager to provide for the advanced evacuation, if desired, of families of the storm duty crews.
7. Investigate the need for relocation of the TSC and/or OSC.
8. Establish a shift schedule for response personnel to provide for continuous plant support.
9. Brief the NPS on the personnel available for emergency teams and the capabilities and limitations of support.
10. Brief emergency response personnel on the storm, safety precautions, expected duties, potential problems, contingencies, and communications systems.
11. Ensure adequate preparations are made by conferring with the TSC Operations Manager, TSC Maintenance Manager, and the Emergency Preparedness Coordinator.
12. Determine when it is safe for personnel to return to work and ensure appropriate notifications are made.
13. The following guidelines should be considered for a Category 5 Hurricane Warning, and may be considered for lesser category hurricanes:



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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:

TSC Dose Assessment Technician

EOF Communicator

TSC/ENS Communicator

ERDADS Operator

- d. Evaluate the oncoming storm and select desired guidelines and contingency actions for implementation:
1. Discuss with the TSC Operations Manager and determine if any of the guidelines from Appendix D should be implemented.
 2. Discuss with the TSC Maintenance Manager and select and prioritize desired guidelines from Section 8.2.4.

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 remote field stations (480V Load Center Rooms, Auxiliary Building, Cable Spreading Room, EDG buildings) are habitable and well equipped for local actions.
- f. Establish prospective routes within the plant that personnel will use to minimize exposure to severe weather [Reference Step 6.1.14.1]. Evacuation routes from remote stations should be equipped with safety lines. |



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8.2.2 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 the 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 with the Human Resources Manager to make all plans necessary to evacuate the families of emergency crews, if desired, so that those individuals remaining can devote their full efforts to the plant.
4. Perform frequent walkdowns of the plant exterior and site with various key managers inspecting for and reducing potential missiles. [Reference Step 6.1.14.1]
5. Coordinate activities of the various plant departments; resolve working level problems that may arise during storm preparations, including licensing issues.
6. 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 onsite emergency responders as required by the Emergency Coordinator.
 - c. Availability of any offsite vendors for personnel, services, or supplies, as needed, to support recovery efforts immediately following the storm.
 - d. Ensure all onsite vehicle gas and diesel fuel storage tanks are full.



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7. Coordinate the following with the Land Utilization Site Superintendent:
 - 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.
8. 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.
9. Coordinate with the Supervisor - Contracts Management 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.
10. Perform communications checks of all emergency communication systems in accordance with EPAD-007, Emergency Response Facilities and Equipment Surveillance.
 - a. Pre-stage Emergency Communications Systems (satellite telephone system, etc.) as required for post-storm use in Control Room.
11. Assist the Emergency Coordinator in determining the need for additional staffing.
12. Determine alternate locations for relocation, if necessary of the TSC and OSC, and ensure that the location is available.
13. Assist the Emergency Coordinator in investigating the need for relocation of the TSC and OSC.
14. Ensure the TSC and OSC, including supplies and emergency equipment, are fully prepared in accordance with EPAD-007, Emergency Response Facilities and Equipment Surveillance for possible activation.
15. Assign facility responsibility for Fab Shops/Trailers and other buildings per Section 8.2.13.
16. Perform the site facilities duties of Section 8.2.13.



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17. Establish a point of contact with Dade County and NOAA/NWS to obtain periodic status reports on the tropical storm/hurricane; county storm preparations (evacuation plans, etc.); county water supply; and police and fire/rescue unit availability.
 - a. Determine the need to isolate the county water supply based upon declared contamination or possible contamination.
 - b. If it is necessary to isolate the water supply, request a clearance issued to the NPS to close Raw Water Storage Tank Inlet Isolation Valves 730 and 885.
18. Make arrangements for televisions or radios, and required antenna systems to monitor media broadcasts of news and weather information.
19. Ensure a siren restoration/inspection crew is on standby at the EOF.
20. Establish a means of communications with the fossil plants.
21. As soon as practical, provide information to the EOF for press releases and verify press releases are distributed as appropriate.
22. Contact St Lucie management, Juno Beach Staff or elsewhere to arrange for relief workers following the hurricane.
23. Discuss with the Emergency Coordinator/Recovery Manager and ECO 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. 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.
 - (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) Coordinate with the TSC Maintenance Manager to relocate at least 5 desks and 60 chairs to the new TSC/OSC location, if space permits.



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- (4) Establish dedicated phone lines to the Control Room from the relocated TSC/OSC. Ensure sufficient portable radios and cellular phones are available; contact the FPL Miami Radio Shop and/or Telecommunications to locate additional radio equipment.
 - (5) Coordinate with the TSC Maintenance Manager to set up facilities for collecting human waste at a location accessible from the new TSC/OSC location.
 - (6) Coordinate with the Nuclear Materials Management Manager to stage bedding, food, and water at a location accessible from the new TSC/OSC location.
 - (7) Coordinate with the TSC Health Physics Supervisor to establish suitable work areas if the new TSC/OSC location is the Auxiliary Building. A berthing area and an area for eating and drinking should be established in the Cable Spreading Room or other designated location.
 - (8) Coordinate with the TSC Health Physics Supervisor to establish a control point at the door from the Auxiliary Building to the New Electrical Equipment Room within two hours of the approach of the storm. Ensure a continuous path of access is set up from the Auxiliary Building to the New Electrical Equipment Room to the Cable Spreading Room.
- b. 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.
 - c. Arrange for personnel trained in communications equipment to be onsite during the hurricane.
 - d. Establish phone numbers for personnel to call following the hurricane and ensure these numbers are provided to plant personnel.
 - e. Establish a staging location for those employees not staying onsite to meet following the hurricane and ensure the location is known to plant personnel.

8.2.3 TSC Projects Supervisor responsibilities include the following:

1. Remove or adequately secure scaffolding that would be exposed to high winds.
2. Survey construction sites to ensure all light material is either tied down or placed indoors.
3. Tie down or remove portable toilets, air compressors, and gangboxes; wire the gangboxes shut.
4. Secure electrical service to temporary facilities.
5. Survey site laydown areas to secure or remove loose objects.



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6. Check tie downs on all temporary and portable buildings or structures that could be damaged by strong winds. Consult facility drawings to ensure all structures are checked.
 7. Disassemble and remove temporary buildings not having tie-downs, such as the wooden buildings at the containment equipment hatches.
 8. Move valuable equipment to high ground.
 9. Ensure that PTF hurricane preparations are satisfactory so as not to impact the nuclear units. Coordinate walkdowns at the "island" laydown areas.
 10. If winds greater than 120 mph are expected, ensure the water treatment plant ECOLOCHEM trailers are tied down.
 11. Protect the phone equipment rooms located in the support buildings (i.e., sandbags, visqueen, caulking).
 12. Coordinate with the Emergency Coordinator the need to augment FPL manpower with construction personnel.
 13. 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.
 14. Perform site facilities duties of Section 8.2.13. |
- 8.2.4 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; coordinate with the Emergency Preparedness Supervisor to attempt to resolve any personal considerations.
 3. Contact additional Maintenance Department personnel that are necessary for hurricane preparations.
 4. Establish emergency teams to meet the following criteria:
 - a. Meet Emergency Plan minimum staffing in accordance with the PTN Radiological Emergency Plan Table 2-2a, and
 - b. Provide for emergency maintenance, and
 - c. Provide for round-the-clock coverage.



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5. Establish backup crews for contingency support.
6. Ensure that adequate dewatering pumps and hoses, drain plugs, and sandbags are available and prestaged.
7. 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. Reliefs should be prepositioned 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 to use in an emergency.
 - c. Request stores to wrap, elevate, relocate, or otherwise protect spare motors and other parts or tools that may be required for recovery.
 - d. Ensure that the lifelines run by the Mechanical Supervisor include lines between appropriate remote stations described in Appendix D.
 - e. Discuss with the Emergency Coordinator what additional protection may be required for the following areas:
 - (1) 4kV Bus Rooms:
 - Seal all doors and penetrations on the 18 foot elevation. Consider at least sandbagging, possibly welding the doors.
 - Provide a means for measuring water level in the rooms.
 - (2) AFW Cage:
 - Extend or plug the lube oil reservoir vents to prevent water intrusion.
 - Bag the pump governors to protect against water intrusion.
 - Bag the alternate shutdown communications headset and handset connections.



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(3) Unit 4 EDG Building:

- Remove decking and install a ladder so access between the upper and lower levels is possible without travel outside.
- Seal and sandbag the ground floor doors.

NOTE: Due to the exposed location of the Unit 3 EDG fuel oil transfer pumps, the Unit 3 EDGs may not be available in this storm. Priority should be placed on protecting the Unit 4 EDGs, then protecting Unit 3 EDGs as time permits.

(4) Unit 3 EDG Building:

- Provide as much flood protection as possible without impeding the ability of personnel to evacuate toward the turbine building.
- Create a sandbag and herculite floodwall to protect from flooding of the radiator compartment.

(5) Auxiliary Building:

- Bag alternate shutdown headset and handset connections.
- Provide a means for measuring water level in the building.
- Consider sandbags around MCCs so as to allow access but prevent flooding at low levels.
- Sandbag pipe trenches under the outer walls of the CCW rooms and the SI pump room as required.
- Seal outer doors (consider sandbags where appropriate).

(6) Auxiliary Building 10 ft elevation:

- Bag alternate shutdown headset and handset connections.

(7) Electrical Equipment Room:

- Provide a means for measuring water level in the room.
- Sandbag at the door to the Auxiliary Building so as to allow access but prevent flooding at low levels.



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(8) Component Cooling Water Pump Rooms:

- Protect components from water and wave action as much as possible (e.g. via sandbagging).
- Check that area deckplates are bolted down and hurricane clips installed.

(9) A MCCs:

- When Operations no longer requires access, shield or wrap the MCCs in protective material to minimize water intrusion.
- Sandbag to allow access but prevent flooding at low levels.

(10) B MCC Rooms:

- Seal the doors when Operations no longer requires access.

(11) Computer Room:

- Seal the doors when Operations no longer requires access.

(12) Spent Fuel Pit pumps:

- Bag the non-running motors to protect against water intrusion.
- Sandbag and herculite the entrance to the heat exchanger rooms.

(13) Non-Vital DC battery and bus rooms:

- Seal the doors when Operations no longer requires access.

(14) Turbine Building:

- Walkdown and bag appropriate equipment (including alternate shutdown headset and handset connections) to protect against water intrusion.
- Verify deckplates are securely bolted down and hurricane clips installed.
- Verify any 18 foot elevation outer wall penetrations are securely plugged.



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- f. Provide support for the remote stations referenced in Appendix D:

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 at remote stations that may require dewatering.
- (2) Position electricians at remote stations where ground isolation may be required (Control Room, Cable Spreading Room, 480V load centers A-D rooms, Auxiliary Building) to measure grounds and voltages. Continuous voltage indication supporting early ground detection and isolation should be provided at remote station MCCs if possible.
- (3) Deploy portable generators where needed.
- (4) Provide materials at remote stations to allow sealing of leaking penetrations (such as door thresholds) and water collection and removal.
- (5) Ensure adequate food and water is provided at remote stations for the duration of tropical storm force winds.
- (6) Provide facilities for the collection of human waste at remote stations and the Control Room (since the sewage system may be out of service).

8.2.5 TSC Mechanical Supervisor responsibilities include the following:

NOTE: 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.

1. Install portable dewatering pumps, portable electric generators with fuel supplies, and associated suction and discharge hoses in the following areas:
 - a. Unit 3 Condenser Pit Sump (locate at northeast corner near existing sump)
 - b. Unit 4 Condenser Pit Sump (locate at northeast corner near existing sump)
 - 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



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- 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: Portable pumps and generators may be used in manned locations only if exhaust gases can be safely directed outside.

- 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.

NOTES:

- Drain plug installation shall 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 Appendix C after or during installing portable dewatering pumps.

NOTES:

- Sandbag dikes may be used to fortify either side of a stoplog.

- "*" indicates with Hold Down Pin installed.

- 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



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- 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 (sand bags 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
- 4. Walkdown the floodwall. If the floodwall is breached or stoplog guides are displaced or damaged, install sandbags or repair the damaged or breached area, as directed by the TSC JPN Representative. The sandbag barrier should have a minimum height of two (2) feet and a minimum width of eighteen (18) inches.
- 5. Position sandbags in the following areas to control any potential flooding or inleakage that may develop (numbers are approximate):

NOTE: When constructing dikes use Appendix B, Sketch 1 for guidance.

 - a. 4KV A and B Bus Switchgear Rooms (50 each door)



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- 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
 - (4) Main Truck Gate Entry Building
 - (5) Water Treatment Gate Entry Building
 - (6) Security Emergency Diesel Generator Enclosure

CAUTION: Prior to sandbagging manhole covers, ensure no personnel are in the tendon galleries.

- 6. Ensure east tendon gallery manhole covers (one per unit) are installed and covered with sandbags.
- 7. Verify sufficient emergency supplies are available and staged:
 - a. Portable radios and batteries
 - b. Flashlights and batteries
 - c. Lumber and nails
 - d. Rope, cable, soft wire, tie wraps



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- e. Tape
 - f. Clamps, turnbuckles, screw anchors, stakes
 - g. Banding material
 - h. Plastic, tarps
 - i. Rain gear, buckets
 - j. Sandbags
8. Provide tarpaulins and ropes at various locations throughout the Auxiliary Building. Have an ample supply of plastic film (pliofilm) on hand in the Control Room, Cable Spreading Room, 4KV Switchgear Rooms and Computer Room.
9. Close the following outside doors and roof hatches, inflate seals and install latch pins where applicable:
- a. Outside doors:
 - (1) Cable Spreading Room (Doors 132-1, 132-2 and 104-3 to roof)
 - (2) Unit 3 New Fuel Storage Room (rollup door)
 - (3) Unit 4 New Fuel Storage Room (rollup door)
 - (4) Unit 3 Spent Fuel Pit/Install Latch Pins
 - (5) Unit 4 Spent Fuel Pit/Install Latch Pins
 - (6) Unit 3 CCW Surge Tank Room
 - (7) Unit 4 CCW Surge Tank Room
 - (8) West Auxiliary Building Main Passageway to Turbine Building (Door 58-2)
 - (9) Unit 3 480V Load Center Room (Door 96-1)
 - (10) Unit 4 480V Load Center Room (Door 94-1)
 - (11) Unit 3 4160V Switchgear Room (Doors 70-1, 70-2, 71-1)
 - (12) Unit 4 4160V Switchgear Room (Doors 67-1, 67-2, 68-1)
 - (13) CVCS Holdup Tank Enclosures (2)
 - (14) 3A EDG Room (Doors 73-1, 75-1)



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- (15) 3B EDG Room (Doors 72-1, 74-1)
- (16) East Auxiliary Building Main Passageway to Unit 4 CCW Room (Door 58-1)
- (17) Control Building Elevator Vestibule (4)
- (18) Containment Purge Supply Fan Room
- (19) Auxiliary Building Laundry Room (Door 46-2)
- (20) Intake Storage Room (1)
- (21) Unit 3 B MCC Room (Doors 63-1, 63-2)
- (22) Unit 4 B MCC Room (Doors 61-1, 61-2)
- (23) Unit 3 Electrical Penetration Rooms (Doors 20-1 South, 19-1 West)
- (24) Unit 4 Electrical Penetration Rooms (Doors 26-1 North, 27-1 West)
- (25) Generator Exciter Switchgear Enclosures (2)
- (26) Radwaste Building Doors (East, North, Loading Ramp, Elevator)
- (27) Condensate Polisher/E Load Center/B43 MCC Building
- (28) Computer Room (Doors 62-1, 62-2)
- (29) DC Enclosure Building
- (30) Boric Acid Storage Room (Door 41-1)
- (31) Safety Injection Pump Rooms (2)
- (32) Amertap Control Center/4G MCC Enclosure (2)
- (33) C Bus - 4160 Volt Switchgear Enclosure (2)
- (34) Nuclear Gas House (1)
- (35) Control Room to Auxiliary Building Roof (Door 108 A-2)
- (36) Control Room to Fan Room (Doors 108 A-3, 108 A-4)
- (37) Load Center F & G Enclosures (2)



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(38) Unit 4 EDG Building (Doors 133-1, 133-3, 138-1, 138-2, 136-1, 141-1)

(39) Dry Storage Warehouse

b. Roof hatches:

(1) Auxiliary Building - Stairwell to 10 ft. elevation

(2) Auxiliary Building - RHR Pump and Hx Rooms

(3) Auxiliary Building - Monitor Tank Room

(4) Auxiliary Building - Demin Cubicles

(5) Auxiliary Building - BA Evaporator Rooms

(6) Radwaste Building

10. Verify that hatch covers and grating above each Heater Drain Pump, Condensate Pump, Steam Generator Feed Pump, and Auxiliary Transformer is secured.

11. Ensure main passageways are cleared.

12. 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

13. Tie down or secure the following loose equipment:

a. Gas trailers

b. Portable dewars

c. Ladders



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- d. Needed hoses, electrical cords
- e. Gang boxes
- f. Signs

14. Install life lines between important operating areas of the plant in case personnel must be sent to these areas during high winds.

NOTE: Chemicals/oil should be stored securely above any expected flood level and in locations which will withstand expected winds.

15. 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.

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 8.2.8 are stopped, the following air intake, exhaust, or vent openings should be closed off.

16. Verify that the dampers of those openings equipped with dampers are locked in the closed position. Install the following protective covers where required:

- 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

17. Fuel and tie down the diesel instrument air compressors; stage and secure additional fuel drums/tanks adjacent to the compressors.

18. Ensure nitrogen bottles for MSIVs, steam dump to atmosphere valves, and AFW flow control valves are filled and properly secured.

19. Verify that the gas cylinders in both gas cylinder storage houses are properly secured.



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20. Consult Engineering for additional preparation requirements for empty tanks (i.e., installing temporary tie down anchors). Engineering will provide such additional requirements on a case by case basis.
21. Check and clean fuel oil tank roof vents to assure adequate pressure relief if necessary.
22. Bolt or otherwise secure the hatches on the chemical feed tanks.
23. If the Unit 3 or Unit 4 Hydrogen Recombiner is in operation the Hydrogen Recombiner shall be secured from service and the attached hoses isolated and disconnected from the permanently installed piping flanges.
24. Clean the intake trash pit.
25. Tie down intake trash rakes and hoists in such a manner that they are secure, yet readily available if needed.
26. Dog the intake area gantry crane, the cask crane and the turbine deck gantry crane. Ensure hooks are fully raised.
27. Designate storm duty vehicles. Establish a designated location for storm duty vehicles inside the Protected Area and RCA. Ensure these vehicles are serviced and fueled. Move unnecessary vehicles outside the Protected Area.
28. Perform the site facilities duties of Section 8.2.13.

8.2.6 TSC I&C Supervisor responsibilities include the following:

1. Check that all instruments located outdoors are in weatherproof condition by inspecting cases, gaskets, and so forth. Weatherproof those that need it with plastic film.
2. Tape up or protect glass gage face covers as necessary.

8.2.7 TSC Electrical Supervisor responsibilities include the following:

1. Ensure all doors to plant transformer control panels, outdoor electrical cabinets, and so forth are securely closed.
2. Coordinate with System Protection to ensure the switchyard is prepared for severe weather.
3. Perform the site facilities duties of Section 8.2.13.

8.2.8 TSC Operations Manager responsibilities include the following:

1. Ensure the Emergency Coordinator is kept informed of the preparation status.



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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. Coordinate staffing with the Emergency Preparedness Supervisor..
3. Establish emergency teams to meet the following criteria:
 - a. Meet Emergency Plan minimum staffing in accordance with the PTN Radiological Emergency Plan Table 2-2a, and
 - b. Provide for round-the-clock coverage.

NOTE: Substeps 4 through 15 are commitments:
Commitment - Step 6.2.3.

4. Make arrangements for sufficient operating personnel to be at the plant during the hurricane in order to provide the necessary coverage for several days during which the plant may be inaccessible.
5. Shutdown/cooldown both units to Mode 4 or below at least two hours prior to the projected onset of sustained hurricane force winds at the site. Units shall then remain in Mode 4 or below for the duration of the hurricane and/or until offsite power has been stabilized.
6. Perform a review of the E00SL for equipment out of service for maintenance or testing to identify those whose redundancy is desired to support reliable plant operation during the storm. Ensure work is prioritized to promptly restore such equipment to an operable status.
7. Perform an operability check of the Black Start Diesels per O-OP-031. If any equipment is inoperable, ensure work is properly prioritized to restore such equipment to an operable status. Ensure an adequate supply of fuel oil is available.
8. Review OSP-200.1 and O-ADM-215 for Technical Specification surveillance requirements. Conduct all surveillances, if possible, that will come due during the storm.
9. Determine if and when operator rounds on outside equipment are to be temporarily suspended during the storm. Document instructions in the Night Orders.
10. Perform an operability run of each EDG per 3/4-OSP-023.1 and return the diesel generator to standby service within 24 hours prior to projected onset of sustained hurricane force winds at the site.



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11. Fill Condensate Storage Tanks, Raw Water Tanks, the Demineralized Water Storage Tank, Primary Water Tanks and Refueling Water Storage Tanks.
12. Verify battery chargers and applicable station vital batteries are operational per O-OP-003.1.
13. Ensure that adequate inventories of hydrogen, nitrogen, and carbon dioxide are available to accommodate a unit shutdown and subsequent startup.
14. Review 3/4-ONOP-004.XX series procedures and 3/4-EOP-ECA-0.0 in preparation for a Station Blackout.
15. 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.
16. Perform a test run of the Security diesel in accordance with O-OP-026, Cat 400 Operation.
17. Make maximum permissible liquid and gaseous releases before the hurricane is within two hours of the plant; waste water and waste gas inventories should be at a minimum.
18. Open redundant outdoor 480V receptacle circuit breakers per Appendix A. Issue a clearance to the NPS on all breakers opened.

NOTE: 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.

19. Stop the vent fans listed below so the TSC Mechanical Supervisor can 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



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20. Consult Engineering for additional preparation requirements for empty tanks (i.e., filling of tank); Engineering will provide such additional requirements on a case by case basis. Tanks should be vented to atmosphere where practicable.
21. 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.
22. If personnel are relocated to areas containing Halon Systems, 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.
23. Verify Unit 3 and Unit 4 cask washdown area drains are closed by having drain covers installed and bolted.
24. Shutdown Amertap Systems and open and tag power supply breakers to all pumps and valves. Issue a clearance to the NPS.
25. Suspend all fuel movement, if applicable; place all refueling equipment in a safe condition.
26. Arrange to have portable bedding brought to the Control Room and other suitable locations when the hurricane is less than six (6) hours from the plant.
27. Start all traveling screens at the approach of the storm.
28. Restore the plant to a normal configuration upon discontinuation of the emergency. Annotated steps of this procedure and applicable plant procedures may be used.
29. 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. Reliefs should be prepositioned 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 Appendix D should be implemented.
30. Prior to the evacuation of CAS/SAS, ensure the CAT 400 Security Diesel is in standby in accordance with O-OP-026, CAT 400 Operation.
31. Issue a clearance to the NPS on the Intake Gantry Crane, Cask Crane, and Turbine Gantry Crane to require post hurricane testing.



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8.2.9 TSC Chemistry Supervisor responsibilities include the following:

1. Arrange to have the fuel oil storage tanks for the Black Start Diesels and the Emergency Diesel Generators topped off.
2. Ensure that adequate inventories of acid and caustic are available, then isolate acid and caustic sources.
3. Ensure the NPS has terminated all radioactive release permits when the hurricane is less than two hours from the plant.
4. Perform the site facilities duties of Section 8.2.13.

8.2.10 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. Consider moving highly contaminated components stored at ground level to a higher elevation.
3. Temporarily store all contaminated waste at the RCA waste segregation building in a C-van and Coordinate securing C-vans. |
4. Perform the site facilities duties of Section 8.2.13.
5. 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 the storm. Secure the normal entrance to the RCA. |
6. Determine the need for batteries to support air sampling and acquire as necessary. |
7. Acquire the Health Physics instrumentation list for inventory tracking purposes. |



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8. Ensure radioactive waste processing and ventilation is terminated prior to and during the hurricane.
9. Collect radioactive sources from buildings not designed as Class 1 structures (warehouse, Florida City Substation, Nuclear Maintenance Building, etc.), and store them in the Auxiliary Building, or other Class 1 structure.
10. Distribute assigned dosimetry to personnel assigned to stay onsite during the hurricane.
11. Ensure survey instruments are staged in the sheltering locations.

8.2.11 TSC Security Supervisor responsibilities include the following:

1. Ensure that all visitors have been evacuated in an orderly manner from the Owner Controlled Area in accordance with EPIP-20110, Criteria for and Conduct of Owner Controlled Area Evacuation.
2. Maintain an accurate list of personnel who are to remain on site. Verify this list against a Security printout of personnel on site.
3. Coordinate the deployment of Security personnel during the severe weather.
4. Implement Security Force Instruction (SFI) 3002, Hurricane Preparedness.
5. Perform the site facilities duties of Section 8.2.13.
6. Verify that the CAT 400 Security Diesel is in standby.

8.2.12 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;



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- e. All compensatory hoses are tied down; and
- f. All portable fire extinguishers are properly secured or tied down.
- 4. Ensure at least two crews of fire watch personnel are available onsite to support post hurricane activities immediately following the hurricane.
- 5. Upon notification of recovery process, the Fire Protection Shift Supervisor should:
 - a. Notify and call in needed personnel;
 - b. Conduct a tour of all posts; and
 - c. Return to normal shift schedule and staffing.

8.2.13 Site Facilities Responsibilities

- 1. Responsibility for the site facilities are as follows:
 - a. Nuclear Entrance Building - TSC Security Supervisor
 - b. Nuclear Admin Building - TSC Projects Supervisor |
 - c. Nuclear Maintenance Building - TSC Electrical Supervisor
 - d. Tech Support Building - TSC Supervisor
 - e. RCA Control Point Building - TSC Health Physics Supervisor
 - f. Central Receiving Facility and Issue Warehouse - Emergency Preparedness Supervisor
 - g. Nuclear Training Building - TSC Technical Assistant to the Emergency Coordinator
 - h. Construction Overflow Building - TSC Projects Supervisor |
 - i. Dry Storage Warehouse - TSC Health Physics Supervisor
 - j. Main Truck Gate Entry Building, Water Treatment Gate Entry Building, and Security Emergency Diesel Generator Enclosure - TSC Security Supervisor
 - k. Old Bechtel Building - Emergency Preparedness Supervisor
 - l. Radwaste Building - TSC Health Physics Supervisor
 - m. RCA Dressout Building - TSC Health Physics Supervisor
 - n. Machine Shop Building - TSC Mechanical Supervisor



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- o. WTP Nuclear Chemistry/Chemical Storage - TSC Chemistry Supervisor
 - p. Fab Shops/Trailers - As assigned
 - q. Old I&C Building (Security Response Station and Fire Watch Offices) - Emergency Preparedness Coordinator
2. Ensure that the following steps are taken to secure the facility prior to evacuation:

NOTE: The individual(s) responsible for these actions are listed in Step 8.2.13.1.

- 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 Step 8.2.5.5 have been or are being installed satisfactory.
- d. Nonessential equipment is deenergized.
- e. Windows and glass doors are taped and 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.



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480 VOLT RECEPTACLE LIST

NOTE: The following breakers are to be verified tagged and opened per Step 8.2.8 of this procedure. The TSC Operations Manager has responsibility to ensure this is completed.

<u>BREAKER NO.</u>	<u>RECEPTACLE NO./LOCATION</u>
30513	4 and 4A, Turbine Area East
30653	17 and 17a, Unit 3 Containment
30661	5, West End, Aux. Building E/W Passageway
30674	6, 6A and 6B East End and Exterior East Wall of Aux. Building
30736	7, North End, Aux. Building N/S Passageway
30905	11 and 12, North End of Intake Area
30760	8, Unit 3 Cask Wash Area (See Note 1)
34341	U3 Condensate Polisher Area Receptacles
40653	17 and 17a, Unit 4 Containment
40903	15 and 16, Intake Area (at Traveling Screens)
44341	U4 Condensate Polisher Area Receptacles
0870	9, South End of Aux. Building N/S Passageway
0871	10, Unit 4 Cask Wash Area (See Note 1)
1023	13, Water Treatment Plant Area
11605	01 and 02 Radwaste Control Area, West Wall
11704	03, Radwaste N/S Passageway, North End
11728	Radwaste N/S Passageway, South End and Outside Receptacles
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 SE corner No. 3 Aux. Trans.
Panel 3P14, Bkr 3	One receptacle at No. 3 Bowser Filter
	One receptacle west of 3A MSR
	One receptacle at SW corner of Cond. Retubing Pit, ground level (See Note 2)
Panel 3P14, Bkr 4	One receptacle in Aux. Feedwater Pump Area
	One receptacle east of 3D MSR
Panel 3P14, Bkr 5	One receptacle, Turbine Deck, west side between Units 3 and 4
	One receptacle under south end of steam platform
Panel 3P14, Bkr 6	One receptacle on Mezz. Level at Panel 3P14
	One receptacle at NE corner of Turbine Deck
Panel 3P14, Bkr 7	One receptacle at NW corner of Turbine Deck
Panel 4P14, Bkr 1	One receptacle at east wall No. 4 4160 Room
Panel 4P14, Bkr 2	One receptacle at SE corner No. 4 Aux. Transformer
Panel 4P14, Bkr 3	One receptacle at south side of Cond. Retubing Pit, ground level
	One receptacle east of Bowser Filter
	One receptacle west of 4A MSR
Panel 4P14, Bkr 4	One receptacle east of 4D MSR
	One receptacle east of No. 4 SGFW Pump Room
Panel 4P14, Bkr 5	One receptacle at SW corner of Turbine Deck
	One receptacle under south edge of steam platform



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480 VOLT RECEPTACLE LIST

Panel 4P14, Bkr 6	One receptacle on Mezz. 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

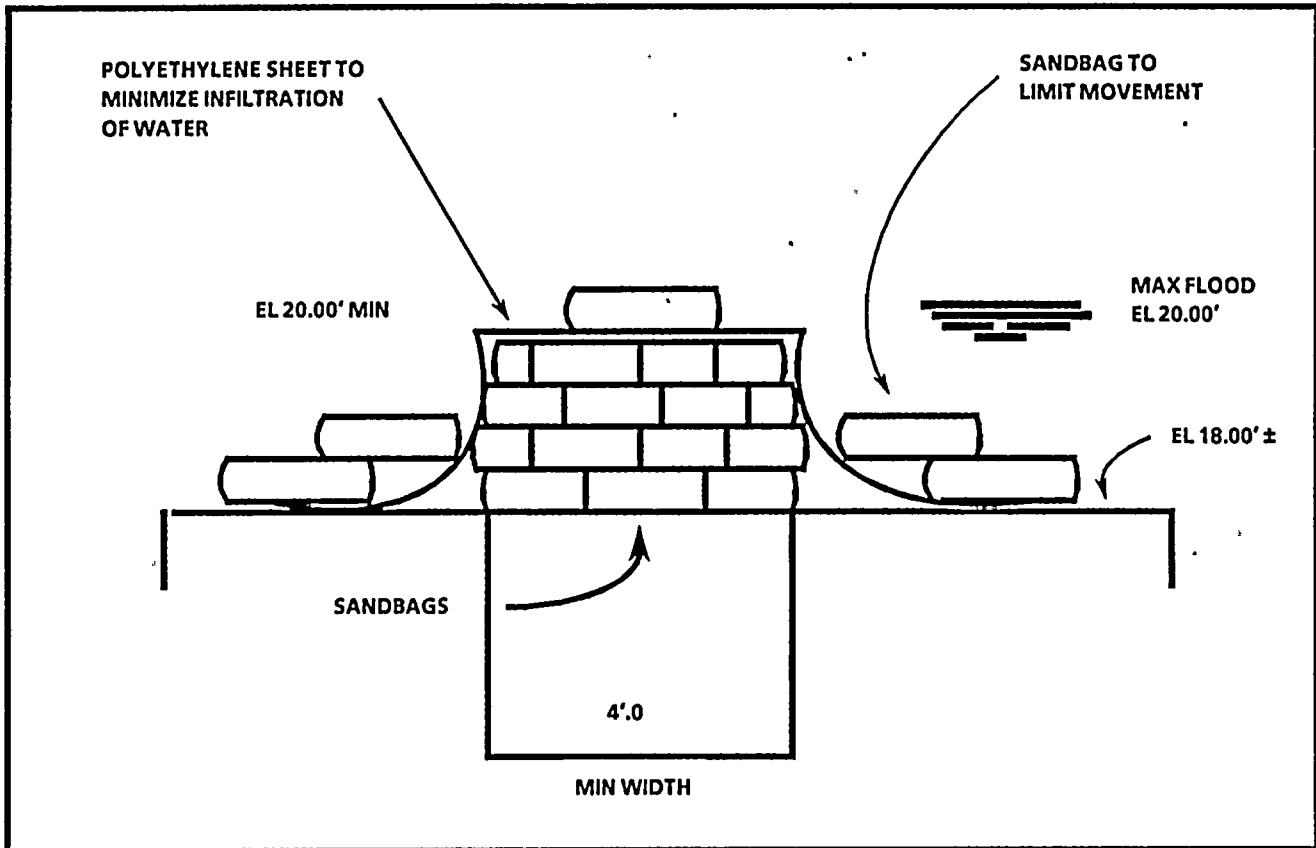
<u>NOTE 1:</u>	Power supply to Emergency Spent Fuel Pit Cooling Water Pumps
<u>NOTE 2:</u>	Power supply to L.O. Reservoir Oil Renovators (DeLaval)



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APPENDIX B
(Page 1 of 1)

DETAILS FOR FLOOD PROTECTION DIKE



SKETCH 1

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.



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NATURAL EMERGENCIES

APPENDIX C
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DRAIN PLUGS

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



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DRAIN PLUGS

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
20	4"	Floor Drain	South of Unit 4 Generator Hydrogen Gas Dryer	None
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 Unit 3 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 the Chemical Addition Tanks	None
33	2"	Hub Drain	East of the 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 Firelocker Number 1	None



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DRAIN PLUGS

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
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
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



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DRAIN PLUGS

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
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
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



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DRAIN PLUGS

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
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



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DRAIN PLUGS

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 panel	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
NNA	12"	Manhole #3B Inlet Pipe	West of the New Unit 4 EDG Building	Buried Plug inlet pipe on west side of the manhole



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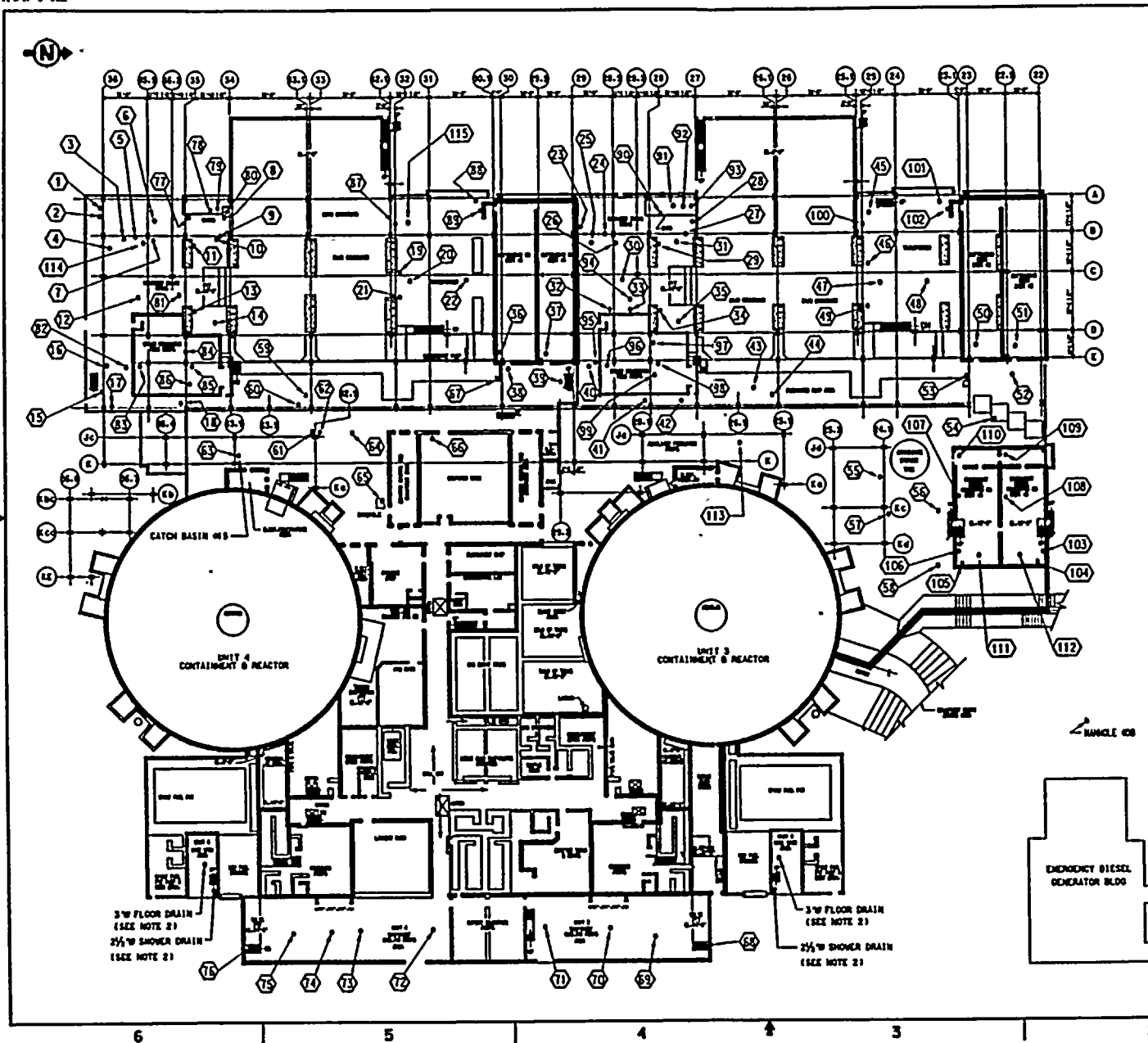
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DRAIN PLUGS

DRAIN ID	SIZE	DESCRIPTION	LOCATION	NOTES
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 Construction Services. Contact Health Physics prior to entering trench. This is a Contaminated Area.
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 Construction Services. Contact Health Physics prior to entering trench. This is a Contaminated Area.
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



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DRAIN PLUG LOCATIONS

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NOTES:

1. DRAIN LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE.
2. VERIFY EXISTING DRAINS ARE INSTALLED. SEE NOTE 12 ON DRAWING 5410-W-77.
3. SEE FIGURE 5 - 2 AND FIGURE 5 - 3 FOR DRAIN SCHEDULES.

REFERENCE DRAWINGS

- 5410-C-13 UTILITY PIPING WITH PLANT AREA
5410-C-17 YARD UTILITY PIPING DETAILS SHEET 1
5410-W-75 TURBINE AREA - AREA 8 EQUIPMENT DRAINAGE - RADWASTE AREA - ROOF DRAINAGE - GROUND FLOOR PLAN
5410-W-77 RADWASTE 8 CONTAINMENT AREA - AREA 8 EQUIPMENT DRAINAGE - GROUND FLOOR PLAN - EL. 18'-0" UNIT 3
5410-W-79 RADWASTE 8 CONTAINMENT AREA - AREA 8 EQUIPMENT DRAINAGE - GROUND FLOOR PLAN - EL. 18'-0" UNIT 4
5410-W-4 CONTROL BUILDING NON-CONTAMINATED PLUMBING

LEGEND:

- PERIMETER FLOOD PROTECTION BARRIER
- DRAIN
- DRAIN NUMBER



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DRAIN PLUG INSTALLATION

FIGURE 1
DETAIL FOR PLUGGING FLOOR DRAINS

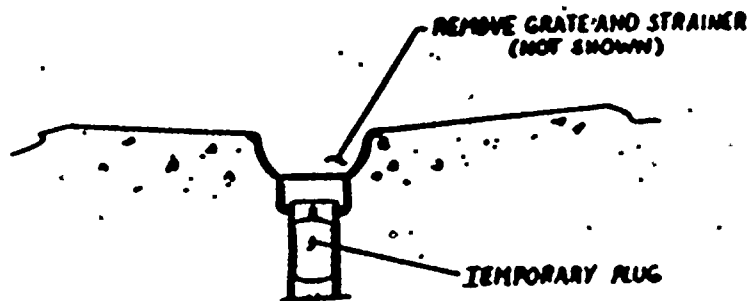


FIGURE 2
DETAIL FOR PLUGGING HUB DRAINS
AND EQUIPMENT DRAINS

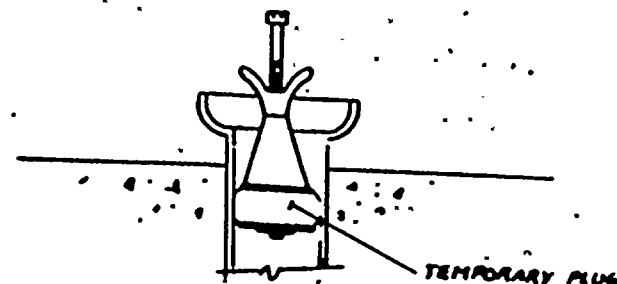


FIGURE 3
DETAIL FOR PLUGGING CATCH BASIN
OR MANHOLE DRAIN PIPE

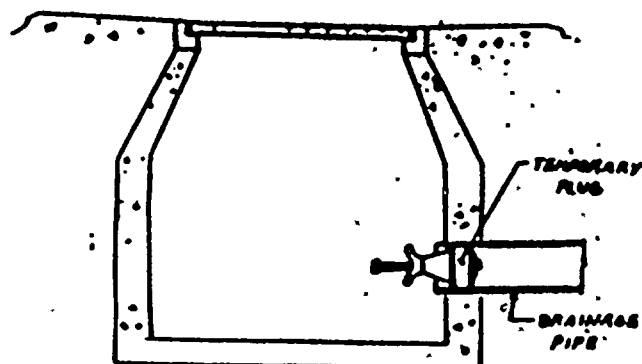
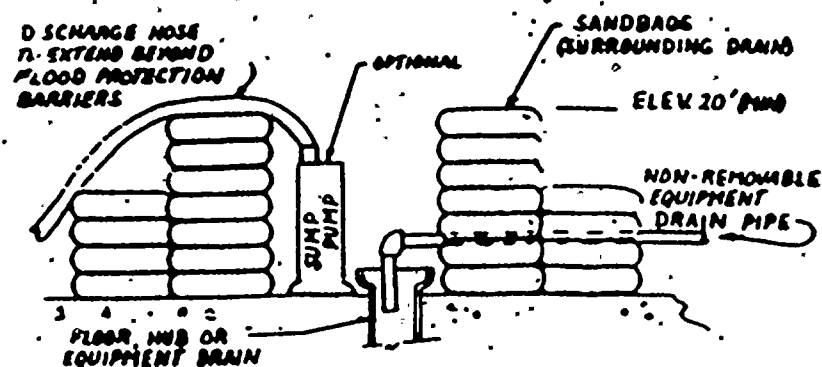


FIGURE 4
DETAILS FOR FLOOD PROTECTION
IN WHICH
DRAIN CANNOT BE PLUGGED





APPENDIX D
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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

1. Discussion

This appendix provides guidelines for plant operations before, during, and after a Category 5 hurricane. The degree to which these guidelines are used is per NPS discretion after consultation with the Emergency Coordinator.

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. RHR Loops
2. AFW Train 2
3. AFW Train 1 (pre-throttled)
4. Bleed and Feed

In addition, measures are presented for maintaining essential equipment and instrumentation and safely deploying personnel at remote stations.

Preparation

A. Modes 1-4

1. Shutdown/cooldown to approximately 300°F in accordance with *-GOP-103/*-GOP-305:
 - a. Do not open the main generator disconnects in the switchyard; do open the main generator links in case backfeed is required later.
 - b. Purge the generator with carbon dioxide; shutdown seal oil and lube oil systems.
 - c. Isolate steam generator blowdown.
 - d. Maintain steam generators at approximately 70 percent narrow range level.

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.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

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:
 - a. Place AFW train 1 flow control valves in manual with zero demand.
 - b. Start AFP "A" in accordance with *-OP-075.
 - c. Open all MSIV Bypass MOVs.
 - d. Open *-043 and *-044, hogger jet ejector main steam isolation valves.
 - e. Stop all running NCC and CRDM fans.
 - f. Stop all running RHR pumps and RCPs for up to one hour per T.S. 3.4.1.3.
 - g. Verify natural circulation:
 - * RCS subcooling based on core exit TCs - GREATER THAN 30°F
 - * S/G pressures - STABLE OR DECREASING
 - * RCS hot leg temperatures - STABLE OR DECREASING
 - * Core exit TCs - STABLE OR DECREASING
 - * RCS cold leg temperatures - WITHIN 35°F OF SATURATION TEMPERATURE FOR S/G PRESSURE
 - h. Make the following adjustments until steam generator levels and RCS average temperature are as close as possible to equilibrium:
 - (1) Close the steam dump to atmosphere valves.
 - (2) Throttle open *-072, hogger jet ejector main steam isolation valve. If needed, add other dummy steam loads (such as waterbox air ejectors or steam trap drains) to allow throttling of *-072.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

- (3) 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.
- (4) Continue steps 2 and 3 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.
- (5) Lock the train 1 AFW flow control valves in the throttled position.
 - i. Stop AFP "A" in accordance with *-OP-075 and maintain steam generator levels with the main feedwater bypass valves.
 - j. Return AFW to standby in accordance with *-OP-075, leaving the train 1 AFW flow control valves locked in the throttled position.
 - k. Start desired RHR pump.
 - l. Start desired NCC and CRDM fans.
3. Continue plant cooldown to Mode 5 in accordance with *-GOP-305:
 - a. 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 heatup.
 - Maintain pressurizer temperature as high as possible above RCS temperature without challenging the OMS setpoint or exceeding a 320° differential.
 - b. Cooldown on RHR until pressurizer level drops to 22 percent.
 - c. Maintain the plant on RHR in Mode 5; do not heat up.
4. See Section 2.D for further preparatory guidelines.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

B. Mode 5

1. If the RCS is not filled and vented:

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:

- a. Commence immediate action to restore steam generator operability (replace manways, etc.).
- b. Simultaneously commence action to restore RCS integrity (if breached).
- c. When RCS integrity is achieved, commence fill and vent per *-OP-041.8.

2. If the RCS is filled and vented:

- a. Establish containment integrity as soon as possible.
- b. Maintain RCS temperature as low as possible.
- c. Draw a pressurizer bubble per *-OP-041.2.
- d. Maintain pressurizer temperature as high as possible above RCS temperature without challenging the OMS setpoint or exceeding a 320° differential.
- e. Secure steam generators from wet layup, if applicable.
- f. Maintain steam generators at approximately 70 percent narrow range level.
- g. Line up AFW and place it in standby per *-OP-075.
- h. See Section 2.D for further preparatory guidelines.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

C. Mode 6

1. If the reactor is not defueled:

- a. Terminate all fuel transfer operations and secure fuel transfer equipment.
- b. Transfer the conveyor cart to the spent fuel pit.
- c. Close the tube gate valve.
- d. Establish containment integrity.
- e. Maintain RCS temperature as low as possible.
- f. Fill the cavity to normal band.
- g. Select further preparatory actions as applicable from Section 2.D.

2. If the reactor is defueled:

- a. Maintain the spent fuel pit temperature as low as possible.
- b. Verify the spent fuel pit level is in the normal band.
- c. Verify the transfer canal is filled (at least on the spent fuel pit side with the transfer tube gate valve closed).
- d. Select further preparatory actions as applicable from Section 2.D.

D. Prepare equipment and station personnel on each unit:

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. Observing *-OP-30 precautions, isolate CCW to selected non-essential de-energized equipment.
3. Isolate containment to the extent practical.
4. Verify the spent fuel pit level and temperature are satisfactory.
5. Valve in service water backup from the elevated storage tank by opening valve 10-1019.
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.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

7. Personnel should be positioned at the following remote stations to perform local actions:

- Auxiliary Building (if tenable)-1 SRCO/SRO, 4 SNPO/NOs
- Each unit's 480V Vital Load Center Room (also includes 4kV rooms)-1 SRCO/SRO, 2 SNPO/NPO/TOS
- Unit 3 EDG Building-2 SNPO/NPO/TOS
- Unit 4 EDG Building-4 SNPO/NPO/TOS
- Cable Spreading Room-1 SRCO/SRO, 4 SNPO/NPO/TOS
- Inverter Room-2 NWE/SRCO/RCOs not involved in Control Room duties

- a. Determine whether assigning experienced supervisory operators to the remote stations is necessary.
- b. 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).
- c. Ensure remote station personnel responsible for ground isolation have a copy of the breaker list and relevant ONOPs.

NOTE: Attachment 1 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.

- d. Instruct remote station personnel to continuously monitor local conditions and equipment status; Attachment 1 is to be used if (and only if) all communication between the control room and remote stations is lost.
8. Turn off selected non-essential loads to minimize the potential for bus grounding in accordance with Technical Specification requirements.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

3. Mitigation

CAUTION: As the hurricane passes, no personnel should be allowed to leave tenable stations. Exceptions should be conducted using applicable guidance contained in 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.

A. If Offsite Power is lost:

1. Consult *-ONOP-004.
2. Locally open *-358 and close LCV-*-115C since LCV-*-115C will fail as is.

B. If all AC is lost:

1. Consult *-ONOP-004, *-EOP-ECA-0.0 (for guidance until in Mode 4), and *-ONOP-050.
2. If RHR was in service, see loss of RHR guidance below.
3. Determine the need to save sufficient capacity to start an EDG prior to using the spare battery for DC loads.

C. If all DC power is lost in addition to loss of all AC:

1. Consult the TSC about the possibility of having I&C obtain instrumentation readings from the Hagan racks and other locations using portable generators/power packs.
2. Consult the TSC about the possibility of having Electrical operate MOVs from dead breakers using portable generators/transformers.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

D. If RHR is lost:

NOTE: If RCS temperature rises above the value initially established in Section 2 of Appendix D, 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.

1. Consult *-ONOP-050.
2. If use of AFW becomes necessary, then train 2 should be used as long as possible.
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.
4. Maintain steam generators between 40 percent and 70 percent narrow range level and RCS average temperature less than 350°F.
5. If AFW train 2 is lost:
 - a. Consult ONOP-7308.1.
 - b. Open MOV-*-1403.
 - c. Close MOV-*-1405.
 - d. Maintain steam generators between 40 percent and 70 percent narrow range level and RCS average temperature less than 350°F.

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.

- e. Cycle MOV-*-1403 for steam generator level control if necessary.
- f. If local actions appear necessary, consult the Emergency Coordinator.
- g. Request the TSC to begin researching bleed and feed contingencies.



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E. If CCW is lost:

1. Stop any running RHR pump.
2. Consult *-ONOP-030.
3. If CCW is lost on one unit, determine whether cross-tying CCW systems is necessary.
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 heatup.
5. Review loss of RHR and loss of spent fuel pit cooling guidance.

F. If ICW is lost:

1. Stop any running RHR pump.
2. Consult *-ONOP-019.
3. Review loss of CCW guidance.

G. If Instrument Air is lost:

1. Consult 0-ONOP-013.
2. After verifying letdown isolates and any running charging pump go to maximum speed:
 - a. Stop any running charging pump.
 - b. Open *-358, manual bypass around LCV-*-115B.
 - c. Close LCV-*-115C.
3. After verifying HCV-*-758 failed open resulting in RCS cooldown and pressurizer level drop:
 - a. Throttle CCW to the RHR heat exchangers to return RCS temperature and pressurizer level to the values initially established in Section 2 of Appendix D.
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.

5. Place AFW Train 2 flow controllers in manual to conserve nitrogen.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

- H. If Spent Fuel Pit cooling is lost and boiling occurs, 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.

NOTE: O-ONOP-16.10 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.

- I. If plant flooding is imminent:
1. For Auxiliary building flooding:
 - a. De-energize the remaining MCCs.
 - b. Open *-358 and close LCV-*-115C on both units.
 - c. Evacuate through the New Electrical Equipment Room to the Cable Spreading Room.
 2. For Turbine Building flooding, start the 3A EDG and run it in idle in case the 3A MCC floods.
 3. For Computer Room flooding, de-energize ERDADS.
- J. Refer to Attachment 1, Loss of Communications - Remote Station Guidelines if all onsite communications are lost.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

4. 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.

- A. Dispatch, as necessary, teams to search for missing personnel, assess damage, and perform repairs on critical systems once tropical storm force winds recede.
- B. 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.

1. No electrical equipment should be re-energized until it is checked by an electrician.
2. If reactor safety is challenged and time does not permit equipment recovery actions (such as rinse and dry, megger), energize the minimum equipment necessary to meet the challenge. If possible, station a watch at a safe distance from the equipment.
3. Spare motors may be available from the nuclear units, fossil units, or stores. If time permits, install spares to allow wetted motors to be recovered.
4. For electrical components wetted by the storm surge or wave action, have Electrical perform a fresh water rinse, dry, and megger as necessary. After successful meggering, energize any installed heaters.
5. For electrical components wetted by rain, have Electrical dry and megger the equipment as necessary. After successful meggering, energize any installed heaters.



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- C. 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.

- D. 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).

- E. Restore the plant to a normal configuration upon discontinuation of the emergency, using annotated steps of this procedure and applicable plant procedures.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

A. 480V LOAD CENTER ROOM OPERATOR (Page 1 of 2)

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. Monitor the 4kV Bus Rooms for flooding and the 480V Load Center Rooms for water intrusion. 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.

2. If flooding of a bus is imminent, trip the feeder breaker for that bus and remain out of that bus's room.
3. Continually check the 4kV buses for grounds, and if a ground is detected, perform ground isolation:
 - a. If the 4kV ground is isolated to a non-load center load, leave the breaker open.

NOTES: • If a remote station operator observes that a load center or MCC is deenergized, 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, open both feeder breakers. When re-energizing the load center, close in one feeder and wait five minutes. If no ground is detected, close the other breaker.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

A. 480V LOAD CENTER ROOM OPERATOR (Page 2 of 2)

b. 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, leave the breaker open.

(2) If the ground is isolated to an MCC, then perform the following:

(a) Open the MCC's feeder breaker for ten minutes.

(b) Attempt to reclose the breaker after the ten minutes.

(c) If the ground is not present, then leave the breaker closed. If the ground is still present, then reopen the breaker for another ten minutes.

(d) Repeat until the ground disappears or until communications are re-established.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

B. AUXILIARY BUILDING OPERATOR (Page 1 of 2)

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. 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. If flooding of an MCC is imminent, shed all loads on the MCC and then open the local feeder breaker for that MCC.
3. If water level throughout the Auxiliary Building is rising and all MCCs and charging pumps are threatened, perform the following:
 - a. Shed all loads on the MCCs
 - b. Open the MCCs' local feeder breakers
 - c. Open *-358 and close LCV-*-115C on both units
 - d. Evacuate to the Cable Spreading Room via the New Electrical Equipment Room.

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.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

B. AUXILIARY BUILDING OPERATOR (Page 2 of 2)

4. If an MCC voltage suddenly goes to zero, perform the following:
 - a. Open the local feeder breaker for that MCC.
 - b. Have an electrician check whether the MCC is grounded.
 - c. If the MCC is grounded, have an electrician determine which load is grounded.
 - d. Open that load's breaker.
 - e. If the voltage to the MCC is still zero, close the MCC local feeder breaker. Otherwise, perform the following:
 - (1) Recording all changes made, shed all loads on the MCC
 - (2) Close the MCC's local feeder breaker
 - (3) Restore previous MCC loads except for the grounded one
 - f. If the ground is not isolable, leave the local feeder breaker open.
5. If no ground is found on a de-energized MCC, then close the local feeder breaker. The associated EDG may be inoperable. If the MCC remains de-energized for ten minutes, then repeat step 4 every 30 minutes until the MCC is re-energized or until communications are re-established.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

C. CABLE SPREADING ROOM OPERATOR (Page 1 of 2)

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. Monitor the Cable Spreading Room for water intrusion. Periodically open all DC bus and MCC enclosures in the Cable Spreading and Electrical Equipment Rooms to check for water.
2. Continuously monitor DC bus voltage and ground indication. If a DC ground is detected, perform ground isolation as appropriate. Timely ground isolation is required to protect against double grounds which are much harder to locate.
3. 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.

- a. If voltage is lost to an H load center, then open both local feeder breakers and have an electrician determine which load is grounded:

- (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) Recording all changes made, shed all loads on the MCC.

(b) Open the MCC's local feeder breaker.

(c) Reclose the H Load Center local feeder breakers..

(d) Instruct an electrician to determine which D vital MCC load is grounded.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

C. CABLE SPREADING ROOM OPERATOR (Page 2 of 2)

- (e) Verify that load's breaker is open.
 - (f) If the ground is isolated, then reclose the MCC local feeder breaker and then restore previous MCC loads except for the grounded one.
 - (g) If the ground is not isolable, then leave the MCC local feeder breaker open.
- b. Frequently check 120V AC panels. If a 120V vital AC panel is de-energized, grounding is likely. Open the local feeder breaker. Have an electrician determine which load is grounded. Open that load's breaker and reclose the local feeder breaker.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

D. 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.

1. Monitor the rooms for water intrusion and attempt to contain or divert minor flooding that threatens the safe operation of an EDG.
2. If flooding in a room threatens energized electrical equipment, then open appropriate local breakers. If the electrical equipment cannot be isolated, then consider stopping the EDG and remain on elevated platforms above the flooding.
3. If the room becomes untenable, then evacuate to the Cable Spreading Room or Load Center Room.
4. Continuously monitor running EDGs. If trouble is noted, then consult 3-ONOP-023.2 for guidance and attempt to rectify the problem.
5. If EDG load suddenly drops to zero, then check the EDG output breaker. If open, the bus is probably grounded.
6. 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.



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CATEGORY 5 HURRICANE OPERATIONS GUIDELINES

Attachment 1: Loss of Communications - Remote Station Guidelines

E. UNIT 4 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.

1. Monitor the rooms for water intrusion and attempt to contain or divert minor flooding that threatens the safe operation of an EDG.
2. If flooding in a room threatens energized electrical equipment, then open appropriate local breakers. If the electrical equipment cannot be isolated, then consider stopping the EDG and remain out of the room.
3. Continuously monitor running EDGs. If trouble is noted, then consult 4-ONOP-023.2 for guidance and attempt to rectify the problem.
4. If EDG load suddenly drops to zero, then check the EDG output breaker. If open, the bus is probably grounded. 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.
5. Continually check the D 4kV buses for signs of grounds. If any grounded equipment is discovered, then secure that load immediately.