

**PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS**

SC.OP-AB.ZZ-0001(Q) - REV. 13

ADVERSE ENVIRONMENTAL CONDITIONS

- A. Biennial Review Performed: Yes ___ No √
 - B. Change Package(s) and Affected Document Number(s) incorporated into this revision: None
 - C. OTSC(s) incorporated into this revision: None
 - D. OPEX(s) incorporated into this revision: None
-

REVISION SUMMARY:

- 1. Reformatted AB to provide each entry condition a separate procedure step/section.
Deleted Attachment 4 and rolled information into the Extreme Low River Level section.
(70105410 / 70076025)
- 2. 1.1 & 1.2 - Added value numbers at which these two entry conditions are valid. **(70104368)**
- 3. 3.2.2 - Added Maintenance Item (MI) number to step for the installation of temporary temperature monitoring instrumentation. **(70100579)**
- 4. 3.3.1 - Added to initiate a notification to remove the temporary temperature monitoring instrumentation. **(70073342)**
- 5. 3.4.2 - Added conditions at which the monitoring of circulating water for ice should begin.
- 6. 3.4.3 - Added steps so that when icing is found, actions can be performed. **(70106627)**
- 7. The following changes are related to the same order. **(70105993/70105798)**
- ◆ 3.6.2 - Added the monitoring of Service Water pumps for cavitation and the checking of the tide level transmitters at service water by Maintenance.
- ◆ 3.6.3 - Added step to provide direction in the stopping of a service water pump that exhibits signs of cavitation.
- 7. 3.9.3 - Added Step to open the WD74 valves that were closed in step 3.8.1.B. **(70068663)**

(Continued on next page)

IMPLEMENTATION REQUIREMENTS

Effective Date:

07/30/2010

- ◆ None

**PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS**

SC.OP-AB.ZZ-0001(Q) - REV. 13

ADVERSE ENVIRONMENTAL CONDITIONS

REVISION SUMMARY: (continued)

8. The following changes were made to address several concerns with the performance of this Abnormal Procedure.
 - ◆ 3.3, 3.5, 3.7, 3.9 & 3.11 - Created restoration steps/sections for all conditions contained in this Abnormal Procedure.
 - ◆ 3.0, Subsequent Actions, NOTE - Added note that these sections may be performed in any order and multiple sections may be performed at one time. This is being done to address each of these entry conditions and that more than one may be occurring at any one time.
 - ◆ 3.5.1 - Added conditional recovery step that IF ALL the conditions no longer exist, then the monitoring of CW can be discontinued or the observation time adjusted from a half hour to suit the present plant conditions.
 - ◆ 3.5.2 - Added conditional recovery step that if any of the conditions no longer exists, then the monitoring should continue every 30 minutes or with the consent of Operations Management the monitoring time can be adjusted to suit present plant conditions.
 - ◆ 3.8.1 NOTE, 3.9.1 NOTE - Added note to provide the phone numbers for the National Weather Service and the U.S. Army Corp of Engineers. Contact with either of offices can be used to determine the cause of the raising river level, heavy rains upstate or dam openings, and can also be used to determine whether the river level will be stable or whether the level will rise again.
 - ◆ 3.9.1 - Added conditional step that if the river has returned to <98.5 ft, and is not expected to rise, then with the concurrence of Operations Management the actions being taken to place the unit in mode 3 maybe stopped.
 - ◆ 3.9.2 - Added conditional step that if the river has returned to <97.5 ft, and is not expected to rise, then the recording of river level in the control room narrative log may be stopped.
 - ◆ 1.1 - Changed section title from Elevated River Temperature to Extreme Low or High River Temperature. This was done due to the low river temp entry into this procedure from the Control Room Logs and the criteria used to commence an ice watch on the CW Screens.
 - ◆ 3.1 - Added low temperature entry criteria to the first bullet, "If River Temperature is".
 - ◆ 3.2.1 - Added step to direct personnel to go to Section 3.4, Extreme Low or High Air Temperatures. This places personnel in the section with the criteria to commence an ice watch on the CW Screens.

ADVERSE ENVIRONMENTAL CONDITIONS

1.0 **ENTRY CONDITIONS**

DATE: _____ TIME: _____

- 1.1 Extreme Low or High River Temperature (<32°F / >85°F).
- 1.2 Extreme Low or High Air temperatures (<32°F / >95°F).
- 1.3 Extreme Low or High River Levels (≤85.0 ft. / 95.5 ≥ ft.)
- 1.4 Severe weather observed or expected in the form of high winds, excessive precipitation (including snowfall >12 inches).

2.0 **IMMEDIATE ACTIONS**

None

3.0 **SUBSEQUENT ACTIONS**

NOTE

Steps may be performed in any order and multiple steps may be performed at one time.

- ___ 3.1 **IF** any of the entry conditions are met,
THEN PERFORM the appropriate step(s):
 - ___ ◆ **IF** River Temperature is <32°F **OR** >82°F.,
THEN GO TO Step 3.2 (Pg. 2)
 - ___ ◆ **IF** Air Temperature is <32°F **OR** >95°F.,
THEN GO TO Step 3.4 (Pg. 3)
 - ___ ◆ **IF** River Level is ≤85.0 ft.,
THEN GO TO Step 3.6 (Pg. 5)
 - ___ ◆ **IF** River Level is ≥ 95.5 ft.,
THEN GO TO Step 3.8 (Pg. 7)
 - ___ ◆ **IF** Severe Weather Observed or Expected,
THEN GO TO Step 3.10 (Pg. 10)

___ 3.2 **Extreme Low or High River Temperature:**

- ___ 3.2.1 IF the river water supply temperature is < 32°F,
THEN GO TO Section 3.4, Extreme Air Temperature.
- ___ 3.2.2 IF the river water supply temperature is >82°F, as indicated on 1TL3756 (1 Bay)/1TL3757 (3 Bay) and 2TL3756 (2 Bay) /2TL3757 (4 Bay) (On SW intake bay headers ≈ 9 ft high),
THEN ENSURE temporary temperature monitoring instrumentation is installed under MI 76430 OR INITIATE a Notification to install temporary temperature monitoring instrumentation IAW MI 76430, in the Service Water inlet side of the in-service Component Cooling Water Heat Exchanger. (The temporary temperature indicators are normally stored in the M&TE Calibration Lab.)

NOTE

For shutdown requirements, the temporary indicators are recommended to trend the river water supply temperature.

(70049548)

- ___ 3.2.3 IF the river water supply temperature is >85°F, as indicated on the temporary temperature indicators,
THEN:
- ◆ SM/CRS **DETERMINE** shutdown requirements using the temporary instrumentation, based on maximum allowed river water supply temperature of 90°F.
 - ◆ SM/CRS **CONTACT** System Engineering to ensure preparation, review and approval of an Operability Determination to support continued operation with a river supply temperature of >90°F is in progress. Previous Operability Determinations 70019239, 70066491 and 80088650 may be referred to for additional guidance.

___ 3.3 **Extreme Low or High River Temperature Recovery:**

- ___ 3.3.1 When river water supply temperature has lowered to <80°F, as indicated on the temporary temperature indicators,
INITIATE a Notification to remove the temporary temperature monitoring instrumentation in the Service Water inlet side of the in-service Component Cooling Water Heat Exchanger.
- ___ 3.3.2 When river water supply temperature has increased to > 32°F,
ENSURE Section 3.4, Conditions for Monitoring CW for Icing, have cleared.
- ___ 3.3.3 IF NO other adverse conditions exist,
THEN GO TO Section 4.0.

Time

NOTE

Excessive ambient air temperature (>95°F) has no impact to the operability of the Auxiliary Building Ventilation System, the Control Area Ventilation System, the Fuel Handling Building Ventilation System, the Diesel Generator Area Ventilation System or the Steam Penetration Area Ventilation System. **(70040127)**

3.4 **Extreme Air Temperature:**

3.4.1 IF excessive air temperatures (<32°F / >95°F) are expected,
THEN:

- A. IF Extreme High air temperatures are forecast for the area,
THEN REVIEW SC.OP-PT.ZZ-0002(Q), Station Preparations for Seasonal Conditions, section for Extreme Heat Conditions.
- B. IF Extreme Cold air temperatures are forecast for the area,
THEN REVIEW SC.OP-PT.ZZ-0002(Q), Station Preparations for Seasonal Conditions, section for Extreme Cold Conditions.

3.4.2 IF any of the following conditions exist:

Time

Ambient Air Temperature < 25°F,
Sustained Wind Speed > 15mph,
River Temperature < 32°F

THEN:

IF 2 of the above conditions exist,
THEN INITIATE CW monitoring for ice formation every hour.

IF ALL of the above conditions exist,
THEN INITIATE CW monitoring for ice formation once every 30 minutes.

3.4.3 IF icing is found,
THEN PERFORM the following:

- ◆ Expedite the return of any out of service circulators.
- ◆ Schedule cleaning of condenser water boxes outside of the low tide period (+/- 2 hours).
- ◆ Check proper operation of CW boiler and CW structure heating equipment.
- ◆ Check proper operation of CW systems auxiliaries; screen wash and bearing lube equipment.

___ 3.5 **Extreme Air Temperature Recovery:**

___ 3.5.1 **IF ALL** the following conditions no longer exist:

Ambient Air Temperature < 25°F,
Sustained Wind Speed > 15mph,
River Temperature < 32°F

THEN DISCONTINUE CW monitoring for ice formation,
OR CONTINUE CW monitoring adjusting the observation time
to suit the present weather and plant conditions.

___ 3.5.2 **IF ANY** two of the following conditions no longer exist:

Ambient Air Temperature < 25°F,
Sustained Wind Speed > 15mph,
River Temperature < 32°F

THEN with the consent of Operations Management,
CONTINUE CW monitoring for ice formation,
AND adjust observation time to suit the present weather and plant conditions.

___ 3.5.3 **IF NO** other adverse conditions exist,
THEN GO TO Section 4.0.

3.6 **Extreme Low River Level:**

3.6.1 **IF AT ANY TIME** river level is ≤ 85.0 ft,
THEN DETERMINE river level as follows:

- A. **OBTAIN** local average river level at 13A Circulator.
(north wall between log-jam and trash rack)
- B. **OBTAIN** lowest River Level indicated at recorder LA8639 (1RP4).
- C. **RECORD** levels and calculate Correction as follows:
 - 1. Local - LA8639 = Correction.
 - 2. **ADD** this Correction to all subsequent river level indications obtained from recorder LA8639.
- D. **IF** recorder LA8639 is unavailable,
THEN USE local river level.

3.6.2 **IF** river level drops to < 85 ft,
THEN INITIATE the following:

- A. S1/2.OP-AB.CW-0001(Q), Circulating Water System Malfunction.
- B. Monitoring of Service Water Pumps for cavitation.
(fluctuating SW Pump motor amps)
- C. Checks of 1LA8637Z & 1LA9638Z, 1 SVCE WTR TIDE LEVEL TRANSMITTERs, by Maintenance to ensure proper operation.

3.6.3 **IF AT ANY TIME** a Service Water Pump indicates cavitation,
THEN START a standby Service Water Pump
AND STOP the cavitating Service Water Pump.

3.6.4 **IF AT ANY TIME** river level drops to < 83 ft,
THEN NOTIFY SM/CRS of the following:

- ◆ Refer to Event Classification Guide
- ◆ Unit Shutdown is required when river level lowers to < 83 ft coincident with an oil spill IAW UFSAR Section 9.2.1.2 (81 ft+2 ft for uncertainties).

NOTE

Severe weather conditions approaching the area including persistent strong winds from the Northwest will determine if low river level is likely to persist and/or continue lowering.

___ 3.6.5 **IF AT ANY TIME** river level drops to 78 ft (UFSAR low low limit 76 ft +2 ft for uncertainties), **THEN REDUCE** flow demand on the Service Water System as directed by the SM/CRS.

___ 3.6.6 **IF** High Winds are indicated or anticipated, **THEN INITIATE** subsequent actions IAW Section 3.10 of this procedure.

___ 3.7 **Extreme Low River Level Restoration:**

___ 3.7.1 When river level is >78 ft and rising, Time
RESTORE components/systems manipulated during Service Water flow reduction to normal operation IAW with the appropriate procedures.

___ 3.7.2 **IF** river level is >85 ft and rising, **THEN:**

___ A. **EXIT** S1/2.OP-AB.CW-0001(Q), Circulating Water System Malfunction.

___ B. **RETURN TO** normal monitoring of Service Water Pumps and system operation.

3.8 **Extreme High River Level:**

NOTE

Contact numbers for:

National Weather Service - Mount Holly 609-261-6602 / 6604.

U.S. Army Corp of Engineers (for dam releases into Delaware River) 215-656-6515

3.8.1 IF AT ANY TIME river level is ≥ 95.5 feet,
THEN:

CAUTION

Operation of the flood sump pump or release of water to the environment, may cause an NJPDES violation. SM/CRS permission is required prior to operating flood pump.

A. **NOTIFY** SM/CRS to refer to Event Classification Guide.

B. **CLOSE** the following valves:

1. 1WD74, SEISMIC GAP DRAIN ISOL VLV

2. 2WD74, 2 SEISMIC GAP DRAIN ISOL VLV

C. **INITIATE** filling the following outdoor tanks to maximum capacity to maximize inventory, reduce buoyancy and ensure availability:

- ◆ Auxiliary Feedwater Storage Tank (AFST)
- ◆ Primary Water Storage Tank
- ◆ Refueling Water Storage Tank
- ◆ Demineralized Water Storage Tank
- ◆ Fuel Oil Storage Tank
- ◆ Fresh Water and Fire Protection Water Storage Tank
- ◆ Tanks on 88' ft elev Turbine Building
- ◆ Shutdown/Blackout Air Compressor and Telephone Diesel fuel tanks

D. Send Operators to **INSPECT** the following areas for seal or excessive crack leakage, which could cause flooding in rooms containing safety related equipment:

- ◆ Auxiliary Building
- ◆ Fuel Handling Building
- ◆ Service Water Intake Structure
- ◆ Outer Penetration Area
- ◆ Inner Penetration Area

- ___ 3.8.2 IF AT ANY TIME river level is ≥ 97.5 feet,
THEN:
- ___ A. **NOTIFY** SM/CRS to refer to Event Classification Guide.
- ___ B. **RECORD** river level in Control Room Narrative Log,
at least every 2 hours, until river has stabilized at < 97.5 feet.

NOTE

- ◆ Doors, hatches or manway covers which are taken credit for in the UFSAR (watertight external flood barriers below the design basis flood height of 120.4 feet) are identified with Technical Specifications 3.7.5.1/3.7.5 in Attachment 2, Technical Specification Protective Doors. These doors, hatches or manway covers should be given priority for closure within 2 hours per Technical Specification 3.7.5.1/3.7.5.
- ◆ Signs may be available at the WCC indicating following personnel passage, water tight door closure is required to be maintained IAW SC.OP-AB.ZZ-0001(Q), Adverse Environmental Conditions.

- ___ C. Send Operators to **CLOSE** all doors listed in Attachment 2, Technical Specification Protective Doors, within two hours AND to post signs on all water tight doors indicating following passage, door closure is required to be maintained IAW SC.OP-AB-ZZ-0001(Q), Adverse Environmental Conditions. [C0365]
- ___ D. IF Containment Equipment Hatch is OPEN,
THEN:
 - ___ 1. **REMOVE** obstructions from inner Containment Equipment Hatch, AND INSTALL inner Containment Equipment Hatch with ALL bolts to eliminate air gaps.

OR
 - ___ 2. **INSTALL** Outage Equipment Hatch IAW SC.MD-FR.CAN-0001(Q), Outage Equipment Hatch Installation, Removal, and Seal Replacement AND ENSURE all penetrations are closed or Blind Flanged to eliminate air gaps.
- ___ E. Send Maintenance Service Department to **CLOSE AND SEAL** all access hatches and manway covers listed on Attachment 3, Protective Doors.
- ___ F. Send Operators to **CLOSE** all doors listed in Attachment 3, Protective Doors AND to post signs on all water tight doors indicating following passage, door closure is required to be maintained IAW SC.OP-AB-ZZ-0001(Q), Adverse Environmental Conditions.

- ___ 3.8.3 IF AT ANY TIME the river level is ≥ 98.5 ft,
THEN INITIATE actions to place the Unit in Mode 3 within 6 hours and in Mode 5 within the next 30 hours.

___ 3.9 **Extreme High River Level Restoration:**

NOTE

Contact numbers for:

National Weather Service - Mount Holly 609-261-6602 / 6604.

U.S. Army Corp of Engineers (for dam releases into Delaware River) 215-656-6515

- ___ 3.9.1 **IF** River has returned to <98.5 ft,
AND is **NOT** expected to rise,
THEN with concurrence of Operations Management,
STOP the actions to place the Unit in Mode 3 within 6 hours
and in Mode 5 within the next 30 hours.

- ___ 3.9.2 **IF** River has returned to <97.5 ft,
AND is **NOT** expected to rise,
THEN STOP recording river level in Control Room Narrative Log,
at every 2 hours.

- ___ 3.9.3 **IF** River has returned to normal range between 85.0 and 95.5 feet,
AND is **NOT** expected to rise,
THEN OPEN the following valves:
 - ___ 1. 1WD74, SEISMIC GAP DRAIN ISOL VLV
 - ___ 2. 2WD74, 2 SEISMIC GAP DRAIN ISOL VLV

___ 3.10 **Severe Weather Observed or Expected:**

___ 3.10.1 **IF AT ANY TIME** Severe weather is observed or expected in the form of high winds or excessive precipitation including snowfall >12 inches, **THEN:**

___ A. **IF** in Modes 5, 6 or Defueled and high winds or other weather conditions are forecasted which would interfere with the ability to achieve Containment Closure, **AND** the Outer Equipment Hatch is needed for closure (crane usage), **THEN:**

1. **ENSURE** the Operations Outage Manager is notified,
2. **NOTIFY** the STA to evaluate the risk,
3. **ENSURE** the Outage Control Center is aware of the activities which will adversely affect risk (ie. draining to mid-loop, breaching RCS fission product boundary),
4. **INSTALL** the Inner Hatch for containment closure.

___ B. **IF** fuel movement is in progress, **THEN EVALUATE** termination of all fuel movement and securing fuel handling equipment based on forecast, expected conditions and core load status, and **DOCUMENT** in Comments Section of Attachment 4.

(Continued on next page)

NOTE

National Weather Service Information

- ◆ A Tornado Watch - atmospheric conditions are such that a Tornado may form
- ◆ A Tornado Warning - an actual Tornado has been observed in the vicinity
- ◆ A Hurricane Watch - named storm, >74 mph winds, arrival in the next 24 - 48 hours with expected land fall within 100 miles of Site
- ◆ A Hurricane Warning - named storm, >74 mph winds, arrival in the next 24 hours with expected land fall within 50 miles of Site

- ___ 3.10.2 IF a hurricane, tornado, high winds or snowstorm is anticipated, THEN prior to arrival of storm:
- ___ A. Notify SM/CRS to **REFER** to Event Classification Guide.
 - ___ B. Send Operations personnel to **INSPECT** the Shoreline Protection and Dike System for indications of erosion or other degradation, and **ENSURE** the Service Water Intake Structure Access Hatch covers are installed.
 - ___ C. **NOTIFY** Electric System Operator of Severe Weather Conditions.
 - ___ D. IF hurricane force winds are imminent, THEN **INITIATE** preparations such that the Unit is in Hot Standby (Mode 3) at least two hours prior to the projected arrival of hurricane force winds.
 - ___ E. **CONTACT** security to determine if any external barriers are breached that could lead to flooding or allow damage from high winds.

(Continued on next page)

- ___ 3.10.3 SM/CRS **EVALUATE** the following:
- ___ A. IF Wind is from the South - Southeast, with little or no rain, generally >40 mph for >8 hours, THEN NOTIFY T&D and System Engineer to **EVALUATE** switchyard for excessive salt contamination.
 - ___ B. Sufficient operations personnel available for storm preparation with two operational shifts available on site throughout storm.
 - ___ C. Station Blackout/Remote Shutdown procedures.
 - ___ D. Based on storm severity, **DETERMINE** when outside operator rounds should be discontinued.
 - ___ E. IF the Severe Weather Team is activated, THEN MAINTAIN contact with the Severe Weather Coordinator.
 - ___ F. Operability of communications equipment:
 - ◆ ESO and NRC Phones
 - ◆ NJSP Radio
 - ◆ Station Radio
 - ◆ ESSEX
 - ◆ NETS
 - ◆ Plant Page
 - ◆ Normal and Sound Powered Phones
 - ___ G. Event Classification Guide
 - ___ H. Operability of the Shutdown/Blackout Air Compressor and Telephone Diesel
 - ___ I. Upcoming surveillances to determine if early performance or delay is possible when permitted by Technical Specifications.

NOTE

Attachments 2 and 3 lists doors and hatches which could lead to flooding in structures.

- ___ J. Work activities that could lead to flooding or high wind damage in any structure (breaches of systems, hatches removed, open doors, etc.).
- ___ K. **CONTACT** Site Services AND EVALUATE placement of barriers around storm drains to preclude drainage from buildings to the river until release requirements are verified.

- ___ 3.10.4 **NOTIFY** all personnel on site, using supervision, All-Hands meetings and general page announcements to:
- ◆ **USE** extreme caution while performing Duty/Station rounds.
 - ◆ **MAINTAIN** all doors, hatches and manways closed and secured.
 - ◆ **REMAIN** alert for indications of water or wind damage to plant buildings and equipment.
 - ◆ **NOTIFY** the SM/CRS of any change in equipment status.
- ___ 3.10.5 **INITIATE**, to the maximum extent possible, restoration of all inoperable equipment, with priority given to the following:
- ◆ Safety Related Equipment
 - ◆ Equipment Important To Safety
 - ◆ Electrical Power Sources
- ___ 3.10.6 Notify Site Services, Security, Loss Control, and Maintenance Department personnel to **SECURE** all outlying buildings and equipment to the maximum extent possible and notify Control Room upon completion:
- ◆ **TIE DOWN** trailers and outside equipment
 - ◆ **MOVE** valuable equipment and documents to missile protected buildings
 - ◆ **CLOSE** all doors and windows on outlying buildings
- ___ 3.10.7 Notify Maintenance Department to **PLACE** the Turbine Building roof and all mobile cranes in lockdown condition.
- ___ 3.10.8 **EVALUATE** preparation of the Auxiliary Feedwater System for emergency operation by installing Alternate Suction Piping Spool Pieces IAW Attachment 1, Installation of Auxiliary Feedwater Spool Pieces.

NOTE

The AFW Pumps low suction trip circuits are placed in ARMED position only when a Tornado Warning is issued by the National Weather Service.

- ___ 3.10.9 **IF** a Tornado Warning has been issued by National Weather Service, **THEN** at the local AFW Pump panels, **PLACE** the following AFW LOW SUCTION CMC switches in the ARMED position: **[C0323]**
- ◆ AFW Pump Panel 205: ___ 11 AFW Pump
 - ◆ AFW Pump Panel 206: ___ 12 AFW Pump
 - ◆ AFW Pump Panel 207: ___ 13 AFW Pump
 - ◆ AFW Pump Panel 205: ___ 21 AFW Pump
 - ◆ AFW Pump Panel 206: ___ 22 AFW Pump
 - ◆ AFW Pump Panel 207: ___ 23 AFW Pump
- ___ 3.10.10 **ENSURE** the Diesel Fuel Oil Storage Tanks are maintained at maximum permissible level IAW S1/2.OP-SO.FO-0001(Q), Filling 11/12/21/22 Diesel Fuel Oil Storage Tank(s). **[C0588]**
- ___ 3.10.11 **IF** heavy snowfall is forecast for the area, **THEN PERFORM** the following:
- ___ A. **ENSURE** ventilation systems outside air intakes are NOT blocked, including those for the Auxiliary Building, Turbine Building, Penetration Areas and Service Building.
 - ___ B. Periodically **ADVANCE** Roll Filter media on affected ventilation systems, as necessary, and **REMOVE** any snow accumulation to prevent plugging the filter media.
 - ___ C. **MONITOR** the snow accumulation in the area of the Diesel Generator room ventilation intake and exhaust areas each hour when snowfall is >12 inches.
 - ___ D. **REMOVE** snow from around the perimeter of the Diesel Generator room ventilation intake and exhaust areas when snowfall exceeds 24 inches.
 - ___ E. **CONTINUE** to monitor for drifting snow around the perimeter of the Diesel Generator room ventilation intake and exhaust areas when snowfall subsides.

___ 3.10.12 IF AT ANY TIME AFST is unavailable as indicated by either of the following:

- ◆ AFST level cannot be maintained above 10.3% using 1/2DR6, AFW Tank Makeup,
- ◆ No operable flow path from the AFST to Auxiliary Feedwater Pumps exists,

THEN:

___ 3.10.13 **STOP** all running Auxiliary Feedwater Pumps.

___ 3.10.14 At the local AFW Pump panels, **PLACE** the following AFW LOW SUCTION CMC switches in OFF position:

[C0323]

- ◆ AFW Pump Panel 205: ___ 11 AFW Pump
- ◆ AFW Pump Panel 206: ___ 12 AFW Pump
- ◆ AFW Pump Panel 207: ___ 13 AFW Pump
- ◆ AFW Pump Panel 205: ___ 21 AFW Pump
- ◆ AFW Pump Panel 206: ___ 22 AFW Pump
- ◆ AFW Pump Panel 207: ___ 23 AFW Pump

___ 3.10.15 **ALIGN** Auxiliary Feed Pump suction to alternate water source IAW S1/2.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation.

* ___ 3.10.16 IF the Unit is in Modes 1 through 3, THEN INITIATE S1/2.OP-ST.AF-0011(Q), Auxiliary Feed Water Alternate Suction Source Verification.

___ 3.11 **Severe Weather Restoration:**

___ 3.11.1 When Severe weather conditions have subsided as indicated by all of the following:

- ◆ Sustained wind speeds <70 mph AND lowering, and
- ◆ Tornado OR hurricane watch/warning canceled by the National Weather Service., and
- ◆ River has returned to normal range between 85.0 and 95.5 feet,

___ 3.11.2 IF Auxiliary Feedwater was aligned to Alternate suction IAW this procedure, THEN REALIGN Auxiliary Feedwater for normal operation AND REMOVE all spool pieces IAW S1/2.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation.

___ 3.11.3 At the local AFW Pump panels, **PLACE** the following AFW LOW SUCTION CMC switches in OFF position:

[C0323]

- ◆ AFW Pump Panel 205: ___ 11 AFW Pump
- ◆ AFW Pump Panel 206: ___ 12 AFW Pump
- ◆ AFW Pump Panel 207: ___ 13 AFW Pump
- ◆ AFW Pump Panel 205: ___ 21 AFW Pump
- ◆ AFW Pump Panel 206: ___ 22 AFW Pump
- ◆ AFW Pump Panel 207: ___ 23 AFW Pump

___ 3.11.4 **RESTORE** Fire Protection System valves to normal positions.

___ 3.11.5 **RETURN** #1 Fire Pump to operability by placing selector switch in AUTO.

___ 3.11.6 **RESTORE** doors/hatches and manways listed in Attachments 2 and 3, Protective Doors, to position designated by SM/CRS AND to remove signs on all water tight doors indicating following passage, closure is required to be maintained IAW SC.OP-AB-ZZ-0001(Q), Adverse Environmental Conditions.

___ 3.11.7 Send operations personnel to **INSPECT** the Shoreline Protection and Dike System for indications of erosion or other degradation.

___ 3.11.8 Send operations personnel to **INSPECT** the outside instrument lines of the R41, R45 and R46 Radiation Monitors for indications of degradation.

___ 3.11.9 Notify Maintenance Department to **RETURN** Turbine Building Roof Cranes to normal operation.

___ 3.11.10 **NOTIFY** Electric System Operator of plant and local weather status.

- ___ 3.11.11 **SEND** Operators to inspect the blow out panels in the following areas:
 - ___ A. On the back side of both Pressure Relief Penthouses on the Inner Mechanical Penetration area roof El. 141' (component ID S1(S2)AUX-1PENTHELB).
 - ___ B. The Inner and Outer Mechanical Penetration area El. 121+' (component identifiers 1IPA-PRP, 1OPA-PRP, 2IPA-PRP & 2OPA-PRP)
- ___ 3.11.12 **IF** any of the blow out panels have been released/damaged, and are free to swing by the hinges, **THEN**:
 - ___ A. **NOTIFY** Security of breach at the penetration area.
 - ___ B. **INITIATE** a Notification to identify panels by designator:
 - ◆ To be repaired as necessary
 - ◆ Replace fasteners on damaged panels
- ___ 3.11.13 **IF** Wind is from the South - Southeast, with little or no rain, generally >40 mph for >8 hours, **THEN NOTIFY** T&D and System Engineer to **EVALUATE** switchyard for excessive salt contamination.

4.0 **COMPLETION AND REVIEW**

- ___ 4.1 **CIRCLE** Entry Condition number in Section 1.0, **OR EXPLAIN** Entry Condition in Comments Section of Attachment 4.
- ___ 4.2 **COMPLETE** Attachment 4, Sections 1.0 and 2.0, **AND FORWARD** this procedure to SM/CRS for review and approval.
- ___ 4.3 SM/CRS **PERFORM** the following:
 - ___ 4.3.1 **REVIEW** this procedure with Attachments 1 through 4 for completeness and accuracy.
 - ___ 4.3.2 **COMPLETE** Attachment 4, Section 3.0.
 - ___ 4.3.3 **FORWARD** completed procedure to Operations Staff.

END OF PROCEDURE

ATTACHMENT 1
(Page 1 of 3)

INSTALLATION OF AUXILIARY FEEDWATER SPOOL PIECES

1.0 UNIT 1 SERVICE WATER TO AUXILIARY FEED WATER SPOOL PIECE:

- ___ 1.1 **OBTAIN** JA Master Key.
- ___ 1.2 **TAKE** the following equipment to No. 11 Component Cooling Heat Exchanger room:
 - ___ A. Service Water to Auxiliary Feedwater Spool Piece Installation Tool Box
 - ___ B. Three replacement gaskets
- ___ 1.3 **ENSURE** the following valves are Locked Closed:
 - ___ A. 11SW161, Auxiliary Feedwater Emergency Service Water Supply Valve
 - ___ B. 12SW161, Auxiliary Feedwater Emergency Service Water Supply Valve
- ___ 1.4 **ENSURE** 1AF92, AF B/U FROM SW, is Closed.
- ___ 1.5 **INSTALL** Service Water to Auxiliary Feedwater spool piece as follows:
 - ___ A. **REMOVE** blind flange and associated gasket from spool piece.
 - ___ B. **REMOVE** blind flange and associated gasket from downstream of 11SW161 and 12SW161, Auxiliary Feedwater Emergency Service Water Supply Valves.
 - ___ C. **REMOVE** spool piece and gasket from between spool piece and 1AF92, Auxiliary Feedwater Backup from Service Water.
 - ___ D. **INSTALL** spool piece to Service Water side with gasket.
 - ___ E. **INSTALL** spool piece to Auxiliary Feedwater side with gasket.
 - ___ F. **NOTIFY** NCO that Service Water to Auxiliary Feed Water SPOOL PIECE is installed.

ATTACHMENT 1
(Page 2 of 3)

INSTALLATION OF AUXILIARY FEEDWATER SPOOL PIECES

2.0 UNIT 2 SERVICE WATER TO AUXILIARY FEED WATER SPOOL PIECE:

- 2.1 **OBTAIN** JA master key.
- 2.2 **TAKE** following equipment to No. 21 Component Cooling Heat Exchanger room:
 - A. Service Water to Auxiliary Feedwater spool piece installation tool box
 - B. Three replacement gaskets
- 2.3 **ENSURE** the following valves are Locked Closed:
 - A. 21SW161, AF EMERG SW SUP V
 - B. 22SW161, AF EMERG SW SUP V
- 2.4 **ENSURE** 2AF92, AF B/U FROM SW, is Closed.
- 2.5 **INSTALL** Service Water to Auxiliary Feedwater spool piece as follows:
 - A. **REMOVE** blind flange and associated gasket from spool piece.
 - B. **REMOVE** blind flange and associated gasket from downstream of 21SW161 AND 22SW161, AF EMERG SW SUP, valves.
 - C. **REMOVE** spool piece and gasket from between spool piece and 2AF92, Auxiliary Feedwater Backup from Service Water.
 - D. **INSTALL** spool piece to Service Water side with gasket.
 - E. **INSTALL** spool piece to Auxiliary Feedwater side with gasket.
 - F. **NOTIFY** NCO that Service Water to Auxiliary Feed Water spool piece installed.

ATTACHMENT 1
(Page 3 of 3)

INSTALLATION OF AUXILIARY FEEDWATER SPOOL PIECES

NOTE

Closing 1FP1 renders one of the two Fire Suppression Water Systems inoperable.

3.0 FRESH WATER AND FIRE PROTECTION WATER STORAGE TANKS TO AUXILIARY FEEDWATER SPOOL PIECE:

- ___ 3.1 Notify Loss Control to locally **LOCK OUT** #1 Fire Pump by placing selector switch in OFF.
- ___ 3.2 **CLOSE** 1FP1, Fire Protection Storage Tank Valve.
- ___ 3.3 **CLOSE** 1FP3, Fire Protection Storage Tank Valve.
- ___ 3.4 **CLOSE** 1AF94, Auxiliary Feedwater Backup Drain. (El. 64'SWGR. Room)
- ___ 3.5 **CLOSE** 1AF95, Auxiliary Feedwater Backup Drain. (El. 64' Aux Bldg Aisle)
- ___ 3.6 **CLOSE** 2AF94, Auxiliary Feedwater Backup Drain. (El. 64' SWGR Room)
- ___ 3.7 **CLOSE** 2AF95, Auxiliary Feedwater Backup Drain. (64' El. Aux Bldg Aisle)
- ___ 3.8 **INSTALL** spool piece at outlet of Fresh Water and Fire protection Water Storage Tanks.
- ___ 3.9 **NOTIFY** NCO that the Fire Protection & Fresh Water System to Auxiliary Feed Water System spool piece is installed.

**ATTACHMENT 2
(Page 1 of 4)**

TECHNICAL SPECIFICATION PROTECTED DOORS

DESCRIPTION	LOCATION Unit 1	REMARKS	INIT
SERVICE BLDG TO No. 2 AUX BLDG STAIR #5	SVB 113' AA 14.5	2 Water tight door AUX 151-2	
SERVICE BLDG - ELEVATOR VESTIBULE	SVB 113' AA 13.5	1 Water-tight door Aux 151-1	
AUX BLDG CORRIDOR DOUBLE DOORS	AUX 100' AA 14.0	Water-tight door Aux 127-1	
PEN AREA - W. CORNER PAST BLOWDOWN TANKS	IPA 100' KK 8.5	Water-tight doors 1 Aux 130-1	
FH BLDG CORRIDOR-RECEIVING AREA	FHB 100' NN 7.3	Water tight door 1 FH 103-1	
11 & 12 SW COMPARTMENTS - #1 MECH PEN AREA SW PIPING RM MANWAY COVER SEALS (1 SEAL IN EACH ROOM)	IPA 78' KK 10.2	Water tight penetration seals under manway covers at top of ladders: 1 AUX C-15440-005	
		1 AUX C-15441-003	
NO 1A DIESEL GENERATOR ACCESS COVER PLATE	AUX 100" PP 10.4	Water tight Penetration Cover Plate S-15545-001	
NO 1B DIESEL GENERATOR ACCESS COVER PLATE	AUX 100" RR 10.4	Water tight Penetration Cover Plate S-15546-003	
NO 1C DIESEL GENERATOR ACCESS COVER PLATE	AUX 100" SS 10.4	Water tight Penetration Cover Plate S-15547-001	
AUX BLDG SOLID RAD WASTE AREA - TRUCK DR Key required - JA1	AUX 100' TT 13.0	Manual air operated door seal-Aux 1	
AUX BLDG SOLID RAD WASTE AREA - RAP TK AREA - SOUTH EAST CORNER	AUX 100' TT 13.3	Water tight door Door-Aux 4	

Tech Spec 3.7.5.1/3.7.5

**ATTACHMENT 2
(Page 2 of 4)**

TECHNICAL SPECIFICATION PROTECTED DOORS

DESCRIPTION	LOCATION Unit 2	REMARKS	INIT
NO. 2A DIESEL GENERATOR ACCESS COVER PLATE	AUX 100' PP 17.6	Water tight cover plate penetration N-25545-001	
NO. 2B DIESEL GENERATOR ACCESS COVER PLATE	AUX 100' RR 17.6	Water tight cover plate penetration N-25546-001	
NO. 2C DIESEL GENERATOR ACCESS COVER PLATE	AUX 100' PP 17.6	Water tight cover plate penetration N-25547-002	
PEN AREA - W. CORNER PAST BLOWDOWN TANKS	IPA 100' KK 19.1	Water-tight doors 2 Door Aux 130-2	
FH BLDG CORRIDOR-RECEIVING AREA	FHB 100' NN 20.7	Water tight door 2 Door FH 103-2	
22 SW COMPARTMENTS - #2 MECH PEN AREA SW PIPING RM MANWAY & SEAL (Above ladder)	IPA 78' KK 17.8	Water tight penetration seals under manway covers at top of ladders: C-15441-001	
UNIT 1 OUTER MECHANICAL PEN - EAST SIDE	OPA 100' CC 2.5	Water tight door S.P.-1	
UNIT 1 OUTER MECHANICAL PEN - SOUTH SIDE	OPA 100' FF 2.5	Water tight door S.P.-2	
SERVICE WATER CONTROL - SOUTH DOOR SW-5	SW 112' S. ELECT	Water tight door 1 Door SW-5	
SERVICE WATER BAY NO. 4 DOOR	SW 112' BAY 4	Water tight door 2 Door SW-7	
SERVICE WATER BAY NO. 3 DOOR	SW 112' BAY 3	Water tight door 1 Door SW-8	
SERVICE WATER BAY NO. 2 DOOR	SW 112' BAY 2	Water tight door 2 Door SW-9	
SERVICE WATER BAY NO. 1 DOOR	SW 112' BAY 1	Water tight door 1 Door SW-10	

Tech Spec 3.7.5.1/3.7.5

**ATTACHMENT 2
(Page 3 of 4)**

TECHNICAL SPECIFICATION PROTECTED DOORS

DESCRIPTION	LOCATION YARD	REMARKS	INIT
SERVICE WATER BAY NO. 1 ROOF HATCHES	SW 112' BAY 1	Water tight hatch penetrations: C-16901-005	
		C-16901-006	
		C-16901-007	
		C-16901-008	
SERVICE WATER BAY NO. 2 ROOF HATCHES	SW 112' BAY 2	Water tight hatch penetrations: C-26901-007	
		C-26901-008	
		C-26901-009	
		C-26901-010	
SERVICE WATER BAY NO. 3 ROOF HATCHES	SW 112' BAY 3	Water tight hatch penetrations: C-16902-005	
		C-16902-006	
		C-16902-007	
		C-16902-008	
SERVICE WATER BAY NO. 4 ROOF HATCHES	SSW 112' BAY 4	Water tight hatch penetrations: C-26902-005	
		C-26902-006	
		C-26902-007	
		C-26902-008	
SERVICE WATER CONTROL - NORTH DOOR	SW 112' N. ELECT	1 Water tight door 2 Door SW-1	
AUX BLDG - WASTE EVAPORATOR CUBICLE	YRD 100' KK 11.8	1 Water tight door Aux 5	
MANWAY COVERS TO #3 & #4 PEN SW PIPING RMS	YRD 100' KK 10.2	Penetration seals on manway covers: C-15440-005	
		C-15441-003	

Tech Spec 3.7.5.1/3.7.5

**ATTACHMENT 2
(Page 4 of 4)**

TECHNICAL SPECIFICATION PROTECTED DOORS

DESCRIPTION	LOCATION YARD	REMARKS	INIT
AUX BLDG - WASTE DISPOSAL EVAP CUBICLE	YRD 100' KK 17.0	Water tight door 2 doors: AUX 134-2	
MANWAY COVER TO #4 SW PUMPING RM	YRD 100' KK 17.8	Water tight penetration seal on manway cover C-25441-001	
UNIT 2 OUTER MECHANICAL PEN - EAST SIDE	OPA 100' FF 26	Water tight door N.P.-1	
UNIT 2 OUTER MECHANICAL PEN - NORTH SIDE	OPA 100' FF 25.5	Water tight door N.P.-2	

Tech Spec 3.7.5.1/3.7.5

**ATTACHMENT 3
(Page 1 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION SVC BLDG	REMARKS	INIT
ELEVATOR TO NO. 1 RELAY ROOM	SVC 100' BB 13.2	Fire door 103-1	
ELEVATOR TO UNIT 1 AUX BLDG CORRIDOR	SVC 100' BB 13.3	Fire door 104-1	
PEN AREA TO ROOF - SOUTHEAST CORNER	IPA 120' CC 10.0	Single door	
SERVICE BLDG TO No. 2 RELAY ROOM STAIR #5	SVC 100' BB 14.5	Fire door 103-2	
PENE AREA TO ROOF, NORTHEAST CORNER	IPA 120' CC 17.8	Single door	
SERVICE BLDG TO UNIT 2 AUX BLDG CORRIDOR	SVC 100' BB 14.0	Fire door 101-2	
SERVICE BLDG - ELEVATOR TO TURBINE DECK	SVC 140' AA 13.5	Single door	
SERVICE BLDG TO No. 2 AUX BLDG STAIR #5	SVC 140' BB 14.2	Single door	
SERVICE BLDG - SOUTH SIDE STAIRWELL	SVC 140' NP 10.4	Single door	
SERVICE BLDG - NORTH SIDE STAIRWELL	SVC 140' NP 17.6	Single door	
SERVICE BLDG - NORTH SIDE STAIRWELL	SVC 100' NP 18.0	Single door	
SERVICE BLDG - NORTH SIDE ENTRANCE TO CONTROL POINT	SVC 100' NP 10.0	Single door	
SERVICE BLDG - SOUTH SIDE STAIRWELL	SVC 100' NP 10.0	Single door	
SERVICE BLDG - SOUTH SIDE ENTRANCE TO CONTROL POINT	SVC 100' NP 10.0	Single door	

**ATTACHMENT 3
(Page 2 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION TRB BLDG 100'	REMARKS	INIT
TURBINE AREA - WEST SIDE BY NO. 13 CONDENSER	TGA 100' N 3.8	Double doors	
TURBINE AREA - S. WEST CORNER TO STAIRWELL	TGA 100' N 1.9	Single door	
TURBINE AREA - S. WEST CORNER - "B" BLDG	TGA 100' MN 1.0	Double doors	
TURBINE AREA - SOUTH SIDE	TGA 100' F 1.0	Double doors	
TURBINE AREA - SOUTH SIDE TO STAIRWELL	TGA 100' E 1.0	Single door	
TURBINE AREA - E. SIDE BY MAIN TRANSFORMER	TGA 100' D 5.1	Single door	
TURBINE AREA - EAST BY PANEL 385	TGA 100' D 9.5	Single glass door with roll-up door	
Unit 2			
TURBINE AREA - EAST SIDE BY PANEL 385-2	TGA 100' D 18.8	Single glass door with roll-up door	
TURBINE AREA - EAST SIDE BY MAIN TRANSFORMER	TGA 100' D 22.7	Single door	
TURBINE AREA - NORTH SIDE TO STAIRWELL	TGA 100' EF 27.0	Single door	
TURBINE AREA - NORTH SIDE	TGA 100' FG 27.2	Double door	
TURBINE AREA - NORTHWEST CORNER	TGA 100' MN 27.0	Double door	
TURBINE AREA - N.W. CORNER TO STAIRWELL	TGA 100' N 26.2	Single door	
TURBINE AREA - WEST SIDE BY NO. 23 CONDENSER	TGA 100' N 24.3	Double door	

**ATTACHMENT 3
(Page 3 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION TRB BLDG 120'	REMARKS	INIT
TURBINE AREA - W. SIDE BY PANEL 771-1C	TGA 120' N 6.2	Single door	
R46 RADIATION MONITOR SHED - 120'TGA CROSSOVER TO PENETRATION AREA	TGA 120' N 21.9	2 Single doors	
TURBINE AREA - S. WEST CORNER STAIRWELL	TGA 120' N 1.9	Single door	
TURBINE AREA - SOUTH SIDE STAIRWELL	TGA 120' EF 1.0	Single door	
Unit 2			
TURBINE AREA - NORTH SIDE STAIRWELL	TGA 120' EF 27.0	Single door	
TURBINE AREA - NORTHWEST CORNER STAIRWELL	TGA 120' N 25.2	Single door	
TURBINE AREA - NORTHWEST BY PANEL 711-1C	TGA 120' N 21.9	Single door	
R46 RADIATION MONITOR SHED - 120'TGA CROSSOVER TO PENETRATION AREA	TGA 120' N 21.9	2 Single doors	
TURBINE AREA - EAST STAIRWELL/ELEVATOR TO UNIT 1 TURBINE DECK	TGA 140' DE 13.7	Single door	
TURBINE AREA - EAST STAIRWELL/ELEVATOR TO UNIT 2 TURBINE DECK	TGA 140' DE 13.7	Single door	
UNIT 1 TURBINE GENERATOR CLOSURE DOORS	TGA 140'	6 HP Turb doors 6 LP Turb doors 6 Exciter doors	
UNIT 2 TURBINE GENERATOR CLOSURE DOORS	TGA 140'	6 HP Turb doors 6 LP Turb doors 6 Exciter doors	

**ATTACHMENT 3
(Page 4 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION ADM BLDG	REMARKS	INIT
KITCHEN RECEIVING AREA - SOUTH SIDE	ADM 100' BC 10.3	Single door	
CAFETERIA - SOUTH SIDE EXIT	ADM 100' AB 10.3	Single door	
LOBBY - OUTER DOORS	ADM 100' Y 14.0	Double doors	
LOBBY - INNER DOORS	ADM 100' NP 10.0	Double doors	
LOBBY - OUTER DOOR TO CHEMISTRY	ADM 100' Y 13.5	Single door	
ADM BLDG #1 AIR CONDITIONING & VENTILATION ROOM - ROOF ACCESS	ADM 166.5'	Single door	

**ATTACHMENT 3
(Page 5 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION SVC WTR	REMARKS	INIT
SOUTH PEN TO ROOF - SOUTH SIDE	OPA 100' EE 2.2		
UNIT 1 CONTAINMENT EQUIPMENT HATCH <u>OR</u> OUTAGE EQUIPMENT HATCH	CAN 130' KK 3.3	Crane required	
UNIT 2 CONTAINMENT EQUIPMENT HATCH <u>OR</u> OUTAGE EQUIPMENT HATCH	CAN 130' KK 24.7	Crane required	
NORTH PEN TO ROOF - NORTH SIDE	OPA 120' EE 25.8	Single door	
SERVICE WATER - SOUTH TRASH PIT DOOR	SW 100' S. PIT	Water tight door 1 Door S-11	
SERVICE WATER - NORTH TRASH PIT DOOR	SW 100' S. PIT	Water tight door 2 Door S-6	
SERVICE WATER CONTROL - INTERIOR DOOR SW-4	SW 112' CENTER	Water tight door	
SERVICE WATER CONTROL - INTERIOR DOOR SW-3	SW 112' CENTER	1 Water tight door 1 Fire door	
SERVICE WATER CONTROL - INTERIOR DOOR SW-2	SW 112' CENTER	Water tight door	

**ATTACHMENT 3
(Page 6 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION CIRC WTR	REMARKS	INIT
UNIT 1 CIRC WATER INTAKE 480 V SUBSTATION	CW 100' West	Single door	
UNIT 1 CIRC WATER INTAKE 480 V SUBSTATION	CW 100' North	Single door	
CIRC WATER CHLORINE BLDG	CW 100' North	Double door	
CIRC WATER CHLORINE BLDG	CW 100' North	Single door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 2	CW 100' North	Truck Roll-up door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 2	CW 100' East	Roll-up door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 2	CW 100' East	Roll-up door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 2	CW 100' West	Roll-up door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 2	CW 100' West	Single door	
CIRC WATER STRUCTURE UNIT 1	CW 100' West	Single door by Chlorine house	
CIRC WATER STRUCTURE UNIT 1	CW 100' West	Roll-up door	
CIRC WATER STRUCTURE UNIT 1	CW 100' North	Single door by 11A	
CIRC WATER STRUCTURE UNIT 1	CW 100' North	Single door by 13A	
CIRC WATER STRUCTURE UNIT 2	CW 100' North	Single door by 23A	
CIRC WATER STRUCTURE UNIT 2	CW 100' East	Single door	
CIRC WATER STRUCTURE UNIT 2	CW 100' East	Roll-up door	
CIRC WATER STRUCTURE UNIT 1 TRASH PIT	CW 100' South	Water tight door 1 Door CW-1	
CIRC WATER STRUCTURE UNIT 1 12A/12B	CW 100' South	Water tight door 1 Door CW-2	
CIRC WATER STRUCTURE UNIT 2 11A/21A	CW 100' South	Water tight door 1 Door CW-3	
CIRC WATER STRUCTURE UNIT 2 22A/22B	CW 100' South	Water tight door 2 Door CW-4	
CIRC WATER STRUCTURE UNIT 2 TRASH PIT	CW 100' South	Water tight door 2 Door CW-5	
CIRC WATER TRASH CONVEYOR BLDG UNIT 1	CW 100' East	Roll-up door	
CIRC WATER TRASH CONVEYOR BLDG UNIT 1 Operations Work Area	CW 100' East	Single door	
UNIT 2 CIRC WATER INTAKE STRUCTURE 480 V SUBSTATION	CW 100' East	Single door	
UNIT 2 CIRC WATER INTAKE STRUCTURE 480 V SUBSTATION	CW 100' North	Single door	

**ATTACHMENT 3
(Page 7 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION AUX BLDG	REMARKS	INIT
NO. 2A DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' QQ 17.8		
NO. 2B DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' RR 17.8		
NO. 2C DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' SS 17.8		
AUX BLDG CORRIDOR TO SOLID RAD WASTE AREA	AUX 100' PP 14.3		
NO. 1A DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' QQ 10.0	Clear of obstruction	
NO. 1B DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' RR 10.0	Clear of obstruction	
NO. 1C DIESEL ROOM ESCAPE HATCH TO ROOF	AUX 127' SS 10.0	Clear of obstruction	
AUX BLDG CORRIDOR TO SOLID RAD WASTE AREA	AUX 100' PP 13.7		

**ATTACHMENT 3
(Page 8 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION AUX BLDG	REMARKS	INIT
12 SW COMPARTMENT - SW PIPING RM X-TIE ROOM (LOCATED INSIDE)	IPA 78' KK 11.2	1 Water tight door	
12 SW COMPARTMENT - #1 MECH PEN AREA SW PIPING RM	IPA 78' KK 10.0	1 Water tight door	
11 SW COMPARTMENT - #1 MECH PEN AREA SW PIPING RM	IPA 78' KK 10.0	1 Water tight door	
PEN AREA - W. CORNER PAST PERSONNEL HATCH	IPA 130' KK 9.2		
FH BLDG RECEIVING AREA - NORTH SIDE	FHB 100' PP 8.5	1 Water tight door FH 105-1	
FH BLDG RECEIVING AREA - TRUCK DR WEST SIDE	FHB 100' SS 7.8	Manual air operated roll-up door seal	
FH BLDG STOR AREA - TRUCK DOOR W. SIDE	FHB 100' SS 6.5	Roll-up Door	
FUEL HANDLING BLDG STOR AREA - SOUTH SIDE	FHB 100' SS 6.2	1 Water tight door FH 104-1	
22 SW COMPARTMENT - SW PIPING RM CROSS TIE RM (INSIDE RM)	IPA 78' KK 16.8	Water tight 2 Door Aux C13-2	
22 SW COMPARTMENT - #2 MECH PEN AREA SW PIPING RM	IPA 78' KK 17.8	Water tight 2 Door Aux C12-2	
21 SW COMPARTMENT - #2 MECH PEN AREA SW PIPING RM	IPA 78' KK 17.8	Water tight 2 Door Aux C11-1	
PEN AREA - W. CORNER PAST PERSONNEL HATCH	IPA 130' KK 18.8		
F.H. BLDG - RECEIVING AREA S. SIDE	FHB 100' PP 20.0	Water tight FH 105-2	
F.H. BLDG - STORAGE AREA N. SIDE	FHB 100' PP 22.0	Water tight	
F.H. BLDG - STOR AREA TRUCK DOOR W. SIDE	FHB 100' SS 21.0		
F.H. BLDG - RECEIVING AREA TRUCK DOOR W. SIDE	FHB 100' SS 20.2	Manually air operated seal	

**ATTACHMENT 3
(Page 9 of 9)**

PROTECTIVE DOORS

DESCRIPTION	LOCATION YARD	REMARKS	INIT
SHUTDOWN/BLACKOUT AIR COMPRESSOR BUILDING - SOUTH SIDE	100.	Single door	
SHUTDOWN/BLACKOUT AIR COMPRESSOR BUILDING - EAST SIDE	100' Double	door	
FIRE PUMP HOUSE - NORTHWEST CORNER	S58 100' A 4.7	Single door	
FIRE PUMP HOUSE - SOUTHWEST CORNER	S58 100' C 4.7	Double door	
FIRE PUMP HOUSE - SOUTHEAST CORNER	S58 100' C 4.7	Double door	
HOUSE HEATING BOILER DOOR, NEAR STACK	HHB 100' CD 3.3	Single door	
HOUSE HEATING BOILER - NORTH SIDE	HHB 100' BC 0.9	Double door	
HOUSE HEATING BOILER - SOUTH SIDE	HHB 100' BC 7.1	Single door	
#6 FRESH WATER WELL HOUSE	FWH 100'	Single door	

**ADVERSE ENVIRONMENTAL CONDITIONS
TECHNICAL BASES DOCUMENT**

1.0 REFERENCES

1.1 Technical Documents:

- ◆ Salem Generating Station Updated Final Safety Analysis Report:
 1. Section 2.3, Meteorology
 2. Section 2.4, Hydrologic Engineering
 3. Section 3.3, Wind and Tornado Loadings
 4. Section 3.4, Water Level (Flood) Design (80084022)
 5. Section 3.5, Missile Protection
 6. Section 9.2.1.2, Service Water System Description and Operation
- ◆ Technical Specifications:
 - 3.7.5.1, Flood Protection
- ◆ Event Classification Guide
- ◆ Station Blackout Review For The Salem And Hope Creek Generating Stations, Final Report June 26, 1990
- ◆ Engineering Evaluation for Service Water Pump, S-C-SW-MDC-1351
- ◆ Engineering Evaluation for Tide Levels including uncertainties, SC-SW004-01

1.2 Procedures:

- ◆ S1.OP-DL.ZZ-0003(Q), Control Room Logs - Mode 1-4
- ◆ S2.OP-DL.ZZ-0003(Q), Control Room Logs - Mode 1-4
- ◆ SC.OP-PT.ZZ-0002(Z), Station Preparations For Seasonal Conditions
- ◆ SC.OP-SO.FO-0002(Q), Filling #1 and/or #2 Fire Pump Day Tank
- ◆ S1.OP-AB.CW-0001(Q), Circulating Water System Malfunction
- ◆ S2.OP-AB.CW-0001(Q), Circulating Water System Malfunction
- ◆ S1.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation
- ◆ S2.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation
- ◆ S1.OP-SO.FO-0001(Q), Emergency Diesel Fuel Oil System Operation
- ◆ S2.OP-SO.FO-0001(Q), Emergency Diesel Fuel Oil System Operation
- ◆ S1.OP-PT.AF-0001(Q), Service Water to Auxiliary Feedwater Spool Piece Installation
- ◆ S2.OP-PT.AF-0001(Q), Service Water to Auxiliary Feedwater Spool Piece Installation
- ◆ S1.OP-ST.AF-0011(Q), Auxiliary Feed Water Alternate Suction Source Verification
- ◆ S2.OP-ST.AF-0011(Q), Auxiliary Feed Water Alternate Suction Source Verification
- ◆ SC.MD-FR.CAN-0001(Q), Outage Equipment Hatch Installation, Removal, and Seal Replacement
- ◆ DTG-SWG-0001, Severe Weather Guide

1.3 Drawings:

- ◆ 201088, No 1 & 2 Units Penetration Area Slab El 100'0 & Between Cols FF-LL Sections & Details
- ◆ 204791, No 1 & 2 Units-Auxiliary Building Floor Frames & Hatches El 100'0
- ◆ 205222, No. 1 & 2 Units Fire Protection P&ID
- ◆ 211755, No 1 & 2 Units Service Water Intake Structure Plan At El 100'0 to 133'0
- ◆ 205236, No. 1 Unit Auxiliary Feedwater P&ID
- ◆ 205336, No. 2 Unit Auxiliary Feedwater P&ID

1.4 Commitments:

- ◆ C0323, INPO SOER 86-1, Reliability of PWR Auxiliary Feedwater Systems, Recommendation R03, R06
- ◆ C0365, NRC VIOL 272/90-200-02, Service Water Manway Water Tight Seals
- ◆ C0588, NRC VIOL 272/93-82-07, Increase guidance for maintaining DFOST inventory, LCR 94-15

1.5 Industry Concerns:

- ◆ INPO SOER 82-15, Freezing of Safety Related Equipment
- ◆ INPO SOER 86-01, Reliability of PWR Auxiliary Feedwater Systems
- ◆ NUMARC 87-00, Guidelines and Technical Bases For NUMARC Initiatives Addressing Station Blackout at Light Water Reactors

1.6 Other:

- ◆ DCP 1EC-3277, Additional water tight doors and hatches to check
- ◆ Regulatory Guide 1.102, Flood Protection For Nuclear Power Plants
- ◆ Regulatory Guide 1.59, Design Basis Floods For Nuclear Power Plants
- ◆ DCP 2EC-3388 and 2EC-2289, Pressure Relief blow out panels for inner/outer penetration area
- ◆ PSBP 320832, EOP Setpoint Document
- ◆ Service Water pump replacement DCPs: 1EC-3408, 1EE-0350, 1EC-3330, 1EC-3329, 1EC-3408, 1EC-340
- ◆ 70040127, UFSAR Design Outside Temperature Limit Unclear

2.0 DISCUSSION

2.1 This procedure provides the direction necessary for plant operation during adverse environmental conditions. This discussion provides the reasoning behind the logic and flowpath of the procedure. It is not intended to provide additional direction to the procedure.

2.2 Entry conditions

A. This procedure is initiated when any of the following conditions are recognized:

- ◆ Elevated River Temperature (Operator local log readings at intake)
- ◆ Extreme High or Low Air Temperatures
- ◆ Extreme High or Low River Levels
- ◆ Severe weather observed or expected in the form of high winds, excessive precipitation, including snowfall >12".

B. The entry conditions are based on extreme environmental conditions that could lead to a forced shut down of the Units in order to comply with Technical Specifications, UFSAR and/or Event Classification Guide. In addition, guidance is provided to take preventative measures during weather anomalies that have the potential to cause plant damage or significantly restrict access to and from the Site.

C. Prior to onset of the adverse weather, management may decide to activate the Severe Weather Team to consider contingencies, including external flooding. These team members will assess the site and ensure the structures and outlying areas are secure prior to the storm arrival. Actions will be taken to ensure the non-permanent components and permanent structures are adequately secured from the adverse weather. The severe weather will also include snow storms intense enough to preclude site entry and exit. The determination of site access will be determined based on Site Management experience and the severity of the snow storm.

2.3 Immediate Actions - None

2.4 Subsequent Actions -

A. Entry Conditions

NOTE This alerts personnel that sections may be performed in any order and multiple sections may be performed at one time. This is done so that personnel will go to the applicable section immediately with out the need to go through the other sections which do not apply. Multiple sections may be performed due to the fact that several of these entry conditions may occur at the same time.

3.1 Provides a decision as to which of the listed entry conditions apply to which section. When the proper section is chosen for the entry condition(s) personnel are directed to the proper page

B. Elevated River Temperature

3.2 Provides guidance for actions during warm river temperatures that could result in operation of the Units outside of the analyzed condition for Service Water temperatures. Temporary temperature monitoring equipment is installed at the in service CCW heat exchanger to trend Service Water temperature. Installed instrumentation monitors Circ Water temperature on computer point, but does not accurately reflect Service Water temperature. Service and Circulating Water can differ as much as 4°F. River temperature of 82°F accounts for instrument inaccuracy of 1°F, limit being 83°F. Service Water temperatures are monitored locally by SC.OP-DL.ZZ-0008(Q), Circulating/Service Water Log. (70049548)

UFSAR Section 9.2.1.2, Service Water System Description and Operation.

C. Elevated River Temperature Recovery Actions

3.3 Provides subsequent direction for the restoration/removal of equipment following the recovery from elevated temperature.

D. Extreme Air Temperature Actions

- 3.4.1 If extreme air temperature conditions are expected, the operator is directed to refer to the appropriate procedure.
- 3.4.2, If Ambient Air Temperature is $< 25^{\circ}\text{F}$, Sustained Wind Speed $> 15\text{mph}$ and River Temperature $< 32^{\circ}\text{F}$, personnel are directed to initiate CW Screen monitoring for ice formation once every 30 minutes.
- 3.4.3, If icing is found, then personnel are directed to expedite the return of any out of service circulators, schedule cleaning of condenser water boxes outside of the low tide period (± 2 hours), check proper operation of CW boiler and CW structure heating equipment and check proper operation of CW systems auxiliaries; screen wash and bearing lube equipment.

E. Extreme Air Temperature Recovery Actions

- 3.5.1 Added a step for recovery if all of the criteria for this step has cleared then the monitoring can be discontinued or the time for monitoring can be adjusted to suit present plant conditions. This is done as based on all criteria for monitoring has cleared and the possibility of return
- 3.5.2 Added a step for recovery if all of the criteria for this step has cleared then the monitoring can be discontinued or the time for monitoring can be adjusted to suit present plant conditions. This is done as only one of the criteria for monitoring has cleared and there is always a possibility of return.

F. Extreme Low River Level

The conditional steps are included to provide protective action in the event of extreme tides with wind speed less than the entry conditions of the Emergency Plan.

Initially river level is checked locally and compared with the Tide chart in the Control Room. Since the Tide chart reacts slowly to changes, the local reading is used to compensate for the river level changes. If river level drops to <85 ft, we request Engineering support in determining operability/compensatory measures required, based on trend or real time river and service water intake bay silt levels and it's effect on the plant. The intent is to have engineering evaluate trend and/or real time silt sounding documentation and assess operability/compensatory issues that may need to be implemented if river levels continue to be reduce, potentially to the low credible value of 76 feet. As river level lowers actions are directed to lessen the Service Water System loads.

Service Water System flow rates are estimated from aligned heat loads and header flow indications at the intake structure. When river level returns to an acceptable level, direction to return to the procedure is given.

G. Extreme Low River Level Recovery Actions

3.7.1 Will restore any components/systems to normal alignment when river level is > 78ft.

3.7.2 Provides an exit point for the Unit 1 and Unit 2 Circulating Water System Abnormal Procedures and returns the service water to normal operational monitoring.

H. Extreme High River Levels

NOTE This note provides contact numbers for the National Weather Service and the Army Corp of Engineers (Weather updates and upriver dam openings.)

3.8.1 Provides actions to be performed should river level be ≥ 95.5 ft.

SM/CRS should refer to ECG.

The Seismic Gap drain valves are closed to prevent Auxiliary Building flooding.

Vital outdoor tanks are filled as much as possible to ensure maximum Condensate availability and to reduce the buoyancy of the tanks in the event of flooding. Guidance is provided to perform the action required by Technical Specification 3.7.5.1, Flood Protection. This includes fuel movement in the Fuel Handling Building since the safest location for all fuel is the normal storage position.

Personnel are directed to inspect plant area for seal or excessive crack leakage which could cause flooding threatening safety related equipment.

3.8.2 Provides actions to be performed should river level be ≥ 97.5 ft.

SM/CRS should refer to ECG.

Commence logging of river level in Control Room Narrative Log.

Close all hatches and doors as listed in procedure along with the containment hatch if it is open.

3.8.3 If river level is ≥ 98.5 ft, then actions are taken to place the unit in mode 3 within 6hours and in mode 5 with in the next 30 hours.

I. Extreme High River Levels Recovery Actions

3.9.1 & 3.9.2, The restoration from extreme high river levels is stepped for decreasing river level from <98.5 to <97.5 to a normal range from 85.0 to 95.5 ft.

3.9.3 Returns the Seismic Gasp Drains to normal when the river level is 85.0 to 95.5 ft.

J. Severe Weather Observed or Expected

Adverse weather is not an event over which the Operator has any control, therefore subsequent steps provide actions to place the plant in a safe, stable condition least susceptible to severe weather damage.

In anticipation of missile hazards, the Maintenance Department secures the Turbine Building Roof Cranes. Service Water to Auxiliary Feedwater spool pieces are installed but NOT placed in service unless the Auxiliary Feedwater Storage Tank is rendered inoperable due to missile damage and all other make-up water sources are depleted or otherwise unavailable. To provide assurance of adequate onsite fuel oil inventory, the DFOSTs are maintained at their maximum permissible level. Many of these steps for extreme high or low tides may seem abnormal, but the postulated event in the UFSAR has extreme tides accompanied by high winds. The possibility of Tsunami occurring without high winds is addressed in the UFSAR but is considered incredible.

The Operator is directed to initiate the restoration of inoperable Safety equipment, Equipment Important to Safety, and Electrical Power Sources. The intent is to have any equipment inoperable due to routine maintenance or testing returned to operability as soon as possible in anticipation of possible plant transients, especially offsite/onsite electrical transients which could affect the availability of complete trains of safety equipment.

Security, Emergency Services, and Maintenance Department personnel are directed to secure outlying areas which are not normally the responsibility of the Operations Department.

Deep snow is monitored and cleared to prevent blocking the ventilation ducts.

High winds could affect the use of the outside crane and the capability to establish containment closure. (70047277)

If steady (>40 mph), dry winds from the south are experienced, Engineering and T/D are notified of possible salt deposits/contamination. (70033575)

3.10.12 through 3.10.16, This conditional step provides guidance in the event Auxiliary Feedwater normal water supply or all normal flowpaths becomes inoperable. (Required by Technical Specifications)

K. Severe Weather Observed or Expected Recovery Actions

These steps addresses the conditions necessary before returning systems to normal status allowing routine procedures to take effect. Operators are again dispatched to determine any effects on the Shoreline Protection and Dike Systems IAW the UFSAR.

Attachment 1 - INSTALLATION OF AUXILIARY FEEDWATER SPOOL PIECES

Provide alternate means of a water source for Auxiliary Feedwater in anticipation of possible unavailability of the Auxiliary Feedwater Storage Tank due to damage from storm. Alternate water source is from a service water header in the Auxiliary Building.

Attachment 2 - TECHNICAL SPECIFICATION PROTECTIVE DOORS

A listing of doors and enclosures to be closed for protection from rising water level in the Salem Station Buildings. Doors are listed with location and designators if available. Doors requiring closure for satisfying the requirements of Technical Specification 3/4.7.5.1 are annotated by a footnote on each applicable page of this attachment.

Attachment 3 - PROTECTIVE DOORS

A listing of doors and enclosures to be closed for protection from rising water level in the Salem Station Buildings. Doors are listed with location and designators if available.

END OF DOCUMENT