

Witten: \_\_\_\_\_  
(Section Head)

SP Number: 29.015.02

Approved: \_\_\_\_\_  
(Plant Manager)

Revision: C

Date Effective: \_\_\_\_\_

STATION BLACKOUT  
EMERGENCY PROCEDURE

**DRAFT**

1.0 SYMPTOMS:

- 1.1 Loss of both normal and reserve station power.
- 1.2 Failure of all Emergency Diesel Generators to re-energize any of the emergency AC buses.

2.0 AUTOMATIC ACTIONS:

- 2.1 Reactor Scram
- 2.2 Main Turbine Trip
- 2.3 NSSSS Isolation
- 2.4 125V AC Uninterruptible Power Supplies (UPS #1 & 2) switch to 125V DC batteries.

3.0 IMMEDIATE ACTION:

- 3.1 Initiate SP29.010.01 Emergency Shutdown.
- 3.2 Enter SP29.023.01 (Level Control) as necessary to maintain reactor water level between 20"-50".

CAUTION: HPCI and RCIC are the only means available to restore reactor water level.

- 3.3 Enter SP 29.023.05 (RPV Depressurization) as necessary to reduce and maintain RPV pressure at 100#-150#.

CAUTION: Depressurization should not result in a cooldown rate in excess of 100°F/HR.

- 3.4 Notify the system operator that a station blackout exists.

INFORMATION ONLY

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4.1 Stabilize plant conditions by performing the following:

4.1.1 Secure the HPCI pump if the RCIC pump is available to maintain RPV level. \_\_\_\_\_

NOTE: If the RCIC pump trips on high RPV level (58.75"), the trip throttle valve must be reset by running 1E51\*MOV-044 to the full close position and then slowly re-open.

4.1.2 Adjust RCIC pump speed to maintain RPV level between 20"-50". Do not reduce speed below 2250 RPM. \_\_\_\_\_

4.1.3 Cycle SRV's as necessary to maintain RPV pressure between 100#-150#. \_\_\_\_\_

NOTE: Steps 4.2, 4.3, and 4.4 should be performed concurrently. If AC power is restored to any of the emergency AC buses, refer to SP 29.015.01, Loss of Off-site Power.

4.2 Verify the following equipment starts:

4.2.1 Main Turbine Emergency Lube Oil Pump \_\_\_\_\_

4.2.2 Hydrogen Seal Oil Emergency Lube Oil Pump \_\_\_\_\_

4.2.3 RFP Turbine A Emergency Lube Oil Pump \_\_\_\_\_

4.2.4 RFP Turbine B Emergency Lube Oil Pump \_\_\_\_\_

4.2.5 MG Set 1A Emergency Lube Oil Pump \_\_\_\_\_

4.2.6 MG Set 1B Emergency Lube Oil Pump \_\_\_\_\_

4.3 Start the Emergency Diesel Generators from the Control Room to re-energize the emergency AC buses. \_\_\_\_\_

4.3.1 If the Emergency Diesel Generators will not start from the Control Room, proceed to the Diesel Generator Rooms and perform the following:

NOTE: Preferred starting sequence is 101, then 102, then 103.

4.3.1.1 Verify DC control power breakers in control cabinet 1R43\*PNL-DG1 (2, 3) are closed. \_\_\_\_\_

- 4.3.1.2 Place the mode selector in local and depress the start pushbutton for at least 3 seconds. \_\_\_\_\_
- 4.3.2 If the emergency diesels are running, but the buses are not energized, proceed to the Switchgear Rooms and locally close the diesel generator tie breakers. \_\_\_\_\_
- 4.4 Line-up the RHR heat exchangers for steam condensing by performing the following:
  - 4.4.1 Manually close the following valves:
    - 4.4.1.1 1P41\*20V-0007A (B), RHR Hx Service Water Inlet. \_\_\_\_\_
    - 4.4.1.2 1E11\*MOV-033A (P), RHR Hx Shell Side Inlet. \_\_\_\_\_
    - 4.4.1.3 1E11\*MOV-035A (B), RHR Hx Shell Side Outlet. \_\_\_\_\_
  - 4.4.2 Connect a 2 1/2 inch fire hose between hose reel supply valve 1M43-03V-(Later) and RHR Hx Flush Connection 1P41\*02V-3001A (B). \_\_\_\_\_
  - 4.4.3 Manually open the following valves:
    - 4.4.3.1 1E11\*MOV-055A (B) and 1E11\*MOV-056A (B) RHR Hx Vents. \_\_\_\_\_
    - 4.4.3.2 1E11\*MOV-044A (B) RHR Hx Drain to Suppression Pool. \_\_\_\_\_
    - 4.4.3.3 1E11\*MOV-034A (B) RHR Hx Service Water Outlet. \_\_\_\_\_
    - 4.4.3.4 1E11\*MOV-049 RHRS Steam Inlet Valve. \_\_\_\_\_
    - 4.4.3.5 1P41\*02V-3001A (B) RHR Hx Flush Connection. \_\_\_\_\_
    - 4.4.3.6 1M43-03V-(Later) Fire Water to Hose Reel. \_\_\_\_\_
  - 4.4.4 Start the diesel driven fire pump, 1M43-P-058, if not running due to low header pressure. \_\_\_\_\_
  - 4.4.5 Manually open 1E11\*PCV-007A (B) to lower RHR Hx Water Level to ~3/4 level. \_\_\_\_\_
  - 4.4.6 Slowly open 1E11\*PCV-003A (B) to raise RHR Hx Steam Pressure to ~125 psig. \_\_\_\_\_

CAUTION: Do not exceed 400°F or 450 psig at the shell side of the RHR heat exchanger.

- 4.4.7 Adjust RHR Hx level for the necessary amount of steam condensing required to maintain RPV pressure ~ 125 psig. \_\_\_\_\_
- 4.4.8 Maintain RCIC pump suction from the CST until level falls to 10,000 gallons. \_\_\_\_\_
- 4.5 Isolate all non-essential DC loads to prolong battery life. \_\_\_\_\_
- 4.6 Contact the local fire department to draft from the intake canal to the fire connection at the Northwest corner of the warehouse. \_\_\_\_\_
- 4.7 If AC power can not be restored and the DC batteries approach complete discharge, perform the following:
- 4.7.1 Connect a fire hose from the fire header to the ultimate cooling water connection 1P41-06V-3029. \_\_\_\_\_
- 4.7.2 Close 1P41-MOV-039A. \_\_\_\_\_
- 4.7.3 Open 1P41-06V-3029, 1P41-MOV-033C, and  
1E11-MOV-037A. \_\_\_\_\_
- 4.7.4 Secure the RCIC pump, open all SRV's, and fill the RPV to the highest level of available indication. \_\_\_\_\_
- 4.8 Implement the Emergency Plan and consult Plant Staff for further actions. \_\_\_\_\_
- 5.0 FINAL CONDITIONS:
- 5.1 All sources of electrical power have been depleted.
- 5.2 The emergency plan has been implemented.
- 5.3 The core can be maintained covered with water but containment integrity is not assured.
- 6.0 DISCUSSION:
- 6.1 This procedure provides information and instructions for actions in the event off-site power is lost and all emergency diesel generators fail to start and no method of restoring AC power can be accomplished for an extended period of time.
- 6.2 If at any time during the performance of this procedure AC power can be restored by any method (off-site, diesels, portable generators, etc.), proceeding to SP29.015.01 will provide the necessary information and instructions to place the plant in a safe condition.

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- 6.3 Due to the reliability of the diesel generators, off-site system interconnections and availability of portable electrical generating equipment, a total loss of power for the extended time covered by this procedure is highly unlikely.
  - 6.4 Early RPV depressurization and utilization of the RHR Heat Exchangers for steam condensing will result in suppression pool and drywell temperatures and pressures remaining below design limitations until well after battery depletion.
  - 6.5 The time available in which to restore A<sup>c</sup> power before injecting seawater into the RPV is determined by the battery depletion rate. This time can be significantly increased by securing non-essential DC equipment and lighting and by using RCIC until the red battery is depleted and then transferring to HPCI to maintain RPV level until the blue battery is exhausted. The CST should be utilized as long as available before shifting suction to the suppression pool. This will result in slower rates of containment temperature and pressure rise and avoid failure of the HPCI/RCIC turbines due to high lube oil temperatures.