Entergy
Nuclear Northeast

Procedure Use
☑ Continuous
☐ Reference
☐ Information

Control Copy: _____

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LOSS OF ALL AC POWER

Indian Point Operations

Approved By:

John Balletta 1/4/2011
Procedure Sponsor, DM/Designee Date

Team P
Procedure Owner

EDITORIAL REVISION

A. PURPOSE

This procedure provides actions to respond to a loss of all AC power to plant 480V AC Safeguards Buses:

- 480V Buses 2A and/or 3A

AND

- 480V Bus 5A

AND

- 480V Bus 6A

B. ENTRY CONDITIONS

This procedure is entered from:

1. Loss of all plant 480V AC Safeguards Buses.

2. 3-E-0, REACTOR TRIP OR SAFETY INJECTION, Step 3, on the indication that all 480V AC Safeguards Buses are deenergized.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

- CSF Status Trees should be monitored for information only. FRPs should NOT be implemented.
- Normal communication channels may be unavailable without AC power. Radios should be used by watch personnel outside the Control Room.

1. **VERIFY Reactor Trip:**

   - Reactor trip and bypass breakers - OPEN
   - Neutron flux - DECREASING

PERFORM the following:

a. Manually TRIP Reactor.

b. IF Reactor will NOT trip, THEN PERFORM the following:

   1) INSERT control rods in auto or manual while continuing performance of this procedure.

   2) DISPATCH NPO to trip reactor in accordance with posted operator aid.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.	**ISOLATE Main Steam:**	
	a. Manually CLOSE all MSIVs	a. PERFORM the following: 1) VERIFY all turbine stop valves are closed. 2) DISPATCH NPO to close MSIVs per 3-SOP-ESP-001.
	b. CHECK MSIV bypass valves - CLOSED	b. DISPATCH NPO to close all MSIV bypass valves, if required.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.	**DETERMINE If RCS Is Isolated:**	
	a. CLOSE letdown isolation valves: • 459 • 460 • 200 A-C	
	b. CHECK PRZR PORVs - CLOSED	b. PERFORM the following: 1) IF PRZR pressure less than 2335 psig, THEN manually CLOSE PORVs. 2) IF any PORV can NOT be closed, THEN manually CLOSE its block valve.
	c. CHECK Excess Letdown Stop valves - CLOSED • CH-AOV-213A • CH-AOV-213B	c. Manually CLOSE valves.
	d. CHECK Resid HR Lp Bypass To Demin - CLOSED • CH-HCV-133	
	e. CLOSE Sample Isol Valves: • SP-AOV-956A,C,E,G • SP-AOV-956B,D,F,H	
	f. SECURE any radwaste release in progress	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	**MAINTAIN SG Levels Using Turbine-Driven AFW Pump:**	
	a. CHECK 32 AFW pump - RUNNING	a. PERFORM the following: 1) ENSURE PCV-1139, 1310A, and 1310B are open. 2) IF valves cannot be opened, THEN DISPATCH NPO to operate 32 AFW pump per 3-SOP-ESP-001.
	b. MAINTAIN 32 AFW pump discharge pressure greater than or equal to 150 psi above highest SG pressure • ADJUST HC 1118, ABFP Turb Speed Control	

(STEP 4 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 4 continued from previous page)

c. CHECK SG NR levels - ANY GREATER THAN 9% [14%]

c. PERFORM the following:

1) MAINTAIN total feed greater than 365 gpm until at least one SG NR level is greater than 9% [14%].

- Preferentially RESTORE level first to 32 OR 33 SG

2) IF unable to maintain greater than 365 gpm total feed, THEN VERIFY required AFW valve alignment:

- IF necessary, DISPATCH NPO to locally operate valve(s) per 3-SOP-ESP-001.

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d. CONTROL feed flow to maintain SG NR levels between 9% [14%] AND 50%

- Preferentially RESTORE level first to 32 OR 33 SG

- ESTABLISH level in one SG at a time and MAINTAIN feedflow to all other SGs at less than or equal to 100 gpm

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

- AN ESSENTIAL SERVICE WATER PUMP SHOULD BE KEPT AVAILABLE TO AUTOMATICALLY LOAD ON ITS 480V AC BUS TO PROVIDE DIESEL GENERATOR COOLING.
- HIGH VCT TEMPERATURE, AS INDICATED ON SEAL WATER RETURN TI-117, MAY CAUSE VAPOR BINDING WHEN CHARGING PUMP IS STARTED.

5. **DETERMINE Status Of 480V Buses 2A And 3A:**

a. CHECK 480V Buses 2A and 3A - EITHER ENERGIZED

a. GO To Step 6.

b. ATTEMPT to close 480V Bus No. 2A-3A Tie

c. CHECK 480V Bus 2A - ENERGIZED

c. GO To Step 5.e.

d. CHECK the following equipment - RUNNING

- 32 Component Cooling Pump
- 32 Service Water Pump

d. START equipment:

- 32 CCWP
- 32 SWP only if essential.

e. CHECK 480V Bus 3A - ENERGIZED

e. GO To Step 6.

(STEP 5 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 5 continued from previous page)

f. CHECK the following equipment - RUNNING

- 32 Charging Pump
- 35 Service Water Pump

f. START equipment:

- 32 Charging Pump
- 35 SWP only if essential.

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g. INCREASE 32 charging pump speed to maximum

h. VERIFY CCW flow to running charging pump(s)

h. DISPATCH NPO to align city water to 32 charging pump per 3-SOP-ESP-001.

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i. WHEN cooling is established, THEN CONTROL 32 charging pump speed as directed by CRS or SM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

USE EXTREME CAUTION WHENEVER ATTEMPTING AC POWER RESTORATION FROM MULTIPLE SOURCES SIMULTANEOUSLY.

NOTE

IP2 Appendix R Diesel is NOT equivalent to "offsite" power and should ONLY be used as instructed in Step 6.d RNO.

6. **TRY To Restore Power To Any 480V AC Safeguards Bus:**

   a. DISPATCH NPO to emergency start all EDGs and energize any 480V Bus per 3-SOP-EL-001

   b. CONTACT and INFORM Con Ed D.O. of urgent need for AC power

   c. ATTEMPT to energize any 480V AC Bus using any of the following:

      - EDG(s) per 3-SOP-EL-001
      - Offsite power per 3-SOP-EL-005

(STEP 6 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 6 continued from previous page)

d. CHECK 480V AC Safeguards Buses - ANY ENERGIZED

- 480V Buses 2A and 3A

OR

- 480V Bus 5A

OR

- 480V Bus 6A

d. PERFORM the following:

1) CONTINUE attempt to energize any 480V AC Bus from EDGs or offsite power.

2) DISPATCH NPO to start IP3 Appendix "R" Diesel per 3-SOP-EL-013.

3) IF IP3 Appendix "R" Diesel is NOT available, THEN CONTACT IP2 CCR to START IP2 Appendix "R" Diesel per 2-SOP-27.6, UNIT 2 APPENDIX R DIESEL GENERATOR OPERATION.

4) WHEN either Appendix "R" Diesel is running, THEN ATTEMPT to energize any 480V Bus per 3-SOP-EL-014, ENERGIZATION OF THE 480V BUSES FROM THE APPENDIX R DIESEL GENERATOR:

- RESET trouble alarm as required.
- DO NOT load bus(es) per 3-SOP-EL-014, ENERGIZATION OF THE 480V BUSES FROM THE APPENDIX R DIESEL GENERATOR until directed by EOPs.

5) GO To Step 7.

(STEP 6 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 6 continued from previous page)

e. VERIFY at least two ESW pumps - RUNNING

e. PERFORM the following:

1) START ESW or Backup SW pump(s).

2) IF two SW pumps can NOT be started on essential header, THEN INITIATE ATTACHMENT 1, ESSENTIAL SERVICE WATER ALIGNMENT, Page 39.

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f. CHECK 3-ECA-0.0, LOSS OF ALL AC POWER - ENTERED DIRECTLY

f. RETURN To Procedure and Step in effect AND IMPLEMENT FRPs.

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g. GO To 3-E-0, REACTOR TRIP OR SAFETY INJECTION, Step 4 AND IMPLEMENT FRPs.

NOTE

ATTACHMENT 2, PREVENTING OVERHEATING OF EQUIPMENT AND INSTRUMENTATION, Page 46 must be completed within 30 minutes from the loss of all AC power event.

7. **PERFORM ATTACHMENT 2, PREVENTING OVERHEATING OF EQUIPMENT AND INSTRUMENTATION, Page 46**

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

- WHEN POWER IS RESTORED TO ANY 480V SAFEGUARDS BUS, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH Step 29, Page 32.
- DO NOT PLACE EQUIPMENT POWERED FROM AN ENERGIZED BUS IN TPO.
- IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON A 480V AC BUS PER Step 20, Page 22.

8. **PLACE Control Switches For The Following Equipment On Deenergized Buses In TRIP PULLOUT / OFF:**

   - PRZR heaters
   - Containment Spray pumps
   - FCUs
   - SI pumps
   - Motor-driven AFW pumps
   - RHR pumps
   - CCW pumps

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

9. **DETERMINE Status Of RCP Seals:**

a. DETERMINE if RCP seal cooling should be isolated:

1) CHECK RCP seal cooling - ESTABLISHED

- Seal Injection

OR

- Thermal Barrier Cooling

1) GO To Step 9.b.

2) DISPATCH NPO to perform the following:

- CLOSE CH-MOV-222, Seal Water Return Isolation Valve

3) GO To Step 10

b. DISPATCH NPO to perform the following:

1) CLOSE the following valves:

- CH-MOV-222, Seal Water Return Isolation Valve
- FCV-625, CCW Return From RCP Thermal Barrier
- RCP Seal Injection (needle) Valves:
  - CH-241A
  - CH-241B
  - CH-241C
  - CH-241D

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	**CHECK CST To Hotwell Isolation Valve Status:** • LCV 1158-1 Valve Fully CLOSED OR • LCV 1158-2 Valve Fully CLOSED	DISPATCH NPO to perform the following: a. CLOSE either valve by isolating and bleeding off air supply. b. IF ONE valve can NOT be closed, THEN CLOSE the following: • CT-7-2, CST To Condenser Hotwells Makeup CD-LCV-1128 Inlet Isolation • CT-8, (if opened)
11.	**CHECK SG Status:**	
	a. CHECK Main and Bypass FW FRVs - CLOSED	a. PERFORM the following: 1) Manually close valves. 2) IF unable to close valves, THEN DISPATCH NPO to close manual isolation valves.
	b. CHECK SG blowdown: • SG blowdown isolation valves - CLOSED • SG sample isolation valves - CLOSED	b. Manually CLOSE valve(s).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

12. **DISPATCH NPO To Open Condenser Vacuum Breaker Isolation Valves:**

- CA-15-1
- CA-15-2
- CA-15-3

13. **DETERMINE If SG(s) Are Intact:**

a. DETERMINE if any SG is faulted:

- NO SG pressure decreasing in an uncontrolled manner
- NO SG completely depressurized

a. GO To Step 14.

b. DETERMINE if any SG tubes are ruptured:

- Condenser air ejector radiation recorder trends - NORMAL
- SG blowdown radiation recorder trends - NORMAL
- Main steam line radiation recorder trends - NORMAL
- CHECK level response in all intact SGs - NORMAL

b. GO To Step 14.

c. GO To Step 15, Page 17

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

A FAULTED OR RUPTURED SG THAT IS ISOLATED SHOULD REMAIN ISOLATED.
STEAM SUPPLY TO 32 AFW PUMP MUST BE MAINTAINED FROM AT LEAST ONE SG.

NOTE

An AFFECTED SG is any faulted or ruptured SG.

14. **ISOLATE Affected SG(s):**

a. ISOLATE AFW flow to affected SG(s):

a. IF unable to close valve(s), THEN DISPATCH NPO to close isolation valve for affected S/G Aux FW Reg valve(s).

b. ADJUST affected SG(s) atmospheric controller to maintain 1040 psig

c. CHECK affected S/G Atmos Steam Dump - CLOSED

c. WHEN affected SG pressure is less than 1040 psig, THEN CLOSE valve manually or locally.

d. DETERMINE if steam supply to 32 AFW pump should be isolated:

1) CHECK SG 32 or 33 - AFFECTED

1) GO To Step 15.

2) DISPATCH NPO to close affected SG steam supply to 32 AFW pump:

- 32 SG - MS-41

OR

- 33 SG - MS-42

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15.	**CHECK Intact SG Levels:**	
	a. CHECK SG NR levels - ANY GREATER THAN 9% [14%]	a. MAINTAIN maximum AFW flow until at least one SG NR level is greater than 9% [14%]. • Preferentially feed SG 32 or 33
	b. CONTROL feed flow to maintain SG NR level between 9% [14%] AND 50% • Preferentially RESTORE level first to 32 OR 33 SG • ESTABLISH level in one SG at a time and MAINTAIN feedflow to all other SGs at less than or equal to 100 gpm	b. IF any SG NR level continues to increase in an uncontrolled manner, THEN RETURN To Step 14, Page 16, to isolate ruptured SG(s).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

16. * **DETERMINE If Intact SGs Should Be Depressurized:** *

a. CHECK plant conditions:

1) RCP seal cooling - ESTABLISHED

- Seal Injection

OR

- Thermal Barrier Cooling

2) PRZR level - GREATER THAN 14% [32%]

3) RVLIS - GREATER THAN REQUIRED FROM TABLE

NO. OF RCPs RUNNING	RVLIS DYNAMIC RANGE	RVLIS FULL RANGE
0	___	92%
1	31%	___
2	42%	___
3	62%	___
4	93%	___

4) RCS subcooling - GREATER THAN 40°F [Table]

RCS PRESSURE	RCS SUBCOOLING
>1900 psig	[63°F]
>1000 psig	[78°F]
≤1000 psig	[112°F]

a. GO To Step 17.

b. GO To Step 19, Page 22

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

17. **DETERMINE If 32 HHSI Pump Should Be Used:**

a. CHECK 480V Bus 2A - ENERGIZED

a. GO To Step 18.

b. DISPATCH NPO to align 32 HHSI pump to non-BIT header:

1) CLOSE SI-MOV-851B, 32 Safety Injection Pump Discharge BIT Header Isolation

2) ENSURE SI-MOV-851A, 32 Safety Injection Pump Discharge Non BIT Header Isolation is open

c. START 32 HHSI pump

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

- SG PRESSURES SHOULD NOT BE DECREASED TO LESS THAN 175 PSIG TO PREVENT INJECTION OF ACCUMULATOR NITROGEN INTO THE RCS.
- SG NARROW RANGE LEVEL SHOULD BE MAINTAINED GREATER THAN 9% [14%] IN AT LEAST ONE INTACT SG. IF LEVEL CAN NOT BE MAINTAINED, THEN SG DEPRESSURIZATION SHOULD BE STOPPED UNTIL LEVEL IS RESTORED IN AT LEAST ONE SG.

NOTE

- The SGs should be depressurized at a rate sufficient to maintain a cooldown rate in the RCS cold legs near 100°F per hour. This will minimize RCS inventory loss while cooling the RCP seals in a controlled manner.
- PRZR level may be lost and Reactor vessel upper head voiding may occur due to depressurization of SGs. Depressurization should NOT be stopped to prevent these occurrences.

18. **DEPRESSURIZE Intact SGs To 275 PSIG:**

a. CHECK SG NR levels - ANY GREATER THAN 9% [14%]

a. PERFORM the following:

1) MAINTAIN maximum AFW flow until at least one SG NR level is greater than 9% [14%].

2) WHEN any SG NR level is greater than 9% [14%], THEN PERFORM Step 18.b through Step 18.f.

3) GO To Step 19.

(STEP 18 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 18 continued from previous page)

b. Manually DUMP steam using SG atmospherics to MAINTAIN cooldown rate in RCS cold legs - LESS THAN 100°F/HR

b. DISPATCH NPO to dump steam using SG atmospherics per 3-SOP-ESP-001.

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c. WHEN the LO-PRESS PRESSURE BLOCK SI permissive lite illuminates, THEN Momentarily PLACE Both PRZR Low Pressure SI Block Switches To BLOCK (Panel SBF-2)

- SI Start-Up Block Train A
- SI Start-Up Block Train B

d. CHECK RCS cold leg temperatures - GREATER THAN 320°F

d. PERFORM the following:

1) STOP SG depressurization.

2) GO To Step 19.

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e. CHECK SG pressures - LESS THAN 275 PSIG

e. PERFORM the following:

1) WHEN SG pressure is less than 275 psig, THEN PERFORM Step 18.f.

2) GO To Step 19.

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f. CONTROL SG atmospherics to maintain SG pressures at 275 psig

f. DIRECT NPO to maintain SG pressures at 275 psig using atmospherics per 3-SOP-ESP-001.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

19. **CHECK Reactor Subcritical:**

- Intermediate Range startup rate channels - Zero or Negative
- Source Range startup rate channels - 0 or Negative

CONTROL SG atmospherics to stop SG depressurization and ALLOW RCS heatup.

NOTE

Depressurization of SGs may result in SI actuation. SI should be reset to permit manual loading of equipment on 480V AC bus.

20. **CHECK SI Signal Status:**

a. CHECK SI - HAS BEEN ACTUATED

a. PERFORM the following:

1) WHEN SI actuates, THEN PERFORM Step 20.b, through Step 24, Page 27.

2) GO To Step 25, Page 27.

(STEP 20 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 20 continued from previous page)

*	b. CHECK verification of SI automatic actions, Steps 2 through 12 of 3-RO-1, BOP OPERATOR ACTIONS DURING USE OF EOPS - COMPLETE	b. PERFORM the following: 1) VERIFY the following control switches are in SI positions: • FCU dampers • Valves 1104 AND 1105 • Control Room A/C to 10% incident mode 2) DISPATCH NPO to SET the switches for SWN-FCV-1176 AND SWN-FCV-1176A to OPEN.
*	c. PRESS both SI reset buttons on panel SBF-2: • Train 1 SI Reset • Train 2 SI Reset	

(STEP 20 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 20 continued from previous page)

	d. CHECK SI - RESET • SI ACTUATED light - EXTINGUISHED	d. PERFORM the following: 1) PLACE SI block key switches to DEFEAT (SBF-2): • Manual Defeat SI Train A • Manual Defeat SI Train B 2) PRESS pin resets on the following SI relays: • <u>Logic Cabinet G-3</u>: • SI-1, SI Train A Relay (Grid A-1) • SI-11, SI Train A Relay (Grid A-2) • <u>Logic Cabinet G-5</u>: • SI-2, SI Train B Relay (Grid A-1) • SI-12, SI Train B Relay (Grid A-2) _____

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21.	**CHECK Containment Isolation Phase A:**	
	a. CHECK Phase A - ACTUATED	a. Manually ACTUATE Phase A.
	b. CHECK Phase A Valves - CLOSED • REFER To ATTACHMENT 3, PHASE A VALVE CLOSURE LIST	b. PERFORM the following: 1) Manually CLOSE valve(s). 2) IF unable to close valve(s), THEN DISPATCH NPO to close valve(s).
22.	**CHECK Containment Isolation Valve Seal Water Status:**	
	a. CHECK Auto IVSW valves - OPEN • IV-AOV-1410 • IV-AOV-1413 • IV-AOV-6200 • IV-AOV-6201	a. Manually OPEN valves.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

23. **VERIFY Containment Ventilation Isolation:**

a. CHECK purge valves - CLOSED

- FCV-1170
- FCV-1171
- FCV-1172
- FCV-1173

a. PERFORM THE following:

1) PLACE the following control switches to CLOSE: (Panel SNF)

- VS-FCV-1170, 72 Cont Bldg Purge Valves
- VS-FCV-1171, 73 Cont Bldg Purge Valves

2) IF unable to close valve(s), THEN DISPATCH NPO to set purge valve control switches to CLOSE.

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b. CHECK pressure relief valves - CLOSED

- PCV-1190
- PCV-1191
- PCV-1192

b. PERFORM THE following:

1) PLACE the following control switches to CLOSE: (Panel SNF)

- VS-PCV-1190, Cont Bldg Press Relief Valve (Inside)
- VS-PCV-1191, 92, Cont Bldg Press Relief Valves (Outside)

2) IF unable to close valve(s), THEN DISPATCH NPO to set prssure relief valve control switches to CLOSE.

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c. CHECK WCCPP low pressure Zone Alarms - NOT LIT

c. DISPATCH NPO to check Station Air makeup and N_2 backup to WCCPP for affected Zone.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24.	**CHECK Containment Pressure - HAS REMAINED LESS THAN 22 PSIG**	PERFORM the following: a. DETERMINE if containment spray signal actuated: • OSPDS b. IF containment spray signal has NOT been actuated, THEN manually PRESS both Cont. Spray C.I. Phase B buttons on panel SBF-1. c. DISPATCH NPO to ensure the following valves are closed: • CH-MOV-222, Seal Water Return Isolation Valve • AC-FCV-625, RCP Thermal Barrier CCW Return • AC-MOV-789, RCP Thermal Barrier CCW Return • AC-MOV-769, RCP CCW Supply • AC-MOV-797, RCP CCW Supply • AC-MOV-784, RCP CCW Bearing Return Isolation • AC-MOV-786, RCP CCW Bearing Return Isolation d. PRESS both Cont Spray Reset pushbuttons on panel SBF-1.
25.	**CHECK Core Exit TCs - LESS THAN 1200°F**	IF core exit temperatures are greater than 1200°F AND increasing, THEN GO To SACRG-1, Severe Accident Control Room Guideline Initial Response.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

26. **DETERMINE If 480V Safeguards Power Is Restored:**

a. Check 480V AC SAFEGUARDS buses - ANY ENERGIZED

- 480V Buses 2A and 3A

OR

- 480V Bus 5A

OR

- 480V Bus 6A

a. GO To Step 27, Page 29.

b. GO To Step 29, Page 32

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27.	**CONTINUE To Control RCS Conditions And MONITOR Plant Status:**	
	a. CHECK status of local actions: • AC power restoration • RCP seal isolation	
	b. Check BORIC ACID TANK LOW TEMP alarm on panel SFF - CLEAR	b. Refer to 3-ARP-009 for Panel SFF as time permits.
	c. CHECK SPENT FUEL PIT LEVEL alarm on panel SKF - CLEAR	c. PERFORM the following: 1) DISPATCH NPO to monitor level. 2) INITIATE makeup to the spent fuel pit per 3-SOP-SFP-001.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
28.	**Determine if MCC-312A should be used:**	
	a. INSPECT 480V safeguards buses for damage	
	b. CHECK 480V safeguards buses - NONE CAPABLE OF BEING ENERGIZED	b. RETURN To Step 13, Page 15
	c. CHECK Appendix "R" Diesel - RUNNING UNLOADED	c. DISPATCH NPO to start IP3 Appendix "R" Diesel per 3-SOP-EL-013, APPENDIX R DIESEL GENERATOR OPERATION OR CONTACT IP2 to start IP2 Appendix "R" Diesel per 2-SOP-27.6, UNIT 2 APPENDIX R DIESEL GENERATOR OPERATION.
	d. ENERGIZE MCC-312A per ATTACHMENT 4, ENERGIZING MCC-312A FROM BUS 312 OR 313, Page 51	

(STEP 28 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 28 continued from previous page)

e. CHECK MCC-312A - ENERGIZED

e. PERFORM the following:

1) WHEN MCC-312A is energized, THEN START the following equipment per 3-SOP-EL-012, OPERATION OF THE ALTERNATE SAFE SHUTDOWN EQUIPMENT

- 38 SW Pump
- 32 CCW Pump
- 31 OR 32 Charging Pump
- 32 PAB Exhaust Fan

2) Return To Step 13, Page 15

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f. START the following equipment per 3-SOP-EL-012, OPERATION OF THE ALTERNATE SAFE SHUTDOWN EQUIPMENT

- 38 SW Pump
- 32 CCW Pump
- 31 OR 32 Charging Pump
- 32 PAB Exhaust Fan

g. Return To Step 13, Page 15

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29.	**STABILIZE SG Pressures:**	
	a. CONTROL SG atmospherics to stabilize SG pressures: • Manual position OR • Automatic setpoint	a. DIRECT NPO to control SG atmospherics per 3-SOP-ESP-001.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

30. **VERIFY Service Water System Operation:**

a. CLOSE 1104 and 1105

b. DISPATCH NPO to close the following:

- SWN-6, SWP's 34,35,36 To Conventional Essential Header Discharge Isolation
- SWN-7, SWP's 31,32,33 To Conventional Essential Header Discharge Isolation

c. DISPATCH NPO to close the following:

- SWN-FCV-1111, SWP's 34,35,36 To Conventional Non-Essential Header Discharge Isolation
- SWN-FCV-1112, SWP's 31,32,33 To Conventional Non-Essential Header Discharge Isolation

c. IF unable to close both SWN-FCV-1111 and SWN-FCV-1112, THEN DISPATCH NPO to close the following:

1) TB , 33 Ft, H_2 Coolers

- SWT-24, PCV-1180 & PCV-1180A Bypass
- SWT-23-1, PCV-1180 Inlet Isolation
- SWT-235-1, PCV-1180A Inlet Isolation

2) TB, 15 Ft, South West Corner (over SGBD HX No.4)

- SWT-242, Service Water To S/G Blowdown Recovery Hx No. 4 Inlet Isolation

3) TB, 15 Ft, THCC

- SWT-18-1, 31 Closed Cooling Hx Inlet Isolation
- SWT-18-2, 32 Closed Cooling Hx Inlet Isolation

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

THE LOADS PLACED ON THE 480V AC BUSES SHOULD NOT EXCEED THE CAPACITY OF THE POWER SOURCE.

NOTE

- Equipment on 480V buses supplied by Offsite Power or EDGs should be operated as described in 3-SOP-EL-015.
- Equipment on 480V buses supplied by Appendix "R" Diesel should be operated in accordance with 3-SOP-EL-014, ENERGIZATION OF THE 480V BUSES FROM THE APPENDIX R DIESEL GENERATOR.

31. **IF 480V buses are being supplied by EDGs or Outside power, INITIATE Loading The Following Equipment On Energized 480V AC Buses:**

    - MCCs
    - Battery Chargers
    - PAB Ventilation
    - Instrument air compressor(s)

    IF Appendix R diesel is supplying the 480V buses, THEN GO To Step 35, Page 38

32. **CHECK ESW and Backup SW pumps - AT LEAST 2 RUNNING**

    PERFORM the following:

    a. START ESW or Backup SW pump(s).

    b. IF two SW pumps can NOT be started on essential header, THEN INITIATE ATTACHMENT 1, ESSENTIAL SERVICE WATER ALIGNMENT, Page 39.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
33.	**CHECK Component Cooling Water pumps For Charging Pump Cooling - ANY RUNNING**	PERFORM the following: a. OPERATE running charging pump at maximum speed until cooling is established. b. DISPATCH NPO to align City Water Back-up supply to charging pumps per 3-SOP-ESP-001, LOCAL OPERATION OF SAFE SHUTDOWN EQUIPMENT.

CAUTION

HIGH VCT TEMPERATURE, AS INDICATED ON SEAL WATER RETURN TI-117, MAY CAUSE VAPOR BINDING WHEN CHARGING PUMP IS STARTED.

34.	**DETERMINE If Charging Flow Has Been Established:**	
	a. CHECK charging pump suction valves - BOTH ENERGIZED AND ONE VALVE OPEN • CH-LCV-112B	a. PERFORM the following: 1) OPEN CH-LCV-112B and manually or locally CLOSE CH-LCV-112C.

(STEP 34 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(Step 34 continued from previous page) OR • CH-LCV-112C	2) IF unable to open CH-LCV-112B, THEN DISPATCH NPO to perform the following: a) OPEN CH-288, RWST To Charging Pumps Suction Isolation. (32 Charging Pump Cell) b) WHEN CH-288 is open, THEN manually or locally CLOSE CH-LCV-112C.
b.	CHECK CH-AOV-204B, Normal Charging Isolation - OPEN	b. PERFORM the following: 1) OPEN CH-AOV-204B. 2) IF unable to open CH-AOV-204B, THEN OPEN CH-AOV-204A, Alternate Charging Isolation.
c.	CHECK HCV-142 - FULLY OPEN	c. IF HCV-142 will NOT open, THEN DISPATCH NPO to open CH-227, HCV-142 Manual Bypass. (PAB, 41 ft., Charging and RCP Seal Injection Pipe Pen Area)

(STEP 34 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

(Step 34 continued from previous page)

d.	CHECK charging pumps - ANY RUNNING	d. PERFORM the following: 1) PLACE charging pump speed controller in MAN and ADJUST to starting position. 2) START one charging pump.
e.	ADJUST charging pump speed to maintain desired PRZR level	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

If RCP seal cooling was previously isolated, further cooling of the RCP seals will be established by natural circulation cooldown as directed in subsequent procedures.

35. **SELECT Recovery Procedure:**

a. CHECK RCS subcooling based on qualified core exit TCs - GREATER THAN 40°F [SEE TABLE BELOW]

RCS PRESSURE	RCS SUBCOOLING
>1900 psig	[63°F]
>1000 psig	[78°F]
≤1000 psig	[112°F]

a. GO To 3-ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED.

b. CHECK PRZR level - Can be MAINTAINED GREATER THAN 14% [32%]

b. GO To 3-ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED.

c. CHECK SI equipment-ACTUATED WITH INJECTION FLOW UPON AC POWER RESTORATION

c. GO To 3-ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED.

d. GO To 3-ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED

-END-

ATTACHMENT 1 (Attachment page 1 of 7)
ESSENTIAL SERVICE WATER ALIGNMENT

1. **IF only one SW pump is supplying Essential Header, THEN PERFORM the following:**

   a. ENSURE 1104, Serv Wtr Cont Clg, and 1105, Serv Wtr Cont Clg, are closed.

   b. DIRECT NPO to monitor temperature of running EDGs and TRIP EDGs when Jacket Water temperature exceeds the High-High temperature alarm setpoint.

   c. MONITOR ESW header pressure.

      - IF ESW header pressure can NOT be maintained above SERVICE WTR HDR HIGH LOW PRESS alarm (panel SJF) setpoint, THEN DIRECT NPO to TRIP EDGs.

   d. DISPATCH NPO to ensure the following valves are closed and NOTIFY CR when valves are closed:

      - SWN-6, SWP's 34,35,36 To Conventional Essential Header Discharge Isolation

      - SWN-7, SWP's 31,32,33 To Conventional Essential Header Discharge Isolation

   e. IF SWN-6 OR SWN-7 can not be isolated, THEN PERFORM the following:

      - isolate SW to MBFP oil cooler

      - isolate SW to T.L.O. cooler

      - isolate SW to H_2 Seal Oil coolers

(STEP 1 CONTINUED ON NEXT PAGE)

ATTACHMENT 1 (Attachment page 2 of 7)
ESSENTIAL SERVICE WATER ALIGNMENT

(Step 1 continued from previous page)

f. WHEN SWN-6 and SWN-7 (or downstream oil cooler valves) are isolated, THEN PERFORM the following:

1) IF any EDG was shutdown due to SW, THEN PERFORM the following:

a) DIRECT NPO to perform the following:

1. Re-START EDG(s) and ENERGIZE associated 480V Bus.

2. MONITOR temperature of running EDGs and TRIP EDGs when Jacket Water temperature exceeds the High-High temperature alarm setpoint.

b) ENSURE at least one ESW/Backup pump is running.

c) MONITOR ESW header pressure.

- IF ESW header pressure can NOT be maintained above SERVICE WTR HDR HIGH LOW PRESS alarm (panel SJF) setpoint, THEN DIRECT NPO to TRIP EDGs.

d) IF EDG cooling can be maintained, THEN RETURN To next Procedure Section step in effect.

e) IF EDG cooling can NOT be maintained, THEN GO To Step 2.b of this Attachment.

ATTACHMENT 1 (Attachment page 3 of 7)
ESSENTIAL SERVICE WATER ALIGNMENT

2. **IF no ESW pumps are running, THEN PERFORM the following:**

   a. IF NO EDGs are running, THEN RETURN To next Procedure Section step in effect.

   b. IF any EDG is running, THEN PERFORM the following:

      1) TRIP running EDGs.

      2) DISPATCH NPO to close the following:

         - SWN-FCV-1111, SWP's 34,35,36 To Conventional Non-Essential Header Discharge Isolation

         - SWN-FCV-1112, SWP's 31,32,33 To Conventional Non-Essential Header Discharge Isolation

      3) IF SW pumps 31, 32, and 33, are aligned to Non-Essential SW header, THEN DISPATCH NPO to align available EDGs to Non-Essential SW header as follows:

         a) ENSURE BOTH of the following valves are open:

            - SWN-29, D.G. Header Supply Inlet Isolation From SWP's 34, 35, 36 Discharge Header

            - SWN-30, D.G. Header Supply Inlet Isolation From SWP's 31, 32, 33 Discharge Header

         b) IF 31 EDG is available, THEN PERFORM the following:

            1. CLOSE SWN-62-2, 31 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.

            2. OPEN SWN-62-1, 31 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.

            3. Emergency START 31 EDG per 3-SOP-EL-001 and ENERGIZE 480V Bus 2A and 3A.

(STEP 2 CONTINUED ON NEXT PAGE)

ATTACHMENT 1 (Attachment page 4 of 7)
ESSENTIAL SERVICE WATER ALIGNMENT

(Step 2 continued from previous page)

c) IF 32 EDG is available, THEN PERFORM the following:

1. CLOSE SWN-62-4, 32 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.

2. OPEN SWN-62-3, 32 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.

3. Emergency START 32 EDG per 3-SOP-EL-001 and ENERGIZE 480V Bus 6A.

d) IF 33 EDG is available, THEN PERFORM the following:

1. CLOSE SWN-62-6, 33 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.

2. OPEN SWN-62-5, 33 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.

3. Emergency START 33 EDG per 3-SOP-EL-001 and ENERGIZE 480V Bus 5A.

(STEP 2 CONTINUED ON NEXT PAGE)

ATTACHMENT 1 (Attachment page 5 of 7)
ESSENTIAL SERVICE WATER ALIGNMENT

(Step 2 continued from previous page)

4) IF SW pumps 34, 35, and 36, are aligned to Non-Essential SW header, THEN DISPATCH NPO to align available EDGs to Non-Essential SW header as follows:

   a) ENSURE BOTH of the following valves are open:

      - SWN-29, D.G. Header Supply Inlet Isolation From SWP's 34, 35, 36 Discharge Header
      - SWN-30, D.G. Header Supply Inlet Isolation From SWP's 31, 32, 33 Discharge Header

   b) IF 31 EDG is available, THEN PERFORM the following:

      1. CLOSE SWN-62-1, 31 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.
      2. OPEN SWN-62-2, 31 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.
      3. Emergency START 31 EDG per 3-SOP-EL-001 and ENERGIZE 480V Buses 2A and 3A.

   c) IF 32 EDG is available, THEN PERFORM the following:

      1. CLOSE SWN-62-3, 32 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.
      2. OPEN SWN-62-4, 32 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.
      3. Emergency START 32 EDG per 3-SOP-EL-001 and ENERGIZE 480V Bus 6A.

(STEP 2 CONTINUED ON NEXT PAGE)

ATTACHMENT 1
ESSENTIAL SERVICE WATER ALIGNMENT

(Step 2 continued from previous page)

d) IF 33 EDG is available, THEN PERFORM the following:

1. CLOSE SWN-62-5, 33 D.G. Supply Header From SWP's 31, 32, 33 Cooler Inlet Isolation.

2. OPEN SWN-62-6, 33 D.G. Supply Header From SWP's 34, 35, 36 Cooler Inlet Isolation.

3. Emergency START 33 EDG per 3-SOP-EL-001 and ENERGIZE 480V Bus 5A.

3. **IF two Non-essential SW Pumps can be started, THEN START available pumps.**

4. **IF only one SW pump can be started on Non-Essential header, THEN PERFORM the following:**

a. DISPATCH NPO to close SWN-FCV-1111 and SWN-FCV-1112.

b. IF unable to close both SWN-FCV-1111 and SWN-FCV-1112, THEN DISPATCH NPO to close the following:

- TB, 33 Ft, H_2 Coolers:
  - SWT-24, PCV-1180 & PCV-1180A Bypass
  - SWT-23-1, PCV-1180 Inlet Isolation
  - SWT-235-1, PCV-1180A Inlet Isolation

- TB, 15 Ft, South West Corner:
  - SWT-242, Service Water To S/G Blowdown Recovery Hx No.4 Inlet Isolation

- TB, 15 Ft, THCC:
  - SWT-18-1, 31 Closed Cooling Hx Inlet Isolation
  - SWT-18-2, 32 Closed Cooling Hx Inlet Isolation

c. WHEN valves are closed, THEN START one available Non-Essential SW pump.

ATTACHMENT 1
ESSENTIAL SERVICE WATER ALIGNMENT

5. **RETURN To Procedure Section, Step In Effect**

-END OF ATTACHMENT-

ATTACHMENT 2 (Attachment page 1 of 1)

PREVENTING OVERHEATING OF EQUIPMENT AND INSTRUMENTATION

1. **DIRECT Security to open the following doors:**

   - Both Control Room access doors
   - Both ABFP room access doors
   - ABFP room roll up door

2. **OPEN doors on the following Control Room instrumentation racks:**

   - Supervisory Panels - one door on each end of panel
   - Flight panels - one door on each end of panel
   - Panels - A1 through A10
   - Panels - B1 through B6
   - Panels - B9 and B10
   - Panels - C5 through C10
   - Panels - D4 through D9

-END OF ATTACHMENT-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
PHASE A VALVE CLOSURE LIST

NOTE

Steps may be performed in any order and concurrently.

1. **VERIFY the following valves are closed: (Panel SKF)**

   - 550, N_2 To PRT (near SI reset pushbutton 48)
   - DW-AOV-2, Demin Water To Cont (near SI reset pushbutton 52)

2. **VERIFY Panel SNF status lights indicates the following valves are closed:**

   - Column 1, Panel SNF:
     - V-200A, Ltdn Orifice
     - V-200B, Ltdn Orifice
     - V-200C, Ltdn Orifice
     - V-201, Letdown Line
     - V-202, Letdown Line
     - V-519, PRT Spray Line

   - Column 2, Panel SNF:
     - V-552, PRT Spray Line
     - V-548, PRT Gas Anal
     - V-549, PRT Gas Anal

   - Column 3, Panel SNF:
     - V-791, Ex Ltdn Hx CCW
     - V-798, Ex Ltdn Hx CCW
     - V-793, Ex Ltdn Hx CCW
     - V-796, Ex Ltdn Hx CCW
     - V-956A, PRZR Stm Samp
     - V-956B, PRZR Stm Samp

(STEP 2 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3 (Attachment page 2 of 4)
PHASE A VALVE CLOSURE LIST

(Step 2 continued from previous page)

- Column 4, Panel SNF:
  - V-956C, PRZR Liq Samp
  - V-956D, PRZR Liq Samp
  - V-956E, Hot Leg Samp
  - V-956F, Hot Leg Samp
  - V-956G, Accum Samp
  - V-956H, Accum Samp
  - V-1702, RCDRN TP DIS

- Column 5, Panel SNF:
  - V-1705, RCDRN TP DIS
  - V-1723, Cnmt Smp P Dis
  - V-1728, Cnmt Smp P Dis
  - V-1786, Cnmt Vnt Hdr
  - V-1787, Cnmt Vnt Hdr
  - V-1788, RC Drn T Gas A
  - V-1789, RC Drn T Gas A

- Column 7, Panel SNF:
  - PCV-1214, SG 31 Blw Dn

- Column 8, Panel SNF:
  - PCV-1214A, SG 31 Blw Dn
  - PCV-1215, SG 32 Blw Dn
  - PCV-1215A, SG 32 Blw Dn
  - PCV-1216, SG 33 Blw Dn
  - PCV-1216A, SG 33 Blw Dn
  - PCV-1217, SG 34 Blw Dn
  - PCV-1217A, SG 34 Blw Dn
  - PCV-1223, SG 31 Samp
  - PCV-1223A, SG 31 Samp
  - PCV-1224, SG 32 Samp

(STEP 2 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3 (Attachment page 3 of 4)
PHASE A VALVE CLOSURE LIST

(Step 2 continued from previous page)

- Column 9, Panel SNF:
  - PCV-1224A, SG 32 Samp
  - PCV-1225, SG 33 Samp
  - PCV-1225A, SG 33 Samp
  - PCV-1226, SG 34 Samp
  - PCV-1226A, SG 34 Samp
  - PCV-1228, IA-VC
  - PCV-1229, Stm Air Ejec
  - PCV-1230, Stm Air Ejec

- Column 10, Panel SNF:
  - V-863, Acc N_2 Supply

- Column 11, Panel SNF:

  - DW-AOV-1, Demin Water Cont Isol
  - WD-AOV-1610, RCDT N_2 Cont Isol
  - SP-AOV-959, RHR Sample Cont Isol
  - VS-PCV-1234, Cont Rad Mon Isol
  - VS-PCV-1235, Cont Rad Mon Isol
  - VS-PCV-1236, Cont Rad Mon Isol
  - VS-PCV-1237, Cont Rad Mon Isol

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3 (Attachment page 4 of 4)
PHASE A VALVE CLOSURE LIST

3. **VERIFY the following valves are closed: (Panel JK1)**

   a. Row 1, Panel JK1:

   - SP-SOV-512, 32 FCU Sample To H_2 Analyzer A First Isol Valve
   - SP-SOV-513, 35 FCU Sample To H_2 Analyzer A First Isol Valve
   - SP-SOV-514, FCU 32,35 Sample To H_2 Anal A Header Isol Vlv
   - SP-SOV-506, 32 FCU Sample To H_2 Analyzer B First Isol Valve
   - SP-SOV-507, 34 FCU Sample To H_2 Analyzer B First Isol Valve
   - SP-SOV-508, 31 FCU Sample To H_2 Analyzer B First Isol Valve
   - SP-SOV-509, FCU 31,33,34 Sample To H_2 Analyzer B Header Isol Vlv

   b. Row 2, Panel JK1:

   - SP-SOV-511, Sample Ret To VC From H_2 Anal A Isolation Vavle
   - SP-SOV-510, Sample Ret To VC From H_2 Anal A Isolation Vavle
   - SP-SOV-516, Sample Ret To VC From H_2 Anal B Isolation Vavle
   - SP-SOV-515, Sample Ret To VC From H_2 Anal B Isolation Vavle

   c. Row 3, Panel JK1:

   - SP-AOV-958, RHR Sample Isolation

4. **IF Blowdown Flash Tank is in service, THEN DISPATCH NPO to ensure MW-PCV-1227, City Water To Blowdown Tank Isolation, is closed. (Indication in Blowdown Flash Tank Room)**

-END OF ATTACHMENT-

ATTACHMENT 4 (Attachment page 1 of 3)
ENERGIZING MCC-312A FROM BUS 312 OR 313

1. **IF desired to energize MCC-312A from Bus 312 (6900V Buses No 1 and 5), THEN PERFORM the following:**

   a. OPEN all load breakers on 480V Bus No. 312.

   b. ENSURE 480V Bus 312T313 Tie Breaker is open.

   c. OPEN MCC-312A breaker PCB Building 480V Distribution Panel PCE A.

   d. OPEN the following 6900V breakers and PLACE in TPO:

      - Station Service Transformer 5 (SST-5, supply breaker)
      - ST5, 6900V Bus No. 5 Normal Feed breaker
      - UT2-ST5, 6900V Bus No. 2-5 Tie breaker

   e. CLOSE the following breakers: (at 6900V Switchgear)

      - GT-35, 6900V Gas Turbine Substation Bus. supply breaker to 6900V Bus No. 5
      - UT1-ST5, 6900V Bus No. 1-5 Tie breaker
      - SS-312, 6900V Bus No. 1 supply breaker to Station Service Transformer #312

   f. CLOSE 480V Bus 52/312 Main Breaker.

ATTACHMENT 4 (Attachment page 2 of 3)
ENERGIZING MCC-312A FROM BUS 312 OR 313

NOTE

ATTACHMENT 3, Step 2.a may be performed concurrently; however, they SHALL be completed prior to continuing with subsequent steps in this attachment.

2. **IF desired to energize MCC-312A via BUS-313 (6900V Buses No 3 and 6) THEN PERFORM the following:**

   a. OPEN all (8) load breakers on 480V Bus No. 312.

   b. OPEN all (8) load breakers on 480V Bus No. 313.

   c. ENSURE 480V Bus 312T313 Tie Breaker is open.

   d. ENSURE 480V Bus 52/312 Main Bkeaker is open.

   e. OPEN MCC-312A breaker PCB Building 480V Distribution Panel PCE A.

   f. OPEN the following 6900V breakers and place in TPO:

      - Station Service Transformer 6 (SST-6, supply breaker)
      - ST6, 6900V Bus No. 6 Normal Feed breaker
      - UT4-ST6, 6900V Bus No. 4-6 Tie breaker
      - Station Service Transformer 3 (SST-3, supply breaker)

   g. CLOSE the following breakers: (at 6900V Switchgear)

      - GT-36, 6900V Gas Turbine Substation Bus. supply breaker to 6900V Bus No. 6
      - UT3-ST6, 6900V Bus No. 3-6 Tie breaker
      - SS-313, 6900V Bus No. 3 supply breaker to Station Service Transformer #313

   h. CLOSE 480V Bus 52/313 Main Breaker.

   i. CLOSE 480V Tie Breaker 312T313.

ATTACHMENT 4 (Attachment page 3 of 3)
ENERGIZING MCC-312A FROM BUS 312 OR 313

3. **RETURN To next Procedure Section step in effect:**

   - Procedure Section, Step 28.e, Page 31

-END OF ATTACHMENT-