

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

**S1.OP-AB.LOOP-0001(Q) REV. 23**

**LOSS OF OFF-SITE POWER**

- 
- ◆ Biennial Review Performed: Yes \_\_\_\_ No \_\_\_\_ NA ☒
  - ◆ DCP Packages and Affected Document Numbers incorporated into this revision: None
  - ◆ The following OTSCs were incorporated into this revision: None
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**REVISION SUMMARY:**

- ◆ Attachment 1, Step 13.0, Attachment 2, Step 5.0 and TBD (Page 8 of 12). **[80099009]**  
Provides the “trigger” to initiate the following procedures during the Loss Of Off-Site Power in conjunction with the loss of all three Emergency Diesel Generators:
  - S1.OP-SO.500-0125(Q), SBO Diesel - will energize the backup Vital Battery Chargers from the SBO Diesel Generator #1 - Vital Battery Chargers.
  - SC.OP-SO.500-0125(Q), SBO Diesel - Miscellaneous Switchyard will energize miscellaneous power panels from the SBO Diesel Generator #2 - SBO Diesel - Miscellaneous Switchyard needed to support 500KV breaker operation.

**IMPLEMENTATION REQUIREMENTS**

**Effective Date: December 15, 2009**

**None**

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ♦                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ♦                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ♦                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ♦                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ♦                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ♦                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ♦                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ♦                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

## LOSS OF OFF-SITE POWER

### 1.0 ENTRY CONDITIONS

Date: \_\_\_\_\_ Time: \_\_\_\_\_

1.1 All 500/13KV Transformers are de-energized.

1.2 1-EOP-LOPA-1, Loss of All AC Power, has been initiated.

### 2.0 IMMEDIATE ACTIONS

None

### 3.0 SUBSEQUENT ACTIONS

\_\_\_ 3.1 **INITIATE** Attachment 1, Continuous Action Summary.

#### CAUTION

**Operation of the Diesel Generator for more than 5 minutes without Service Water for cooling may cause damage to the Diesel Generator.**

3.2 Was this procedure entered from 1-EOP-LOPA-1, Loss of All AC Power?

\_\_\_ YES \_\_\_ NO —> **GO TO** Step 3.5

Time

↓  
V

\_\_\_ 3.3 **INITIATE** Attachment 2, Blackout Coping Actions, Part A.

\_\_\_ 3.4 **GO TO** Step 3.7

Time

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

- \_\_\_ 3.5 IF all the following conditions exist:
- ◆ Reactor power > P-7
  - ◆ Two or more 4KV Group Buses are de-energized
  - ◆ 1-EOP-TRIP-1, Reactor Trip or Safety Injection, has NOT been initiated,
- THEN **TRIP** Reactor AND **GO TO** 1-EOP-TRIP-1. Time
- \_\_\_ 3.6 IF any 500KV Bus Section is energized,  
AND any 13KV Bus Section is energized,  
THEN **GO TO** S1.OP-AB.LOOP-0003(Q), Partial Loss of Off-Site Power. Time
- \_\_\_ 3.7 Notify SM/CRS to **EVALUATE** the following:
- \_\_\_ ◆ Technical Specifications
  - \_\_\_ ◆ Event Classification Guide
- 3.8 Was an RHR pump running in Shutdown Cooling Mode?
- \_\_\_ NO      \_\_\_ YES ———> **GO TO** Step 3.10 Time
- |
- V
- \_\_\_ 3.9 **INITIATE** S1.OP-AB.RC-0004(Q), Natural Circulation,  
while continuing with this procedure.
- \_\_\_ 3.10 IF AT ANY TIME RHR is lost,  
THEN **INITIATE** the applicable procedure, while continuing with this procedure:
- \_\_\_ ◆ S1.OP-AB.RHR-0001(Q), Loss of RHR
  - \_\_\_ ◆ S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory
- \_\_\_ 3.11 IF AT ANY TIME Spent Fuel Cooling is lost,  
THEN **INITIATE** S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,  
while continuing with this procedure.

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

**NOTE**

When utilizing 23 Charging Pump, Unit 2 should monitor RWST level to ensure compliance with Technical Specification 3.5.5. If Unit 2 RWST approaches the minimum volume required to satisfy Technical Specification 3.5.5, then either continued operation of the 23 Charging Pump should be evaluated or appropriate compensatory actions implemented.

\_\_\_ 3.12 IF all Unit 1 Charging Pumps are unavailable,  
THEN **COORDINATE** with **Unit 2** to place 23 Charging Pump in service  
 using **Unit 2** RWST IAW Attachment 10.

3.13 Are two or more 4KV vital buses de-energized?

\_\_\_ YES    \_\_\_ NO ———>    **GO TO** Step 3.17

|

V

Time

\_\_\_ 3.14 **RESET** 230V Control Centers.

\_\_\_ 3.15 **DE-ENERGIZE** all SECs by placing the following breaker(s) in OFF  
 (Elev 100' Relay Rm):

\_\_\_ ♦ 1AVIB24            (1A SEC)

\_\_\_ ♦ 1BVIB27            (1B SEC)

\_\_\_ ♦ 1CVIB9             (1C SEC)

\_\_\_ 3.16 **GO TO** Step 3.20

Time

\_\_\_ 3.17 **RESET** EMERGENCY LOADING for affected SEC(s).

\_\_\_ 3.18 IF SEC does NOT reset,  
THEN **PLACE** breaker(s) OFF to de-energize affected SEC(s) (Elev 100' Relay Rm):

\_\_\_ ♦ 1AVIB24            (1A SEC)

\_\_\_ ♦ 1BVIB27            (1B SEC)

\_\_\_ ♦ 1CVIB9             (1C SEC)

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT OR 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90   | Time |
| ◆                                       | IF AT ANY TIME 1 SPT OR 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78   | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |



\_\_\_ 3.19 **RESET** 230V Control Centers.

3.20 Is Service Water supplied to running Diesel Generators?

\_\_\_ YES    \_\_\_ NO ———>    **GO TO** Step 3.35

↓  
V

Time

\_\_\_ 3.21 **INITIATE** Attachment 2, Blackout Coping Actions, Part D.

\_\_\_ 3.22 **START/STOP** available equipment listed on Attachment 3, Blackout SEC Loading, as required to support plant operation.

3.23 Are at least two 4KV Vital Buses energized?

\_\_\_ YES    \_\_\_ NO ———>    **GO TO** Step 3.31

↓  
V

Time

3.24 Is any 4KV Vital Bus being powered by a Diesel Generator?

\_\_\_ YES    \_\_\_ NO ———>    **GO TO** Step 3.42

↓  
V

Time

\_\_\_ 3.25 **INITIATE** Attachment 4, Loss of Group Buses, Part A, while continuing with this procedure.

\_\_\_ 3.26 **PLACE** one Primary Water Pump in AUTO.

\_\_\_ 3.27 **PLACE** one Boric Acid Pump in AUTO.

\_\_\_ 3.28 IF letdown is isolated,  
THEN:

\_\_\_ 3.28.1 **OPEN** 1CV2 and 1CV277 AND **PLACE** in Automatic.

\_\_\_ 3.28.2 **ENSURE** charging flow ≈ 80 gpm.

\_\_\_ 3.28.3 Simultaneously **OPEN** 1CV3, 1CV4 or 1CV5  
AND **ADJUST** 1CV18 to maintain letdown pressure at ≈ 300 psig.

\_\_\_ 3.28.4 **PLACE** 1CV18 in Automatic.

\_\_\_ 3.28.5 **PLACE** Master Flow Controller and 1CV55 in Automatic.

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

\_\_\_ 3.29 **RESTORE** Charging pump suction as follows:

\_\_\_ 3.29.1 **OPEN** VCT DISCH STOP VALVES:

\_\_\_ ◆ 1CV40

\_\_\_ ◆ 1CV41

\_\_\_ 3.29.2 **CLOSE** RWST TO CHG PUMP valves:

\_\_\_ ◆ 1SJ1

\_\_\_ ◆ 1SJ2

\_\_\_ 3.29.3 **PLACE** the following valves in AUTO:

\_\_\_ ◆ 1CV40

\_\_\_ ◆ 1CV41

\_\_\_ ◆ 1SJ1

\_\_\_ ◆ 1SJ2

\_\_\_ 3.30 **GO TO** Step 3.41

Time

\_\_\_ 3.31 IF Attachment 2, Blackout Coping Actions, Part A has NOT been initiated, THEN **INITIATE** Attachment 2, Part A.

\_\_\_ 3.32 **ATTEMPT** to place at least two Diesel Generators in service IAW applicable procedures, while continuing with this procedure:

\_\_\_ ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation

\_\_\_ ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation

\_\_\_ ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation

3.33 Is power lost to all 500/13KV Station Power Transformers?

\_\_\_ NO \_\_\_ YES ———> **GO TO** Step 3.54

Time

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V

\_\_\_ 3.34 **GO TO** Step 3.41

Time

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN</u> :   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

\_\_\_ 3.35 Attempt to **START** a Service Water Pump.

**CAUTION**

**Operation of the Diesel Generator for more than 5 minutes without Service Water for cooling may cause damage to the Diesel Generator.**

3.36 Is Service Water being supplied to running Diesel Generators?

\_\_\_ NO      \_\_\_ YES ———>  
           |  
           V

**GO TO** Step 3.22

Time

\_\_\_ 3.37 **OPEN** Diesel Generator output breakers.

\_\_\_ 3.38 **STOP** Diesel Generators.

\_\_\_ 3.39 **INITIATE** Attachment 2, Blackout Coping Actions, Part A.

Time

\_\_\_ 3.40 **CONTINUE** attempts to place at least two Diesel Generators and associated Service Water Pumps in service, while continuing with this procedure.

\_\_\_ 3.41 **INITIATE** Diesel Generator running checks for any operating Diesel Generator(s) IAW applicable procedures, while continuing with this procedure: **[C0588]**

\_\_\_ ♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation

\_\_\_ ♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation

\_\_\_ ♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation

\_\_\_ 3.42 Is 500KV Bus Section 2 energized from a source other than Salem Unit 3?

\_\_\_ YES      \_\_\_ NO ———>  
           |  
           V

**GO TO** Step 3.48

Time

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

3.43 Is 13KV Bus Section A energized?

☐ YES    ☐ NO ———>    **GO TO** Step 3.46  
           |  
           V

Time

☐ 3.44 IF 13KV BS A-F breaker is open,  
       THEN **INITIATE** action to determine and correct condition  
       causing 13KV BS A-F breaker to be open.

☐ 3.45 **GO TO** Step 3.65

Time

☐ 3.46 **INITIATE** action to determine and correct condition causing  
       500/13KV 1 - 3 Station Power Transformer trip.

☐ 3.47 **GO TO** Step 3.74

Time

3.48 Is 500KV Bus Section 1 energized?

☐ YES    ☐ NO ———>    **GO TO** Step 3.54  
           |  
           V

Time

3.49 Is 13KV Bus Section D energized?

☐ YES    ☐ NO ———>    **GO TO** Step 3.52  
           |  
           V

Time

☐ 3.50 IF 13KV BS C-D breaker is open,  
       THEN **INITIATE** action to determine and correct condition causing  
       13KV BS C-D breaker to be open.

☐ 3.51 **GO TO** Step 3.56

Time

☐ 3.52 **INITIATE** action to determine and correct condition causing  
       500/13KV 2 - 4 Station Power Transformer trip.

☐ 3.53 **GO TO** Step 3.86

Time

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet



- \_\_\_ 3.54 IF both 500KV Bus Sections 1 and 2 are de-energized,  
OR power is lost to all 500/13KV Station Power Transformers,  
THEN:
- \_\_\_ 3.54.1 Coordinate with Unit 2 to **PERFORM** the following:
- \_\_\_ A. IF both 500KV Bus Sections 1 and 2 are de-energized,  
THEN **OPEN** ALL 500KV BS breakers.
- \_\_\_ B. **OPEN** the following 500KV Circuit Switchers to separate  
Salem 13KV System from 500KV System:
- \_\_\_ ♦ 1T60 (Unit 1)
- \_\_\_ ♦ 3T60 (Unit 1)
- \_\_\_ ♦ 2T60 (Unit 2)
- \_\_\_ ♦ 4T60 (Unit 2)
- \_\_\_ 3.54.2 Direct Unit 2 to **OPEN** the following 4KV breakers:
- \_\_\_ ♦ 13KV BS A-B
- \_\_\_ ♦ 13KV BS D-E
- \_\_\_ ♦ 21ESD
- \_\_\_ ♦ 21HSD
- \_\_\_ ♦ 22FSD
- \_\_\_ ♦ 22GSD

(step continued on next page)

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ♦                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ♦                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ♦                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ♦                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ♦                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ♦                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ♦                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ♦                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

3.54 (continued)

\_\_\_ 3.54.3 **OPEN** the following breakers:

- \_\_\_ ◆ 13KV BS A-F
- \_\_\_ ◆ 13KV BS C-D
- \_\_\_ ◆ 11ESD (and 125 VDC control power)
- \_\_\_ ◆ 11HSD (and 125 VDC control power)
- \_\_\_ ◆ 12FSD (and 125 VDC control power)
- \_\_\_ ◆ 12GSD (and 125 VDC control power)

\_\_\_ 3.54.4 Direct Unit 2 to **ENSURE** the following 4KV breakers are OPEN:

- \_\_\_ ◆ 23CW 1AD
- \_\_\_ ◆ 24CW 9AD
- \_\_\_ ◆ 2CW 2BD
- \_\_\_ ◆ 23ASD
- \_\_\_ ◆ 24ASD
- \_\_\_ ◆ 23BSD
- \_\_\_ ◆ 24BSD
- \_\_\_ ◆ 23CSD
- \_\_\_ ◆ 24CSD

\_\_\_ 3.54.5 **ENSURE** the following 4KV breakers are OPEN:

- \_\_\_ ◆ 13CW 1AD
- \_\_\_ ◆ 14CW 9AD
- \_\_\_ ◆ 1CW 8AD
- \_\_\_ ◆ 13ASD
- \_\_\_ ◆ 14ASD
- \_\_\_ ◆ 13BSD
- \_\_\_ ◆ 14BSD
- \_\_\_ ◆ 13CSD
- \_\_\_ ◆ 14CSD

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

**NOTE**

Attachment 9, Energizing Salem-Hope Creek Tie Line (5037) From Salem Unit 3 is to be initiated when requested by Hope Creek Operations.

\_\_\_ 3.55 Can the 13KV Ring Bus (North) be energized? (all the following conditions are established):

- \_\_\_ ◆ Unit 3 is available
- \_\_\_ ◆ 13KV FAULT alarms on OHA Windows K are clear (K-4, K-12)
- \_\_\_ ◆ OHA K-20, 13KV BKR FAIL, is clear
- \_\_\_ ◆ OHA K-14, 500KV BKR FAIL, is clear for 500KV BS 1-5, 1-8, and 1-9 breakers
- \_\_\_ ◆ PROTECTIVE RELAY ACTUATION alarms for SPTs on OHA Window K are clear on both Units (K-3, K-5, and K-36)

\_\_\_ YES    \_\_\_ NO —>    **GO TO** Step 3.98

↓  
V

Time

\_\_\_ 3.55.1 **OPEN** the following 13KV breakers:

- \_\_\_ ◆ 13KV BS 1-2
- \_\_\_ ◆ 13KV BS 2-3
- \_\_\_ ◆ 13KV BS 4-5

\_\_\_ 3.55.2 Direct Unit 2 to **OPEN** the following 13KV breakers:

- \_\_\_ ◆ 13KV BS 1-6
- \_\_\_ ◆ 13KV BS 3-4
- \_\_\_ ◆ 13KV BS 5-6

\_\_\_ 3.55.3 **INITIATE** S3.OP-SO.JET-0002(Q), Dead Bus Operation - Station Blackout AND PREPARE to START Unit 3 when directed by this procedure.

(step continued on next page)

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ♦                                       | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ♦                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ♦                                       | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ♦                                       | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ♦                                       | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ♦                                       | IF AT ANY TIME 2 SPT OR 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90   | Time |
| ♦                                       | IF AT ANY TIME 1 SPT OR 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78   | Time |
| ♦                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

3.55 (continued)

**NOTES**

- ◆ Attachment 9, Energizing Salem-Hope Creek Tie Line (5037) From Salem Unit 3 is to be initiated when requested by Hope Creek Operations.
- ◆ Attachment 6, Part A will NOT support Hope Creek operation from Unit 3. Attachment 6, Part A connects 13KV Bus Section D to 13KV Bus Section 4. Supports 14 SPT and 23 SPT operation from Unit 3.
- ◆ Attachment 6, Part B, connects 13KV Bus Section A to 13KV Bus Section 1. Supports 13 SPT and 24 SPT operation from Unit 3. Part B must be used in conjunction with Attachment 9 when both Salem and Hope Creek stations are experiencing a loss of all AC power.

- 3.55.4 IF Unit 1 has less than two energized 4KV Vital Buses  
THEN direct an Operator to **PERFORM** Attachment 6,  
13KV Cross-Tie Disconnect Emergency Operation, Part A OR Part B.
- 3.55.5 IF Attachment 6, Part A OR Part B is being performed,  
THEN **WAIT** for Attachment 6, Part A OR Part B to be completed  
before continuing with this procedure.
- 3.55.6 IF 13KV Bus Section D is aligned to 13KV Bus Section 4  
(Attachment 6, Part A, completed)  
THEN:
  - A. **PRESS** the Mimic Bus 13KV BUS SEC. 2-3 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bus Bezel 2-3  
MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.
  - B. **PRESS** 13KV Ring Bus 2-3 CLOSE pushbutton,  
AND ENSURE 13KV BS 2-3 breaker is closed.
  - C. **PRESS** the Mimic Bus 13KV BUS SEC. 4-5 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bus Bezel 4-5  
MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.
  - D. **PRESS** 13KV Ring Bus 4-5 CLOSE pushbutton,  
AND ENSURE 13KV BS 4-5 breaker is closed.
  - E. Direct Unit 2 to **CLOSE** the following breakers:
    - ◆ 13KV BS 3-4
    - ◆ 13KV BS 5-6

(step continued on next page)

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet



3.55 (continued)

- \_\_\_ 3.55.7 IF 13KV Bus Section A has been aligned to 13KV Bus Section 1,  
(Attachment 6, Part B, completed)  
THEN:
- \_\_\_ A. **PRESS** the Mimic Bus 13KV BUS SEC. 1-2 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bezel 1-2  
MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.
- \_\_\_ B. **PRESS** 13KV Ring Bus 1-2 CLOSE pushbutton,  
AND ENSURE 13KV BS 1-2 breaker is closed.
- \_\_\_ C. **PRESS** the Mimic Bus 13KV BUS SEC. 4-5 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bus Bezel 4-5  
MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.
- \_\_\_ D. **PRESS** 13KV Ring Bus 4-5 CLOSE pushbutton,  
AND ENSURE 13KV BS 4-5 breaker is closed.
- \_\_\_ E. Direct Unit 2 to **CLOSE** the following breakers:
- \_\_\_ ♦ 13KV BS 3-4
- \_\_\_ ♦ 13KV BS 1-6

**NOTE**

Because of an electrical interlock, 13KV Bus Section 1 and Bus Section 4 cannot be cross-tied from the Control Rooms. The interlock does NOT prevent local/manual breaker operation.

- \_\_\_ F. Direct NEO to manually **CLOSE** the following breakers  
at the 13KV North Ring Bus:
- \_\_\_ ♦ 13KV BS 2-3
- \_\_\_ ♦ 13KV BS 5-6

**CAUTION**

**Closing Unit 3 Output Breaker will energize 11, 12, 21, & 22 SPTs.**

- \_\_\_ 3.55.8 **START** Unit 3 IAW S3.OP-SO.JET-0002(Q),  
Dead Bus Operation - Station Blackout.

(step continued on next page)

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT OR 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90   | Time |
| ◆                                       | IF AT ANY TIME 1 SPT OR 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78   | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

3.55 (continued)

- \_\_\_ 3.55.9 IF 13KV Bus Section A is energized,  
THEN **CLOSE** 13KV BS A-F breaker, as follows:
  - \_\_\_ A. **PRESS** the Mimic Bus 13KV BUS SEC. A-F BKR pushbutton,  
AND **ENSURE** Control Console 13KV Bus Bezel A-F  
MIMIC BUS INTLK CLOSE SELECTION is illuminated.
  - \_\_\_ B. **PRESS** A-F CLOSE pushbutton,  
AND **ENSURE** 13KV BS A-F breaker is closed.
- \_\_\_ 3.55.10 IF 13KV Bus Section D is energized,  
THEN **CLOSE** 13KV BS C-D breaker, as follows:
  - \_\_\_ A. **PRESS** the Mimic Bus 13KV BUS SEC. C-D BKR pushbutton,  
AND **ENSURE** Control Console 13KV Bus Bezel C-D  
MIMIC BUS INTLK CLOSE SELECTION is illuminated.
  - \_\_\_ B. **PRESS** C-D CLOSE pushbutton,  
AND **ENSURE** 13KV BS C-D breaker is closed.

(step continued on next page)

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN</u> :   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

3.55 (continued)

**CAUTIONS**

- ◆ **Maximum Unit 3 loading is to be maintained IAW S3.OP-SO.JET-0001(Q), Gas Turbine Operation, Exhibit 1, Estimated Installed Power Trim Curve.**
- ◆ **A Reactor Coolant Pump is NOT to be started when the associated 4KV Group Bus is energized from Unit 3.**

\_\_\_ 3.55.11 Coordinate with Unit 2 to **PERFORM** the following:

- \_\_\_ A. **DETERMINE** which 4KV Buses have priority.
- \_\_\_ B. **ENSURE** ALL 4KV breakers on de-energized Vital and Group Buses are OPEN.
- \_\_\_ C. IF 13KV Bus Section "A" OR 13KV Bus Section "D" is energized, THEN **ENERGIZE** any de-energized 4KV Vital Buses IAW applicable 4KV Vital Bus operating procedure(s).
- \_\_\_ D. IF the following breakers are OPEN,
  - ◆ 13KV BS 2-3
  - ◆ 13KV BS 4-5
  - ◆ 13KV BS 3-4
  - ◆ 13KV BS 5-6

THEN **ENERGIZE** Station Power Transformer from 13KV North Ring Bus, as follows:

- \_\_\_ 1. **PRESS** the Mimic Bus 13KV BUS SEC. 2-3 BKR pushbutton, AND **ENSURE** Control Console 13KV Ring Bezel 2-3 MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.
- \_\_\_ 2. **PRESS** 13KV Ring Bus 2-3 CLOSE pushbutton, AND **ENSURE** 13KV BS 2-3 breaker is closed.
- \_\_\_ 3. **PRESS** the Mimic Bus 13KV BUS SEC. 4-5 BKR pushbutton, AND **ENSURE** Control Console 13KV Ring Bus Bezel 4-5 MIMIC BUS INTERLOCK CLOSE SELECTION is illuminated.

(step continued on next page)

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT OR 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90   | Time |
| ◆ | IF AT ANY TIME 1 SPT OR 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78   | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

3.55 (continued)

- \_\_\_ 4. **PRESS** 13KV Ring Bus 4-5 CLOSE pushbutton,  
AND ENSURE 13KV BS 4-5 breaker is closed.
- \_\_\_ 5. Direct Unit 2 to **CLOSE** the following breakers:
- ◆ 13KV BS 3-4
  - ◆ 13KV BS 5-6
- \_\_\_ E. **ENERGIZE** selected 4KV Group Buses  
IAW applicable 4KV Group Bus operating procedure(s).
- \_\_\_ 3.55.12 **INITIATE** Attachment 4, Loss Of Group Buses,  
Part C - Group Buses Energized from Unit 3.
- \_\_\_ 3.55.13 **START** equipment as necessary to support plant operation  
IAW applicable operating procedure(s).

\_\_\_ 3.55.14 **GO TO** Step 3.98

Time

3.56 Has condition causing 13KV BS C-D breaker trip been corrected?

- ◆ 4KV Breaker Failure
  - 14ASD
  - 14BSD
  - 14CSD
  - 14CW9AD
- ◆ 14 SPT Differential (Reg or B/U)
- ◆ 14 SPT Ground Fault (Reg or B/U)
- ◆ 13KV BS D-E Breaker Failure
- ◆ 13KV BS C-D breaker problem

\_\_\_ NO      \_\_\_ YES ———>      **GO TO** Step 3.60

↓

V

Time

\_\_\_ 3.57 **CONTINUE** efforts to determine and correct cause of 13KV BS C-D breaker trip.

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN</u> :   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet



- \_\_\_ 3.58 IF AT ANY TIME 13 SPT becomes available,  
THEN GO TO Step 3.74 Time
- \_\_\_ 3.59 **GO TO** Step 3.56 Time
- \_\_\_ 3.60 **RESET** tripped lockout relays IAW Attachment 5, Multi-Trip Reset Scheme.
- \_\_\_ 3.61 **PLACE** 14 SPT in service IAW SC.OP-SO.13-0014(Q),  
4, 14, and 23 Station Power Transformers Operation.
- \_\_\_ 3.62 **REMOVE** operating Diesel Generators from service  
AND RESTORE power to 4KV Vital Buses as necessary to support plant operation  
IAW applicable procedure(s):
- \_\_\_ ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- \_\_\_ ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- \_\_\_ ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- \_\_\_ 3.63 IF Attachment 2, Blackout Coping Actions, Part A was performed,  
THEN PERFORM Attachment 2, Part B and Part C.
- \_\_\_ 3.64 **GO TO** Section 4.0 Time
- 3.65 Has condition causing 13KV BS A-F breaker trip been corrected?
- ◆ 4KV Breaker Failure
- 13ASD
- 13BSD
- 13CSD
- 13CW1AD
- ◆ 13 SPT Differential (Reg or B/U)
- ◆ 13 SPT Ground Fault (Reg or B/U)
- ◆ 13KV BS A-B Breaker Failure
- ◆ 13KV BS A-F breaker problem
- \_\_\_ NO    \_\_\_ YES ———> **GO TO** Step 3.69 Time
- ↓
- V
- \_\_\_ 3.66 **CONTINUE** efforts to determine and correct cause of 13KV BS A-F breaker trip.

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

- \_\_\_ 3.67 IF AT ANY TIME 14 SPT becomes available,  
THEN GO TO Step 3.86 Time
- \_\_\_ 3.68 **GO TO** Step 3.65 Time
- \_\_\_ 3.69 **RESET** tripped lockout relays IAW Attachment 5, Multi-Trip Reset Scheme.
- \_\_\_ 3.70 **PLACE** 13 SPT in service IAW SC.OP-SO.13-0013(Q),  
3, 13, and 24 Station Power Transformers Operation.
- \_\_\_ 3.71 **REMOVE** operating Diesel Generators from service  
AND RESTORE power to 4KV Vital Buses as necessary to support plant operation  
IAW applicable procedure(s):
- \_\_\_ ♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- \_\_\_ ♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- \_\_\_ ♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- \_\_\_ 3.72 IF Attachment 2, Blackout Coping Actions, Part A, was performed,  
THEN PERFORM Attachment 2, Part B and Part C.
- \_\_\_ 3.73 **GO TO** Section 4.0 Time
- 3.74 Can either 1 SPT OR 3 SPT be energized?
- \_\_\_ NO      \_\_\_ YES ———> **GO TO** Step 3.78 Time
- |
- V
- \_\_\_ 3.75 **CONTINUE** efforts to determine and correct cause of 500/13KV 1-3 transformer trip.
- \_\_\_ 3.76 IF AT ANY TIME 2 SPT OR 4 SPT becomes available,  
THEN GO TO Step 3.90 Time
- \_\_\_ 3.77 **GO TO** Step 3.74 Time
- \_\_\_ 3.78 **RESET** tripped lockout relays IAW Attachment 5, Multi-Trip Reset Scheme.

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ♦                                       | IF AT ANY TIME RHR is lost,<br>THEN <b>INITIATE</b> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ♦                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br>THEN <b>INITIATE</b> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ♦                                       | IF AT ANY TIME a Diesel Generator becomes available,<br>THEN:   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/>THEN <b>ENERGIZE</b> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ♦                                       | IF AT ANY TIME 13 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.74   | Time |
| ♦                                       | IF AT ANY TIME 14 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.86   | Time |
| ♦                                       | IF AT ANY TIME 2 SPT OR 4 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.90   | Time |
| ♦                                       | IF AT ANY TIME 1 SPT OR 3 SPT becomes available,<br>THEN <b>GO TO</b> Step 3.78   | Time |
| ♦                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br>THEN <b>INITIATE</b> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

- \_\_\_ 3.79 IF 1 SPT is available AND 3 SPT is NOT available,  
THEN:
  - \_\_\_ 3.79.1 **PLACE** 1 SPT in service IAW SC.OP-SO.13-0011(Q),  
1, 11, and 21 Station Power Transformers Operation.
  - \_\_\_ 3.79.2 **ENERGIZE** 13 and 24 SPTs from 1 SPT IAW SC.OP-SO.13-0013(Q),  
3, 13, and 24 Station Power Transformers Operation.
- \_\_\_ 3.80 IF 3 SPT is available AND 1 SPT is NOT available,  
THEN **PLACE** 3, 13, and 24 SPTs in service IAW SC.OP-SO.13-0013(Q),  
3, 13, and 24 Station Power Transformers Operation.
- \_\_\_ 3.81 IF both 1 SPT AND 3 SPT are available,  
THEN:
  - \_\_\_ 3.81.1 **PLACE** 3, 13, and 24 SPTs in service IAW SC.OP-SO.13-0013(Q),  
3, 13, and 24 Station Power Transformers Operation.
  - \_\_\_ 3.81.2 **PLACE** 1, 11, and 21 SPTs in service IAW SC.OP-SO.13-0011(Q),  
1, 11, and 21 Station Power Transformers Operation.
- \_\_\_ 3.82 **REMOVE** operating Diesel Generators from service  
AND **RESTORE** power to 4KV Vital Buses as necessary to support plant operation  
IAW applicable procedure(s):
  - \_\_\_ ♦ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
  - \_\_\_ ♦ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
  - \_\_\_ ♦ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- \_\_\_ 3.83 IF Attachment 2, Blackout Coping Actions, Part A, was performed,  
THEN **PERFORM** Attachment 2, Part B and Part C.

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

- \_\_\_ 3.84 IF 11 SPT is in service,  
THEN:
- \_\_\_ 3.84.1 **ENERGIZE** 1E and 1H 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation IAW:
- \_\_\_ ♦ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation
- \_\_\_ 3.84.2 IF 1F and 1G 4KV Group Buses are required to support plant operation,  
THEN:
- \_\_\_ A. **ENERGIZE** 12 SPT from 13KV Bus Section 6  
IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power  
Transformers Operation.
- \_\_\_ B. **ENERGIZE** 1F and 1G 4KV Group Buses,  
AND RESTORE loads as necessary to support plant operation IAW:
- \_\_\_ ♦ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation
- \_\_\_ 3.84.3 IF Attachment 4, Loss Of Group Buses, Part A was performed,  
THEN ENSURE actions specified in Attachment 4, Part D, are completed.
- \_\_\_ 3.85 **GO TO** Section 4.0 Time
- \_\_\_ 3.86 Can either 2 SPT OR 4 SPT be energized?
- \_\_\_ NO      \_\_\_ YES ———> **GO TO** Step 3.90 Time
- |
- V
- \_\_\_ 3.87 **CONTINUE** efforts to determine and correct cause of 500/13KV 2-4 transformer trip.
- \_\_\_ 3.88 IF AT ANY TIME 1 SPT OR 3 SPT becomes available,  
THEN GO TO Step 3.78 Time
- \_\_\_ 3.89 **GO TO** Step 3.86 Time

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |



- \_\_\_ 3.90 **RESET** tripped lockout relays IAW Attachment 5, Multi-Trip Reset Scheme.
- \_\_\_ 3.91 IF 2 SPT is available AND 4 SPT is NOT available,  
THEN:
  - \_\_\_ 3.91.1 **PLACE** 2 SPT in service IAW SC.OP-SO.13-0012(Q),  
2, 12, and 22 Station Power Transformers Operation.
  - \_\_\_ 3.91.2 **ENERGIZE** 14 and 23 SPTs from 2 SPT IAW SC.OP-SO.13-0014(Q),  
4, 14, and 23 Station Power Transformers Operation.
- \_\_\_ 3.92 IF 4 SPT is available AND 2 SPT is NOT available,  
THEN **PLACE** 4, 14, and 23 SPTs in service IAW SC.OP-SO.13-0014(Q),  
4, 14, and 23 Station Power Transformers Operation.
- \_\_\_ 3.93 IF both 2 SPT AND 4 SPT are available,  
THEN:
  - \_\_\_ 3.93.1 **PLACE** 4, 14, and 23 SPTs in service IAW SC.OP-SO.13-0014(Q),  
4, 14, and 23 Station Power Transformers Operation.
  - \_\_\_ 3.93.2 **PLACE** 2, 12, and 22 SPTs in service IAW SC.OP-SO.13-0012(Q),  
2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 3.94 **REMOVE** operating Diesel Generators from service  
AND **RESTORE** power to 4KV Vital Buses as necessary to support plant operation  
IAW applicable procedure(s):
  - \_\_\_ ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
  - \_\_\_ ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
  - \_\_\_ ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- \_\_\_ 3.95 IF Attachment 2, Blackout Coping Actions, Part A, was performed,  
THEN **PERFORM** Attachment 2, Part B and Part C.

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

- \_\_\_ 3.96 IF 12 SPT has been returned to service,  
THEN:
- \_\_\_ 3.96.1 **ENERGIZE** 1F and 1G 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation IAW:
- \_\_\_ ♦ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation
- \_\_\_ 3.96.2 IF 1E and 1H 4KV Group Buses are required to support plant operation,  
THEN:
- \_\_\_ A. **ENERGIZE** 11 SPT from 13KV Bus Section 3  
IAW SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power  
Transformers Operation.
- \_\_\_ B. **ENERGIZE** 1E and 1H 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation IAW:
- \_\_\_ ♦ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation
- \_\_\_ 3.96.3 IF Attachment 4, Loss Of Group Buses, Part A was performed,  
THEN ENSURE actions specified in Attachment 4, Part D, are completed.
- \_\_\_ 3.97 **GO TO** Section 4.0 Time
- 3.98 Is Off-Site Power available to energize 500KV Bus Section 1? Time
- \_\_\_ YES    \_\_\_ NO ———> **GO TO** Step 3.106 Time
- |
- V
- 3.99 Is the 13KV North Ring Bus energized from Unit 3? Time
- \_\_\_ YES    \_\_\_ NO ———> **GO TO** Step 3.102 Time
- |
- V

## SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆ | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆ | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆ | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN</u> :   | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆ | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆ | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆ | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆ | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆ | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |

\* Refer to EXHIBIT 1 for briefing sheet

**NOTE**

Coordination between Salem and Hope Creek SM and the ESO is required to de-energize Salem - Hope Creek Tie-Line (5037) to allow restoration of an off-site line when Salem Unit 3 is aligned to energize 5037.

- \_\_\_ 3.100 **RESTORE** 13KV System IAW Attachment 7, Restoration of Off-Site Power With Unit 3 In Service.
- \_\_\_ 3.101 **GO TO** Step 3.103 \_\_\_  
Time
- \_\_\_ 3.102 **RESTORE** 13KV System IAW Attachment 8, Restoration of Off-Site Power With De-energized 13KV System.
- \_\_\_ 3.103 IF Attachment 2, Blackout Coping Actions, Part A, was performed,  
THEN **PERFORM** Attachment 2, Part B and Part C.
- \_\_\_ 3.104 IF Attachment 4, Loss Of Group Buses, Part A was performed,  
THEN **ENSURE** actions specified in Attachment 4, Part D, are completed.
- \_\_\_ 3.105 **GO TO** Step 3.116 \_\_\_  
Time
- 3.106 Is Off-Site Power available to energize 500KV Bus Section 2?
- \_\_\_ NO    \_\_\_ YES ———> **GO TO** Step 3.109 \_\_\_  
Time
- |  
V
- \_\_\_ 3.107 **CONTINUE** efforts to restore a 500KV Bus Section to service.
- \_\_\_ 3.108 **GO TO** Step 3.98 \_\_\_  
Time

SELECTED CAS ITEMS

|   |   |      |
|---|---|------|
| ◆                                       | IF AT ANY TIME RHR is lost,<br><u>THEN INITIATE</u> the applicable procedure, while continuing with this procedure:   | Time |
|   | <ul style="list-style-type: none"> <li>● S1.OP-AB.RHR-0001(Q), Loss of RHR</li> <li>● S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</li> </ul>   |      |
| ◆                                       | IF AT ANY TIME Spent Fuel Cooling is lost,<br><u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling,<br>while continuing with this procedure.  | Time |
| ◆                                       | IF AT ANY TIME a Diesel Generator becomes available,<br><u>THEN:</u>  | Time |
|   | <ul style="list-style-type: none"> <li>● IF the associated 4KV Vital Bus is deenergized,<br/><u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the<br/>Diesel Generator IAW the applicable procedure: <ul style="list-style-type: none"> <li>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</li> <li>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</li> </ul> </li> </ul> |      |
| ◆                                       | IF AT ANY TIME 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ◆                                       | IF AT ANY TIME 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ◆                                       | IF AT ANY TIME 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ◆                                       | IF AT ANY TIME 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ◆                                       | IF AT ANY TIME Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| * Refer to EXHIBIT 1 for briefing sheet |   |      |

3.109 Is the 13KV North Ring Bus energized from Unit 3?

\_\_\_ YES \_\_\_ NO —> **GO TO** Step 3.112  
 |  
 V

Time

**NOTE**

Coordination between Salem and Hope Creek SM and the ESO is required to de-energize Salem - Hope Creek Tie-Line (5037) to allow restoration of an off-site line when Salem Unit 3 is aligned to energize 5037.

\_\_\_ 3.110 **RESTORE** 13KV System IAW Attachment 7, Restoration of Off-Site Power With Unit 3 In Service.

\_\_\_ 3.111 **GO TO** Step 3.113

Time

\_\_\_ 3.112 **RESTORE** 13KV System IAW Attachment 8, Restoration of Off-Site Power With De-energized 13KV System.

\_\_\_ 3.113 IF Attachment 2, Blackout Coping Actions, Part A, was performed, THEN **PERFORM** Attachment 2, Part B and Part C.

\_\_\_ 3.114 IF Attachment 4, Loss Of Group Buses, Part A, was performed, THEN **ENSURE** actions specified in Attachment 4, Part D, are completed.

\_\_\_ 3.115 **GO TO** Step 3.118

Time

\_\_\_ 3.116 When 500KV Bus Section 2 becomes available, **RESTORE** 13KV System to normal alignment IAW applicable procedures:

\_\_\_ ♦ SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation

\_\_\_ ♦ SC.OP-SO.13-0013(Q), 3, 13, and 24 Station Power Transformers Operation

\_\_\_ 3.117 **GO TO** Section 4.0

Time

\_\_\_ 3.118 When 500KV Bus Section 1 becomes available, **RESTORE** 13KV System to normal alignment IAW applicable procedures:

\_\_\_ ♦ SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation

\_\_\_ ♦ SC.OP-SO.13-0014(Q), 4, 14, and 23 Station Power Transformers Operation

#### 4.0 COMPLETION AND REVIEW

- \_\_\_ 4.1 **CIRCLE** Entry Condition number in Section 1.0  
OR EXPLAIN Entry Condition in Comments Section of Attachment 11.
- \_\_\_ 4.2 IF 23 Charging Pump was required to support Unit 1,  
THEN DIRECT the Unit 2 NCO to Restore from the Cross-Connect Alignment  
IAW S2.OP-SO.CVC-0023(Q), CVCS Cross-Connect Alignment to Unit 1.
- \_\_\_ 4.3 IF 1CV83, 1CV89 or 1CV95 were closed to support establishment of normal charging flow  
to the RCS with seal injection isolated IAW Attachment 10,  
THEN DOCUMENT off-normal positions of the indicated valves in accordance  
with SH.OP-AP.ZZ-0103(Q), Component Configuration Control.
- \_\_\_ 4.4 IF ANY of the following conditions existed during the performance of this procedure:
- ◆ Sustained 500 KV voltage excursions of <450 KV or >550 KV, or
  - ◆ Artificial Island loss of generation of ≥2000 MWe, or
  - ◆ Major damage to 500 KV breakers or transmission network, or
  - ◆ The loss of any offsite transmission line, or
  - ◆ Damage to the Main Generator, or
  - ◆ Damage to the Main Transformer(s) or transformer protective relays,
  - ◆ Any damage to the Trip-A-Unit Scheme.
- THEN INFORM the SM/CRS to refer to the RAL for NERC reporting requirements.
- \_\_\_ 4.5 **COMPLETE** Attachment 11, Sections 1.0 and 2.0  
AND FORWARD this procedure to SM/CRS for review and approval.
- \_\_\_ 4.6 SM/CRS **PERFORM** the following:
- \_\_\_ 4.6.1 **ENSURE** all systems affected by Loss of Off-Site power  
(including RMS, SPDS, and WCM) have been returned to service  
as required to support plant operation.
- \_\_\_ 4.6.2 **REVIEW** this procedure with Attachments 1-10 (as applicable)  
and Attachment 11 for completeness and accuracy.
- \_\_\_ 4.6.3 **COMPLETE** Attachment 11, Section 3.0.
- \_\_\_ 4.6.4 **FORWARD** completed procedure to Operations Staff.

**END OF PROCEDURE**



ATTACHMENT 1  
(Page 1 of 2)

CONTINUOUS ACTION SUMMARY

- |   |   |                               |
|---|---|-------------------------------|
| 1.0   | <p><u>IF AT ANY TIME</u> a 500KV Bus section is reenergized,<br/> <u>THEN INITIATE</u> SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme to open all 500KV breaker disconnects associated with all open 500KV breakers. (500KV disconnects should be opened as soon as reasonably practical based on current plant conditions and available resources).</p> | <p>Time</p> <p>[70017881]</p> |
| 2.0   | <p><u>IF AT ANY TIME</u> RHR is lost,<br/> <u>THEN INITIATE</u> the applicable procedure while continuing with this procedure:</p>  | <p>Time</p>                   |
| <p>◆ S1.OP-AB.RHR-0001(Q), Loss of RHR</p> <p>◆ S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory</p>  |   |                               |
| 3.0   | <p><u>IF AT ANY TIME</u> Spent Fuel Cooling is lost,<br/> <u>THEN INITIATE</u> S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Cooling, while continuing with this procedure.</p>   | <p>Time</p>                   |
| 4.0   | <p><u>IF AT ANY TIME</u> a Diesel Generator becomes available,<br/> <u>THEN:</u></p>  |                               |
| A.  | <p><u>IF</u> the associated 4KV Vital Bus is deenergized,<br/> <u>THEN ENERGIZE</u> the associated 4KV Vital Bus from the Diesel Generator IAW the applicable procedure:</p>  | <p>Time</p>                   |
| <p>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</p> <p>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</p> <p>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</p> |   |                               |
| B.  | <p><u>IF</u> the associated 4KV Vital Bus is energized from Unit 3<br/> <u>THEN ALIGN</u> the associated Diesel Generators for automatic operation IAW the applicable procedure:</p>  | <p>Time</p>                   |
| <p>◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation</p> <p>◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation</p> <p>◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation</p> |   |                               |

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

**CONTINUOUS ACTION SUMMARY**

|          |  |      |
|----------|--|------|
| ___ 5.0  | <u>IF AT ANY TIME</u> 13 SPT becomes available,<br><u>THEN GO TO</u> Step 3.74   | Time |
| ___ 6.0  | <u>IF AT ANY TIME</u> 14 SPT becomes available,<br><u>THEN GO TO</u> Step 3.86   | Time |
| ___ 7.0  | <u>IF AT ANY TIME</u> 2 SPT <u>OR</u> 4 SPT becomes available,<br><u>THEN GO TO</u> Step 3.90  | Time |
| ___ 8.0  | <u>IF AT ANY TIME</u> 1 SPT <u>OR</u> 3 SPT becomes available,<br><u>THEN GO TO</u> Step 3.78  | Time |
| ___ 9.0  | <u>IF AT ANY TIME</u> Control Air header pressure cannot be maintained,<br><u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.  | Time |
| ___ 10.0 | <u>IF AT ANY TIME</u> Hope Creek Operations requests Unit 3 be aligned to<br>the Salem-Hope Creek Tie Line (5037),<br><u>THEN INITIATE</u> Attachment 9, Energizing Salem-Hope Creek Tie Line (5037)<br>From Salem Unit 3. | Time |
| ___ 11.0 | <u>IF AT ANY TIME</u> 1A Vital Bus <u>AND</u> 1B Vital Bus are BOTH deenergized,<br><u>THEN DISPATCH</u> an Operator to manually <b>CLOSE</b> 1SW26, TURB AREA<br>(TG HDR INLET MOV).                                      | Time |
| ___ 12.0 | <u>IF AT ANY TIME</u> 1B Vital Bus <u>AND</u> 1C Vital Bus are BOTH deenergized,<br><u>THEN DISPATCH</u> an Operator to manually <b>CLOSE</b> 1SW26, TURB AREA<br>(TG HDR INLET MOV).                                      | Time |
| ___ 13.0 | <u>IF AT ANY TIME</u> during the complete Loss Of Off-Site Power (LOOP)<br>all three (1A, 1B and 1C) Emergency Diesel Generators are lost,<br><u>THEN:</u>   | Time |
| ___ ◆    | <b>INITIATE</b> S1.OP-SO.500-0125(Q), SBO Diesel - Vital Battery Chargers<br>(Procedure is to be completed within 4 hours of the event).   |      |
| ___ ◆    | <b>INITIATE</b> SC.OP-SO.500-0125(Q), SBO Diesel - Miscellaneous Switchyard<br>(Procedure is to be completed within 20 hours of the event).  |      |

**ATTACHMENT 2**  
**(Page 1 of 6)**

**BLACKOUT COPING ACTIONS**

**Part A** **Initiation Of Black Out Coping Actions**

**NOTE**

Due to loss of heat tracing, level sensing lines may freeze in cold weather and cause erratic level indications for the following tanks:

- ◆ Aux Feedwater Storage Tank
- ◆ Refueling Water Storage Tank
- ◆ Primary Water Storage Tank

\_\_\_ 1.0 **PERFORM** the following within 30 minutes from onset of blackout condition:

**NOTE**

Use of a battery powered light will be required to perform Step 1.Q below at the plant computer distribution panel 1CPY in the Data Logging Room, and for use on routes between the Turbine/Service buildings and the SBO Compressor room.

- \_\_\_ A. **OPEN** 1CDC1AX4, ALTERNATE SHUTDOWN SYSTEM - 125VDC DISTRIBUTION PANEL 1ASDS-DC (1C 125VDC Bus, Elev 84' Swgr Rm).
- \_\_\_ B. **OPEN** 1DVIB40, 115VAC CKT BKR FOR ADFCS EWS SUP.
- \_\_\_ C. **OPEN** 11MAC-5S, 1 STATION AIR COMPRESSOR CONTROL PANEL.
- \_\_\_ D. **OPEN** 11MAC-13S, TSI CONTROL PANEL 982 FEED.
- \_\_\_ E. **OPEN** 11MAC-15S, TURBINE EH TERMINAL CABINET.
- \_\_\_ F. **OPEN** 12MAC-5S, 3 STATION AIR COMPRESSOR.
- \_\_\_ G. **OPEN** 12MAC-8S, 11 STEAM GENERATOR FEED PUMP & TURBINE.

(step continued on next page)

ATTACHMENT 2  
(Page 2 of 6)

BLACKOUT COPING ACTIONS

**Part A** (continued)

- \_\_\_ H. **OPEN** 12MAC-24S, TURBINE EH TERMINAL CONTROL.
- \_\_\_ I. **OPEN** 12MAC-26S, LOAD, FREQ, COND SODIUM & COND CT RCDRS  
11-14 SG FW TEMP IND.
- \_\_\_ J. **OPEN** 12MAC-38S, LIQUID RADWASTE EVAPORATOR PNLS 779 & 780.
- \_\_\_ K. **OPEN** 12MAC-40S, RADIO FREQUENCY MON CIRCUIT  
& OXYGEN ANALYZER & RECORDER.
- \_\_\_ L. **OPEN** Control Room console access doors.
- \_\_\_ M. **OPEN** doors on RP panels.
- \_\_\_ N. **OPEN** doors on rack room equipment panels.
- \_\_\_ O. **OPEN** door to Data Logging room.
- \_\_\_ P. **OPEN** 13 Auxiliary Feedwater Pump Room door.
- \_\_\_ Q. **REMOVE** Plant Computer from service IAW SC.OP-SO.COM-0002(Q),  
START/STOP SEQUENCE FOR THE COMPUTER.
- \_\_\_ R. **RECORD** time 30 minute Coping Actions complete.

Time

**NOTE**

The following steps for protection of Unit 3 batteries are NOT coping actions as part of the blackout study, but are necessary to prevent running the battery down.

- \_\_\_ 2.0 **SEND** an Operator to perform the following for protection of Unit 3 batteries:
  - \_\_\_ A. **PLACE** 3J3GT-LOSA, ENGINE "A" LOCKOUT switch in LOCKOUT.
  - \_\_\_ B. **PLACE** 3J3GT-LOSB, ENGINE "B" LOCKOUT switch in LOCKOUT.
  - \_\_\_ C. **PLACE** 3J3GTDCD-11, DCD 125VDC DISTRIBUTION PANEL  
MAIN BREAKER, OFF.

ATTACHMENT 2  
(Page 3 of 6)

BLACKOUT COPING ACTIONS

**Part A** (continued)

- |   |     |   |      |
|---|-----|---|------|
| — | 3.0 | <b>PLACE</b> SBO Diesel Control Air Compressor in service IAW SC.OP-SO.CA-0001(Q), SBO Diesel Control Air Compressor, within 60 minutes from onset of blackout condition. | Time |
| — | 4.0 | <u>IF AT ANY TIME</u> Control Air header pressure cannot be maintained, <u>THEN INITIATE</u> S1.OP-AB.CA-0001(Q), Loss of Control Air.                                    | Time |
| — | 5.0 | <u>IF AT ANY TIME</u> during the complete Loss Of Off-Site Power (LOOP) all three (1A, 1B and 1C) Emergency Diesel Generators are lost, <u>THEN:</u>                      | Time |
| — | ◆   | <b>INITIATE</b> S1.OP-SO.500-0125(Q), SBO Diesel - Vital Battery Chargers (Procedure is to be completed within 4 hours of the event).                                     |      |
| — | ◆   | <b>INITIATE</b> SC.OP-SO.500-0125(Q), SBO Diesel - Miscellaneous Switchyard (Procedure is to be completed within 20 hours of the event).                                  |      |
| — | 6.0 | <b>NOTIFY</b> NCO Attachment 2, Part A has been completed.  |      |

**ATTACHMENT 2**  
**(Page 4 of 6)**

**BLACKOUT COPING ACTIONS**

**Part B Restoration From Black Out Coping Actions**

- \_\_\_ 1.0 **CLOSE** 1CDC1AX4, ALTERNATE SHUTDOWN SYSTEM 125 VDC DISTRIBUTION PNL 1ASDS-DC, (1C 125VDC Bus, El. 84' Swgr Rm.)
- \_\_\_ 2.0 **CLOSE** 1DVIB40, 115VAC CKT BKR FOR ADFCS EWS SUP.
- \_\_\_ 3.0 **CLOSE** 11MAC-5S, 1 STATION AIR COMPRESSOR CONTROL PANEL.
- \_\_\_ 4.0 **CLOSE** 11MAC-13S, TSI CONTROL PANEL 982 FEED.
- \_\_\_ 5.0 **CLOSE** 11MAC-15S, TURBINE EH TERMINAL CABINET.
- \_\_\_ 6.0 **CLOSE** 12MAC-5S, 3 STATION AIR COMPRESSOR.
- \_\_\_ 7.0 **CLOSE** 12MAC-8S, 11 STEAM GENERATOR FEED PUMP & TURBINE.
- \_\_\_ 8.0 **CLOSE** 12MAC-24S, TURBINE EH TERMINAL CONTROL.
- \_\_\_ 9.0 **CLOSE** 12MAC-26S, LOAD, FREQ, COND SODIUM & COND CT RCDRS 11-14 SG FW TEMP IND.
- \_\_\_ 10.0 **CLOSE** 12MAC-38S, LIQUID RADWASTE EVAPORATOR PANELS 779 & 780.
- \_\_\_ 11.0 **CLOSE** 12MAC-40S, RADIO FREQUENCY MON CIRCUIT & OXYGEN ANALYZER & RECORDER.
- \_\_\_ 12.0 **CLOSE** Data Logging room door.
- \_\_\_ 13.0 **CLOSE** Panel doors opened in Part A of this attachment.
- \_\_\_ 14.0 **REMOVE** SBO Diesel Control Air Compressor from service IAW SC.OP-SO.CA-0001(Q), SBO Diesel Control Air Compressor.
- \_\_\_ 15.0 **NOTIFY** NCO Attachment 2, Part B has been completed.

ATTACHMENT 2  
(Page 5 of 6)

BLACKOUT COPING ACTIONS

**Part C** **Restoration Of The Plant Computer**

- \_\_\_ 1.0 When AC power has been restored to Substation No. 1 OR 1F 460V Bus:
  - \_\_\_ A. **ENSURE** computer inverter has transferred back to normal AC power, OR **TRANSFER** to normal AC power IAW S1.OP-SO.COM-0003(Q), Plant Computer Inverter Operation.
  - \_\_\_ B. **PLACE** the Plant computer in service IAW SC.OP-SO.COM-0002(Q), START/STOP SEQUENCE FOR THE COMPUTER.
- \_\_\_ 2.0 **NOTIFY** NCO Attachment 2, Part C has been completed.

**ATTACHMENT 2**  
**(Page 6 of 6)**

**BLACKOUT COPING ACTIONS**

**NOTE**

A loss of 1C Vital Bus will render 11 CC Pump Room Cooler unavailable, along with 13 CC Pump. 11 CC Pump may be required to support current plant operation, compensatory measures should be considered to reduce 11 CC Pump room temperature.

These requirements are NOT required for safe shutdown of the plant. The intent is to preclude the potential for exposing sensitive equipment to high temperatures, or minimizing their exposure, from the perspective of long-term effects on the equipment.

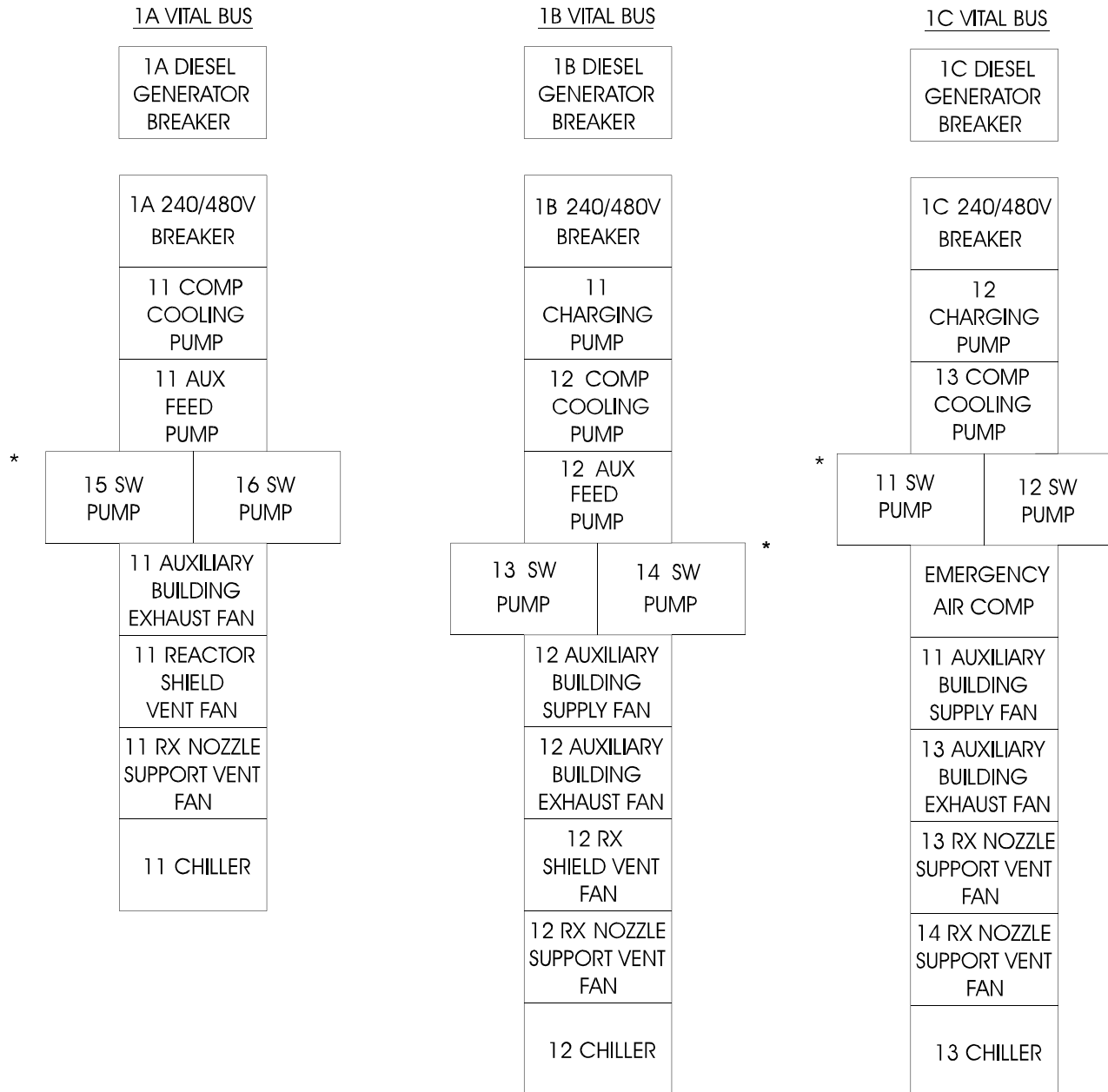
**Part D** **Component Cooling Water System Black Out Coping Actions** (80021513)

- \_\_\_ 1.0 IF 11 Component Cooling Water Pump Room Cooler is unavailable,  
THEN:
  - \_\_\_ A. IF 11 Component Cooling Water Pump is NOT required to support current plant operation,  
THEN STOP 11 Component Cooling Water Pump.
  - \_\_\_ B. IF 11 Component Cooling Water Pump operation is required,  
THEN:
    - \_\_\_ 1. **MONITOR** the following 11 Component Cooling Water Pump parameters on the Plant Computer:
      - ◆ T2735A, 11 COMP COOL PMP MTR INB BRG T - <202°F
      - ◆ T2738A, 11 COMP COOL PMP MTR OUT BRG T - <202°F
      - ◆ T2381A, 11 COMP COOL PMP MTR WDG TEMP - <278°F
      - ◆ T2739A, 11 COMP COOL PMP CHAMBER TEMP - <152°F
    - \_\_\_ 2. **INITIATE** compensatory measures, as required, to reduce pump chamber temperature. The following compensatory measures should be considered:
      - ◆ Open 11 Component Cooling Pump Room doors  
(A Fire Watch is required when the doors are maintained open)
      - ◆ Portable fans
- \_\_\_ 2.0 When 11 Component Cooling Water Pump Room Cooler is available,  
**REMOVE** compensatory measures placed in Step 1.B.2 above.



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

**BLACKOUT SEC LOADING**



\* ONLY LEAD SERVICE WATER PUMP WILL START. HOWEVER, IF LEAD PUMP FAILS TO START, THEN BACKUP PUMP WILL START.

ATTACHMENT 4  
(Page 1 of 8)

LOSS OF GROUP BUSES

**Part A** Response To Loss Of Group Buses

- \_\_\_ 1.0 **SET** 11-14MS10 setpoints to maintain Steam Generator pressure stable or lowering.
- \_\_\_ 2.0 IF 11 and 12 AFW Pumps are maintaining S/G level,  
THEN **STOP** 13 AFW Pump.
- \_\_\_ 3.0 **INITIATE** Loop 11-14 Main Steam Isolation.
- \_\_\_ 4.0 IF Pressurizer Heater Backup Group 12 is required to support plant operation,  
THEN **INITIATE** S1.OP-SO.PZR-0010(Q), Pressurizer Backup Heaters Power  
Supply Transfer, to transfer power for 1EP Pressurizer Heater Bus to 1A 460V Vital Bus.
- \_\_\_ 5.0 IF Pressurizer Heater Backup Group 11 is required to support plant operation,  
THEN **INITIATE** S1.OP-SO.PZR-0010(Q), Pressurizer Backup Heaters Power  
Supply Transfer, to transfer power for 1GP Pressurizer Heater Bus to 1C 460V Vital Bus.
- \_\_\_ 6.0 **MAINTAIN** Steam Generator levels within  $\pm 5\%$  of programmed level.
- \_\_\_ 7.0 **TRIP** 12 SGFP.
- \_\_\_ 8.0 **ENSURE** Emergency Seal Oil Pump is operating.
- \_\_\_ 9.0 **ENSURE** DC Emergency Lube Oil Pumps have started for the following equipment:
  - \_\_\_ ◆ Main Turbine
  - \_\_\_ ◆ 11 SGFP
  - \_\_\_ ◆ 12 SGFP
- \_\_\_ 10.0 IF Control Air Header pressure cannot be maintained,  
THEN **EVALUATE** starting SBO Diesel Air Compressor  
IAW SC.OP-SO.CA-0001(Q), SBO Diesel Control Air Compressor.
- \_\_\_ 11.0 **SEND** an Operator to STOP 11 and 12 Waste Gas Compressors.
- \_\_\_ 12.0 **STOP** any evolution(s) which will cause vent header pressure to rise.

ATTACHMENT 4  
(Page 2 of 8)

## LOSS OF GROUP BUSES

**Part A** (continued)

- \_\_\_ 13.0 **BREAK** condenser vacuum, as follows:
- \_\_\_ A. **STOP** all Vacuum Pumps.
- \_\_\_ B. **OPEN** 11-13AR65, COND STEAM SIDE VAC BKR valves.
- \_\_\_ 14.0 When condenser vacuum lowers to zero,  
**REMOVE** Gland Seal System from service as follows:
- \_\_\_ A. **CLOSE** 1GS48, 1 GS STM FROM #2 UNIT STOP VALVE.
- \_\_\_ B. **CLOSE** 1GS45, 1 GS STM FROM HS STOP VALVE.
- \_\_\_ C. **CLOSE** 1GS4, GS SUPPLY FROM UNIT 1 MAIN STM
- \_\_\_ 15.0 **SEND** operators to the Main Generator to perform the following:
- \_\_\_ A. **REPLACE** the Main Generator Hydrogen with Carbon Dioxide  
IAW S1.OP-SO.GEN-0003(Z), Generator Gas System Operation.
- \_\_\_ B. **CONTINUE** until power is restored to AC Seal Oil Pump  
OR Main Generator Hydrogen is <5%.
- \_\_\_ 16.0 IF Service Water to Turbine Building has been lost,  
THEN EVALUATE restoration of Service Water to the Turbine Header  
IAW Part B of this Attachment, based on Service Water System availability.
- \_\_\_ 17.0 **SEND** an Operator to perform the following for protection of Unit 3 batteries:
- \_\_\_ A. **PLACE** 3J3GT-LOSA, ENGINE "A" LOCKOUT switch in LOCKOUT.
- \_\_\_ B. **PLACE** 3J3GT-LOSB, ENGINE "B" LOCKOUT switch in LOCKOUT.
- \_\_\_ C. **PLACE** 3J3GTDCD-11, DCD 125VDC DISTRIBUTION PANEL  
MAIN BREAKER, OFF.

ATTACHMENT 4  
(Page 3 of 8)

## LOSS OF GROUP BUSES

**Part A** (continued)**NOTE**

Fire Pressure Maintenance Pump has been lost due to loss of No. 2 Misc. Yard Equipment 460-230 Volt Control Center. If either of the Hope Creek Cross-Tie Valves are closed, a fire pump will start on low fire system pressure.

- \_\_\_ 18.0 **NOTIFY** Fire Protection Supervisor that compensatory actions may be required due to the following:
  - \_\_\_ ◆ Loss of Fire Pressure Maintenance Pump
  - \_\_\_ ◆ Unit 3 Fire Protection has been disabled
- \_\_\_ 19.0 **OPEN** all load and infeed breakers on all 4KV Group buses.
- \_\_\_ 20.0 **OPEN** all load breakers on all 460V Group buses.
- \_\_\_ 21.0 **REMOVE** 250VDC Battery Charger from service IAW S1.OP-SO.250-0001(Z), 250VDC Battery Charger Operation.
- \_\_\_ 22.0 **REVIEW** the following procedures for effects of loss of MAC Panels:
  - \_\_\_ ◆ S1.OP-AB.115-0007(Q), Loss of 13 MAC
  - \_\_\_ ◆ S1.OP-AB.115-0008(Q), Loss of 14 MAC

ATTACHMENT 4  
(Page 4 of 8)

LOSS OF GROUP BUSES

**Part B** Restoring Service Water To Turbine Header

**NOTE**

Turbine Building Service Water supplies cooling to the Station Air Compressors.

**CAUTION**

**1ST1, TG AREA SW PRESS CONT V, fails open on loss of air. Manual operation of 1ST1 OR 1ST50/1ST52 should be evaluated to control SW Turbine Header pressure.**

- \_\_\_ 1.0 **CLOSE** 1SW26, TURB AREA SW MOV STOP VALVE.
- \_\_\_ 2.0 **OPEN** 11SW20 and/or 13SW20, TURB AREA.
- \_\_\_ 3.0 Direct NEO to **OPEN** 1BY2SW2F, 1SW26 - TGA HEADER INLET VALVE, (SW Intake 1B1 230VAC Vital Control Center).

**CAUTION**

**Starting additional Service Water Pumps may overload the associated EDG.  
Stopping of non-essential loads may be necessary to start additional SW Pumps.**

- \_\_\_ 4.0 IF an additional Service Water Pump is required to supply flow to the Turbine Header, THEN START an additional Service Water Pump.
- \_\_\_ 5.0 Direct NEO to **PERFORM** the following:
  - \_\_\_ A. Manually **OPEN** 1SW26, TURB AREA, to ≈25% open.
  - \_\_\_ B. **CLOSE** 1BY2SW2F (SW Intake 1B1 230VAC Vital Control Center).
- \_\_\_ 6.0 Fully **OPEN** 1SW26.

**ATTACHMENT 4**  
**(Page 5 of 8)**

**LOSS OF GROUP BUSES**

**Part C** **Group Buses Energized From Unit 3**

**CAUTIONS**

- ◆ **Coordination between Unit 1, Unit 2, and the Unit 3 Operator is required to ensure that Unit 3 loading is maintained IAW S3.OP-SO.JET-0001(Q), Gas Turbine Operation, Exhibit 1, Estimated Installed Power Trim Curve.**
- ◆ **A Reactor Coolant Pump is NOT to be started when the associated 4KV Group Bus is energized from Unit 3.**

- \_\_\_ 1.0 **CLOSE** the following 4KV Group Bus load breakers:
  - \_\_\_ ◆ 1H3D TO 208 XFMR
  - \_\_\_ ◆ 1H5D TO 460 & 230
  - \_\_\_ ◆ 1E6D PZR HEATER BUS
  - \_\_\_ ◆ 1F3D TO 208 XFMR
  - \_\_\_ ◆ 1F5D TO 460 & 230
  - \_\_\_ ◆ 1G6D PZR HEATER BUS
- \_\_\_ 2.0 **IF** Service Water has been restored to the Turbine Header,  
**THEN START** one Station Air Compressor  
IAW SC.OP-SO.SA-0001(Z), Station Air System Operation.
- \_\_\_ 3.0 **START** TAC Pump(s) IAW S1.OP-SO.TAC-0001(Z),  
Turbine Auxiliary Cooling System Operation.
- \_\_\_ 4.0 **START** 11A OR 11B Lube Oil Pump for 11 SGFP.
- \_\_\_ 5.0 **STOP** 11 SGFP Emergency Lube Oil Pump.
- \_\_\_ 6.0 **START** 12A OR 12B Lube Oil Pump for 12 SGFP.
- \_\_\_ 7.0 **STOP** 12 SGFP Emergency Lube Oil Pump.

**ATTACHMENT 4**  
**(Page 6 of 8)**

**LOSS OF GROUP BUSES**

**Part C** (continued)

- \_\_\_ 8.0 **PLACE** the following equipment in service  
IAW S1.OP-SO.GEN-0002(Z), Main Generator Seal Oil System Operation:
  - \_\_\_ ◆ Main Seal Oil Pump
  - \_\_\_ ◆ Recirc Seal Oil Pump
  - \_\_\_ ◆ Seal Oil Vacuum Pump
- \_\_\_ 9.0 **START** Auxiliary Bearing Oil Pump.
- \_\_\_ 10.0 **STOP** Emergency Bearing Oil Pump.
- \_\_\_ 11.0 **STOP** Emergency Seal Oil Pump.
- \_\_\_ 12.0 **START** Oil Lift Pump.
- \_\_\_ 13.0 **PLACE** Main Turbine on turning gear  
IAW S1.OP-SO.TRB-0004(Z), Turbine Turning Gear Operation.
- \_\_\_ 14.0 **PLACE** 250VDC Battery Charger in service  
IAW S1.OP-SO.250-0001(Z), 250VDC Battery Charger Operation.

**Part D - Group Buses Energized From Station Power Transformers**

- \_\_\_ 1.0 IF Service Water has been restored to the Turbine Header,  
THEN **START** one Station Air Compressor  
IAW SC.OP-SO.SA-0001(Z), Station Air System Operation.
- \_\_\_ 2.0 **START** TAC Pump(s) IAW S1.OP-SO.TAC-0001(Z),  
Turbine Auxiliary Cooling System Operation.
- \_\_\_ 3.0 **START** 11A or 11B Lube Oil Pump for 11 SGFP.
- \_\_\_ 4.0 **STOP** 11 SGFP Emergency Lube Oil Pump.
- \_\_\_ 5.0 **START** 12A OR 12B Lube Oil Pump for 12 SGFP.
- \_\_\_ 6.0 **STOP** 12 SGFP Emergency Lube Oil Pump.

**ATTACHMENT 4**  
**(Page 7 of 8)**

**LOSS OF GROUP BUSES**

**Part D** (continued)

- \_\_\_ 7.0 **PLACE** the following equipment in service  
IAW S1.OP-SO.GEN-0002(Z), Main Generator Seal Oil System Operation:
  - \_\_\_ ♦ Main Seal Oil Pump
  - \_\_\_ ♦ Recirc Seal Oil Pump
  - \_\_\_ ♦ Seal Oil Vacuum Pump
- \_\_\_ 8.0 **START** Auxiliary Bearing Oil Pump.
- \_\_\_ 9.0 **STOP** Emergency Bearing Oil Pump.
- \_\_\_ 10.0 **STOP** Emergency Seal Oil Pump.
- \_\_\_ 11.0 **START** Oil Lift Pump.
- \_\_\_ 12.0 **PLACE** Main Turbine on turning gear  
IAW S1.OP-SO.TRB-0004(Z), Turbine Turning Gear Operation.
- \_\_\_ 13.0 IF Reactor Coolant Pump operation is required,  
THEN **START** Reactor Coolant Pump(s)  
IAW S1.OP-SO.RC-0001(Q), Reactor Coolant Pump Operation.
- \_\_\_ 14.0 IF Pressurizer Backup Heaters were transferred to Vital Bus power supplies,  
THEN **TRANSFER** Pressurizer Backup Heaters from Vital Bus to Group Bus power  
supplies IAW S1.OP-SO.PZR-0010(Q), Pressurizer Backup Heaters Power Supply Transfer.
- \_\_\_ 15.0 IF lighting panels powered from 1FL and/or 1HL Lighting Buses were transferred  
to alternate power supplies,  
THEN **TRANSFER** lighting panels to regular power supplies  
IAW S1.OP-SO.LTS-0001(Z), Lighting Distribution Power Supply Transfer.
- \_\_\_ 16.0 **RETURN** 11 and 12 Waste Gas Compressors to service  
IAW S1.OP-SO.WG-0003(Q), Gaseous Waste Disposal System Operation.



ATTACHMENT 4  
(Page 8 of 8)

LOSS OF GROUP BUSES

**Part D** (continued)

- \_\_\_ 17.0 IF Unit 3 was NOT placed in service,  
THEN SEND an Operator to perform the following:
  - \_\_\_ A. **CLOSE** 3J3GTDCD-11, DCD 125VDC DISTRIBUTION PANEL MAIN BREAKER.
  - \_\_\_ B. **PLACE** 3J3GT-LOSA, ENGINE "A" LOCKOUT switch in RUN.
  - \_\_\_ C. **PLACE** 3J3GT-LOSB, ENGINE "B" LOCKOUT switch in RUN.
- \_\_\_ 18.0 **NOTIFY** Fire Protection Supervisor that Unit 3 Fire Protection has been restored.

**ATTACHMENT 5**  
**(Page 1 of 12)**

**MULTI-TRIP RESET SCHEME**

**NOTE**

Breaker failure relay may be reset when failed breaker has been opened or racked out. Other relays which initiate breaker failure scheme (indicated by label on breaker failure relay reset handle) are not necessary to reset the breaker failure relay and will be reset later.

\_\_\_ 1.0 IF any 4KV Group Bus, Vital Bus, or CW Bus infeed breaker failure has occurred, THEN **RESET** multi-trip for affected breaker(s) IAW the following tables:

\_\_\_ A. **Unit 1 4KV Group Bus Infeed Breakers** (Elev 100' Relay Rm)

| <b>BREAKER</b> | <b>RELAY RACK</b> | <b>RESET HANDLE LABEL</b>  |
|----------------|-------------------|--|
| 11HSD          | 1R12              | No. 1H 4KV GROUP BUS No. 11 STA. PWR. TRANS. 4KV BKR FAIL. MT (11HSDBFMT)    |
| 11ESD          | 1R13              | No. 1E 4KV GROUP BUS No. 11 STA. PWR. TRANS. 4KV BKR. FAILURE MT (11ESDBFMT) |
| 12FSD          | 1R14              | No. 1F 4KV GROUP BUS No. 12 STA. PWR. TRANS. 4KV BKR. FAILURE MT (12FSDBFMT) |
| 12GSD          | 1R15              | No. 1G 4KV GROUP BUS No. 12 STA. PWR. TRANS. 4KV BKR. FAIL. MT (12GSDBFMT)   |

**ATTACHMENT 5**  
**(Page 2 of 12)**

**MULTI-TRIP RESET SCHEME**

1.0 (continued)

\_\_\_ B. **Unit 1 4KV Vital Bus Breakers** (Elev 100' Relay Rm)

| <b>BREAKER</b> | <b>RELAY RACK</b> | <b>RESET HANDLE LABEL</b>                                    |
|----------------|-------------------|--|
| 13ASD          | 1R8               | No. 1A 4KV VITAL BUS<br>13 SPT 4KV BKR. FAIL. MT (13ASDBFMT) |
| 13BSD          | 1R24              | No. 1B 4KV VITAL BUS<br>13 SPT 4KV BKR. FAIL. MT (13BSDBFMT) |
| 13CSD          | 1R11              | No. 1C 4KV VITAL BUS<br>13 SPT 4KV BKR. FAIL. MT (13CSDBFMT) |
| 14ASD          | 1R8               | No. 1A 4KV VITAL BUS<br>14 SPT 4KV BKR. FAIL. MT (14ASDBFMT) |
| 14BSD          | 1R24              | No. 1B 4KV VITAL BUS<br>14 SPT 4KV BKR. FAIL. MT (14BSDBFMT) |
| 14CSD          | 1R11              | No. 1C 4KV VITAL BUS<br>14 SPT 4KV BKR. FAIL. MT (14CSDBFMT) |

\_\_\_ C. **1CW 4KV Bus Breakers** (CW Switchgear Bldg)

| <b>BREAKER</b> | <b>LOCATION</b> | <b>RESET HANDLE LABEL</b>                |
|----------------|-----------------|--|
| 13CW1AD        | 13CW1BD Cubicle | 86BFL13 L13 BKR FAILURE                  |
| 1CW8AD         | 1CW8AD Cubicle  | 86BFT1 BT1 BKR FAILURE<br>(1CW8AD86BFT1) |
| 14CW9AD        | 14CW9BD Cubicle | 86BFL14 L14 BKR FAILURE                  |

**ATTACHMENT 5  
(Page 3 of 12)**

**MULTI-TRIP RESET SCHEME**

1.0 (continued)

\_\_\_ D. **Unit 2 4KV Group Bus Breakers** (Elev 100' Relay Rm)

| BREAKER | RELAY RACK | RESET HANDLE LABEL  |
|---------|------------|---|
| 21HSD   | 2R12       | No. 2H 4KV GROUP BUS<br>No. 21 STA PWR TRANS 4KV BKR<br>FAILURE MT  |
| 21ESD   | 2R13       | No. 2E 4KV GROUP BUS<br>No. 21 STA PWR TRANS 4KV BKR.<br>FAILURE MT |
| 22FSD   | 2R14       | No. 2F 4KV GROUP BUS<br>No. 22 STA PWR TRANS 4KV BKR.<br>FAILURE MT |
| 22GSD   | 2R15       | No. 2G 4KV GROUP BUS<br>No. 22 STA PWR TRANS 4KV BKR.<br>FAIL. MT   |

\_\_\_ E. **Unit 2 4KV Vital Bus Breakers** (Elev 100' Relay Rm)

| BREAKER | RELAY RACK | RESET HANDLE LABEL   |
|---------|------------|--|
| 23ASD   | 2R8        | No. 2A 4KV VITAL BUS<br>23 SPT 4KV BKR FAIL MT (23ASDBFMT) |
| 23BSD   | 2R24       | No. 2B 4KV VITAL BUS<br>23 SPT 4KV BKR FAIL MT (23BSDBFMT) |
| 23CSD   | 2R11       | No. 2C 4KV VITAL BUS<br>23 SPT 4KV BKR FAIL MT (23CSDBFMT) |
| 24ASD   | 2R8        | No. 2A 4KV VITAL BUS<br>24 SPT 4KV BKR FAIL MT (24ASDBFMT) |
| 24BSD   | 2R24       | No. 2B 4KV VITAL BUS<br>24 SPT 4KV BKR FAIL MT (24BSDBFMT) |
| 24CSD   | 2R11       | No. 2C 4KV VITAL BUS<br>24 SPT 4KV BKR FAIL MT (24CSDBFMT) |

**ATTACHMENT 5**  
**(Page 4 of 12)**

**MULTI-TRIP RESET SCHEME**

1.0 (continued)

\_\_\_ F. **2CW 4KV Bus Breakers** (CW Switchgear Bldg)

| BREAKER | LOCATION        | RESET HANDLE LABEL                          |
|---------|-----------------|---|
| 23CW1AD | 23CW1BD Cubicle | 86BFL23 L23 BKR FAILURE<br>(23CW1BD86BFL23) |
| 2CW2BD  | 2CW2BD Cubicle  | 86BFT2 BT2 BKR FAILURE<br>(2CW2BD86BFT2)    |
| 24CW9AD | 24CW9BD Cubicle | 86BFL24 L24 BKR FAILURE                     |

\_\_\_ 2.0 IF any 500KV breaker failure has occurred,  
THEN **RESET** Multi-Trip for affected breaker(s) IAW the following table  
(Elev 100' Relay Rm):

| BREAKER | RELAY RACK | RESET HANDLE LABEL                           |
|---------|------------|--|
| 5-6     | 1R3        | 500KV BUS SECT 5-6 BKR FAIL<br>& GRD MT      |
| 2-6     | XR32       | 500KV BUS SECT 2-6 BKR FAIL MT               |
| 1-5     | 1R5        | 500KV BUS SECT 1-5 BKR FAIL<br>& GRD MT      |
| 1-8     | XR23       | 500KV BUS SECT 1-8 BKR FAIL MT<br>(20XBfmt1) |
| 2-8     | XR29       | 500KV BUS SECT 2-8 BKR FAIL MT<br>(21XBfmt1) |
| 9-10    | 2R3        | 500KV BUS SECT 9-10 BKR FAIL<br>& GRD MT     |
| 2-10    | XR232      | 500KV BUS SECT 2-10 BKR FAIL<br>& GRD MT 86  |
| 1-9     | 2R5        | 500KV BUS SECT 1-9 BKR FAIL<br>& GRD MT      |

**ATTACHMENT 5  
(Page 5 of 12)**

**MULTI-TRIP RESET SCHEME**

- \_\_\_ 3.0 IF any 13KV North Ring Bus breaker failure has occurred,  
THEN RESET Multi-Trip for affected breaker(s) at the 13KV Switchgear  
IAW the following table:

| <b>BREAKER</b> | <b>AUXILIARY CABINET</b> | <b>RESET HANDLE LABEL</b>                           |
|----------------|--------------------------|---|
| 4-5            | A1G                      | 13KV BUS SECT 4-5 BKR FAIL MT 86/4-5                |
| 5-6            | A5G                      | 13KV BUS SECT 5-6 BKR FAIL MT 86/5-6                |
| 1-6            | A7G                      | 13KV BUS SECT 1-6 BKR FAIL MT 86/1-6                |
| 3-4            | B1G                      | 13KV BUS SECT 3-4 BKR FAIL MT 86/3-4                |
| 2-3            | B5G                      | 13KV BUS SECT 2-3 BKR FAIL MT 86/2-3<br>(BS2-3BFMT) |
| 1-2            | B7G                      | 13KV BUS SECT 1-2 BKR FAIL MT 86/1-2                |

- \_\_\_ 4.0 IF any 13KV South Bus breaker failure has occurred,  
THEN RESET Multi-Trip for affected breaker(s) at the CW Switchgear Room  
IAW the following table:

| <b>BREAKER</b> | <b>RELAY RACK</b> | <b>RESET HANDLE LABEL</b>             |
|----------------|-------------------|---------------------------------------|
| A-F            | 1R1002            | BUS SECT A-F BKR. FAILURE MT 86BF/A-F |
| C-D            | 1R1005            | BUS SECT C-D BKR. FAILURE MT 86BF/C-D |
| A-B            | 2R1005            | BUS SECT A-B BKR. FAILURE MT 86BF/A-B |
| D-E            | 2R1002            | BUS SECT D-E BKR. FAILURE MT 86BF/D-E |

- \_\_\_ 5.0 IF 3 TG breaker failure has occurred,  
THEN RESET No. 3 GEN BKR FAIL MT 86 GBF (3TGBFMT)  
at No. 3 GEN LOCAL AUX CABINET.

**ATTACHMENT 5  
(Page 6 of 12)**

**MULTI-TRIP RESET SCHEME**

\_\_\_ 6.0 IF a ground fault condition was indicated by the listed annunciator,  
THEN RESET affected relay(s) IAW the following table:

| <b>COMPUTER POINT</b> |  | <b>AUXILIARY CABINET</b>    | <b>RESET HANDLE LABEL</b>                |
|-----------------------|--|-----------------------------|--|
| # 657                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 1-3 | 13KV Switchgear Cabinet A7G | 13KV BUS No 1 REG GROUND FAULT MT 86/1GR |
|                       |  | 13KV Switchgear Cabinet B7G | 13KV BUS No 1 BU GROUND FAULT MT 86/1GB  |
| # 681                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 2-4 | 13KV Switchgear Cabinet A1G | 13KV BUS No 2 BU GROUND FAULT MT 86/2GB  |
|                       |  | 13KV Switchgear Cabinet B1G | 13KV BUS No 2 REG GROUND FAULT MT86/2GR  |
| # 665                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 11  | 13KV Switchgear Cabinet A7G | 13KV BUS REG GROUND FAULT MT 86/11GR     |
|                       |  | 13KV Switchgear Cabinet B5G | 13KV BUS BU GROUND FAULT MT 86/11GB      |
| # 673                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 22  | 13KV Switchgear Cabinet B1G | 13KV BUS REG GROUND FAULT MT 86/22GR     |
|                       |  | 13KV Switchgear Cabinet B7G | 13KV BUS BU GROUND FAULT MT 86/22GB      |
| # 689                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 12  | 13KV Switchgear Cabinet A1G | 13KV BUS BU GROUND FAULT MT 86/12GB      |
|                       |  | 13KV Switchgear Cabinet B1G | 13KV BUS REG GROUND FAULT MT 86/12GR     |
| # 697                 | 13KV Reg or Backup Gnd Fault - Trip Sta Pwr Xfmr 21  | 13KV Switchgear Cabinet A1G | 13KV BUS BU GROUND FAULT MT 86/21GB      |
|                       |  | 13KV Switchgear Cabinet A5G | 13KV BUS REG GROUND FAULT MT 86/21GR     |

**ATTACHMENT 5  
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**MULTI-TRIP RESET SCHEME**

\_\_\_ 7.0 IF Station Power Transformer protection has occurred as indicated by listed Plant Computer points in each Unit,  
THEN RESET associated relay IAW the following tables:

\_\_\_ A. **Unit 1**

| <b>COMPUTER POINT</b> |  | <b>LOCATION</b>                         | <b>RESET HANDLE LABEL</b>   |
|-----------------------|--|---|---|
| #516                  | 11 Sta Pwr Xfmr<br>Diff/Overcurrent<br>L/O relay trip    | 13KV Switchgear Cabinet B7G             | No. 11 STA PWR TRANS<br>REG DIFF MT 86/11DR                             |
| #517                  | 12 Sta Pwr Xfmr<br>Diff/Overcurrent<br>L/O relay trip    | 13KV Switchgear Cabinet A3G             | No. 12 STA PWR TRANS<br>REG DIFF MT 86/12DR                             |
| #524                  | 11 Station Power<br>Xfmr Overcurrent<br>L/O relay trip   | 13KV Switchgear Cabinet B5G             | No. 11 STA PWR TRANS<br>BU DIFF MT 86/11DB                              |
| #525                  | 12 Station Power<br>Xfmr Overcurrent<br>L/O relay trip   | 13KV Switchgear Cabinet A5G             | No. 12 STA PWR TRANS<br>BU DIFF MT 86/12DB                              |
| #385                  | 13 Sta Power<br>Transformer<br>Regular<br>L/O relay trip | Relay Rack 1R1000<br>CW Switchgear Room | 13KVBUSA86MT1-3R<br>NO. 13 STA. PWR. TRANS.<br>PRIM. MT. 86MT/1-3R      |
|                       |  |   | 13KVGRND8613GR<br>NO. 13 STA. PWR. TRANS.<br>PRIMARY MT. 86/13GR        |
|                       |  |   | 13STAPWRXFR8613DR<br>NO. 13 STA. PWR. TRANS.<br>PRIMARY MT. 86/13DR     |
| #453                  | 13 Sta Power<br>Transformer<br>Backup<br>L/O relay trip  | Relay Rack 1R1001<br>CW Switchgear Room | 13KVBUSA86MT1-3B<br>NO. 13 STA. PWR. TRANS.<br>BACKUP MT. 86MT/1-3B     |
|                       |  |   | 13STAPWRXFR86MT13VB<br>NO. 13 STA. PWR. TRANS.<br>BACK-UP MT. 86MT/13VB |



**ATTACHMENT 5  
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**MULTI-TRIP RESET SCHEME**

7.0 (continued)

\_\_\_ A. **Unit 1** (continued)

| <b>COMPUTER POINT</b> |   | <b>LOCATION</b>                         | <b>RESET HANDLE LABEL</b>   |
|-----------------------|---|---|---|
| # 397                 | 13KV Bus<br>Section A-F<br>Breaker Failure                  | Relay Rack 1R1002<br>CW Switchgear Room | 13KVBKRAF86BFAF<br>BUS SECT. A-F BKR<br>FAILURE MT 86BF/A-F             |
| # 450                 | 14 Station Pwr<br>Transformer<br>Regular<br>L/O relay trip  | Relay Rack 1R1003<br>CW Switchgear Room | 13KVGRND8614GR<br>NO. 14 STA. PWR. TRANS.<br>PRIMARY MT 86/14GR         |
|                       |   |   | 14STAPWRXFR8614DR<br>NO. 14 STA. PWR. TRANS.<br>PRIMARY MT 86/14DR      |
| # 388                 | 14 Station Power<br>Transformer<br>Backup<br>L/O relay trip | Relay Rack 1R1004<br>CW Switchgear Room | 14STAPWRXFR86MT14VB<br>NO. 14 STA. PWR. TRANS.<br>BACK-UP MT. 86MT/14VB |
|                       |   |   | 13KVGRND8614GB<br>NO. 14 STA. PWR. TRANS.<br>BACK-UP MT 86/14GB         |
|                       |   |   | 14STAPWRXFR86T14B<br>NO. 14 STA. PWR. TRANS.<br>BACK-UP MT 86/14B       |
| # 454                 | 13KV Bus<br>Section C-D<br>Breaker Failure                  | Relay Rack 1R1005<br>CW Switchgear Room | 13KVBKRCD86BFCD<br>BUS SECT. C-D BKR<br>FAILURE MT 86BF/C-D             |

(continued on next page)

**ATTACHMENT 5  
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**MULTI-TRIP RESET SCHEME**

7.0 (continued)

\_\_\_ B. **Unit 2**

| <b>COMPUTER POINT</b> |  | <b>LOCATION</b>                         | <b>RESET HANDLE LABEL</b>   |
|-----------------------|--|---|---|
| # 516                 | 21 Sta Pwr Xfmr<br>Diff/Overcurrent<br>L/O relay trip  | 13KV Switchgear Cabinet A7G             | No. 21 STA PWR TRANS<br>REG DIFF MT 86/21DR                             |
| # 517                 | 22 Sta Pwr Xfmr<br>Diff/Overcurrent<br>L/O relay trip  | 13KV Switchgear Cabinet B3G             | No. 22 STA PWR TRANS<br>REG DIFF MT 86/22DR                             |
| # 524                 | 21 Station Power<br>Xfmr Overcurrent<br>L/O relay trip | 13KV Switchgear Cabinet A5G             | No. 21 STA PWR TRANS<br>BU DIFF MT 86/21DB                              |
| # 525                 | 22 Station Power<br>Xfmr Overcurrent<br>L/O relay trip | 13KV Switchgear Cabinet B5G             | No. 22 STA PWR TRANS<br>BU DIFF MT 86/22DB                              |
| # 385                 | 23 Sta Power Trans<br>Regular<br>L/O relay trip        | Relay Rack 2R1000<br>CW Switchgear Room | 13KVBUSD86MT2-4R<br>NO. 23 STA. PWR. TRANS.<br>PRIM. MT. 86MT/2-4R      |
|                       |  |   | 13KVGRND8623GR<br>NO. 23 STA. PWR. TRANS.<br>PRIMARY MT 86/23GR         |
|                       |  |   | 23STAPWRXFR8623DR<br>NO. 23 STA. PWR. TRANS.<br>PRIMARY MT 86/23DR      |
| # 453                 | 23 Sta Power Trans<br>Backup<br>L/O relay trip         | Relay Rack 2R1001<br>CW Switchgear Room | 13KVBUSD86MT2-4B<br>NO. 23 STA. PWR. TRANS.<br>BACK-UP MT. 86MT/2-4B    |
|                       |  |   | 23STAPWRXFR86MT23VB<br>NO. 23 STA. PWR. TRANS.<br>BACK-UP MT. 86MT/23VB |
|                       |  |   | 13KVGRND8623GB<br>NO. 23 STA. PWR. TRANS.<br>BACK-UP MT 86/23GB         |
|                       |  |   | 23STAPWRXFR86T23B<br>NO. 23 STA. PWR. TRANS.<br>BACK-UP MT 86/23B       |
| # 456                 | 13KV Bus Section<br>D-E Breaker Failure                | Relay Rack 2R1002<br>CW Switchgear Room | 13KVBKRDE86BFDE<br>BUS SECT. D-E BKR FAILURE<br>MT 86BF/D-E             |

**ATTACHMENT 5  
(Page 10 of 12)**

**MULTI-TRIP RESET SCHEME**

7.0 (continued)

\_\_\_ B. **Unit 2** (continued)

| COMPUTER POINT   | LOCATION                                | RESET HANDLE LABEL  |
|--|---|---|
| # 450      24 Station Pwr<br>Trans Regular<br>L/O relay trip | Relay Rack 2R1003<br>CW Switchgear Room | 13KVGRND8624GR<br>NO. 24 STA. PWR. TRANS.<br>PRIMARY MT 86/24GR         |
|  |   | 24STAPWRXFR8624DR<br>NO. 24 STA. PWR. TRANS.<br>PRIMARY MT 86/24DR      |
| # 388      24 Sta Power Trans<br>Backup<br>L/O relay trip    | Relay Rack 2R1004<br>CW Switchgear Room | 24STAPWRXFR86MT24VB<br>NO. 24 STA. PWR. TRANS.<br>BACK-UP MT. 86MT/24VB |
|  |   | 13KVGRND8624GB<br>NO. 24 STA. PWR. TRANS.<br>BACK-UP MT 86/24GB         |
|  |   | 24STAPWRXFR86T24B<br>NO. 24 STA. PWR. TRANS.<br>BACK-UP MT 86/24B       |
| # 399      13KV Bus<br>Section A-B<br>Breaker Failure        | Relay Rack 2R1005<br>CW Switchgear Room | 13KVBKRAB86BFAB<br>BUS SECT. A-B BKR<br>FAILURE MT 86BF/A-B             |

\_\_\_ 8.0 IF 1-3 SPT protection has occurred as indicated by the following Plant Computer points,  
THEN RESET the following relays:

| COMPUTER POINT   | RELAY RACK | RESET HANDLE LABEL                    |
|--|------------|---------------------------------------|
| # 519      1-3 Sta Power Xfmr<br>Differential<br>Protection Regular    | XR17       | NO. 1 & 3 SPT<br>REG DIFF MT 86/1-3R  |
| # 527      1-3 Sta Power<br>Transformer<br>Differential Prot<br>Backup | XR26       | NO. 1 & 3 SPT<br>BU DIFF MT 86MT/A-B  |
|  |            | NO. 1 & 3 SPT<br>BU DIFF MT 86/1-3B   |
|  |            | NO. 1 & 3 SPT BU DIFF<br>MT 86-1/1-3B |

**ATTACHMENT 5  
(Page 11 of 12)**

**MULTI-TRIP RESET SCHEME**

\_\_\_ 9.0 IF 3GT protection has occurred as indicated by the following Plant Computer points  
OR on local control panel annunciator,  
THEN:

\_\_\_ A. **RESET** relay(s) associated with listed Plant Computer points:

| COMPUTER POINT |   | RELAY RACK | RESET HANDLE LABEL  |
|----------------|---|------------|---|
| # 520          | 2-4 Sta Power<br>Xfmr Differential<br>Protection Regular    | XR217      | No. 2 & 4 SPT<br>REG DIFF MT 86/2-4R                            |
|                |   |            | No. 2 & 4 SPT<br>REG DIFF MT 86-1/2-4R                          |
| # 528          | 2-4 Sta Power<br>Transformer<br>Differential Prot<br>Backup | XR226      | No. 2 & 4 SPT<br>BU DIFF MT 86MT/D-B                            |
|                |   |            | No. 2 & 4 SPT<br>BU DIFF MT 86/2-4B                             |
|                |   |            | No. 2 & 4 SPT<br>BU DIFF MT 86-1/2-4B                           |
| # 692          | 500KV Bus Section<br>1-9 Breaker 32X<br>Ground/Failure      | 2R5        | 500KV BUS SECT 1-9 BKR<br>CT MODULE GRD MT 86G                  |
|                |   |            | 500KV BUS SECT 1-9 BKR<br>CT MODULE GRD MT 86G1                 |
| # 659          | 500KV Bus Section<br>1-8 Breaker 20X<br>Ground/Failure      | XR23       | 500KV BUS SECT 1-8<br>BKR CT MODULE GRD MT<br>86G (20XOVCRMT1)  |
|                |   |            | 500KV BUS SECT 1-8<br>BKR CT MODULE GRD MT<br>86G1 (20XOVCRMT2) |
| # 690          | 500KV Bus Section<br>1-5 Breaker 12X<br>Ground/Failure      | 1R5        | 500KV BUS SECT 1-5 BKR<br>CT MODULE GRD MT 86G                  |
|                |   |            | 500KV BUS SECT 1-5 BKR<br>CT MODULE GRD MT 86G1                 |

**ATTACHMENT 5**  
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**MULTI-TRIP RESET SCHEME**

9.0 (continued)

\_\_\_ B. **RESET** the following relays in the order listed at No. 3 Generator Auxiliary Panel (AP) - Panel No. 3:

\_\_\_ 1. Lockout Relay 86GB (3GTGENMTBU)

\_\_\_ 2. Lock-out Relay 86-G1 (3GTGENMT)

**NOTE**

Remaining relays that may require resetting to restore station power are not sequence dependent. All prerequisite relay resets have been accomplished.

Direction for resetting relays that will be required to restore Main Generators to service and allow closure of generator breakers is contained in the Turbine startup procedure and not necessary for restoring offsite power.

\_\_\_ 10.0 IF overload or differential protection for any 4KV Group Bus, Vital Bus, or CW Bus is indicated, THEN **RESET** affected relays.

\_\_\_ 11.0 **INSPECT** Relay Racks in both Units (including CW Swgr Bldg) AND **REPORT** any remaining tripped relays.

\_\_\_ 12.0 At SM/CRS direction, **RESET** affected relays.

**ATTACHMENT 6**  
**(Page 1 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**NOTES**

- ◆ Attachment 6, Part A will NOT support Hope Creek operation from Unit 3. Attachment 6, Part A connects 13KV Bus Section D to 13KV Bus Section 4. Supports 14 SPT and 23 SPT operation from Unit 3.
- ◆ Attachment 6, Part B, connects 13KV Bus Section A to 13KV Bus Section 1. Supports 13 SPT and 24 SPT operation from Unit 3. Part B must be used in conjunction with Attachment 9 when both Salem and Hope Creek stations are experiencing a loss of all AC power.

**Part A Connecting 13KV Bus Section D To 13KV Bus Section 4**

- \_\_\_ 1.0 **OBTAIN** key 10553 from Work Control Center (key #26).
- \_\_\_ 2.0 **ENSURE** the following breakers are OPEN: (Locally or from the Control Room)
  - \_\_\_ ◆ 3J3GT1, 3 UNIT 13KV OUTPUT BREAKER
  - \_\_\_ ◆ 3J1YDBS4-5, 13KV BUS SECTION 4-5 BREAKER
  - \_\_\_ ◆ 3J1YDBS3-4, 13KV BUS SECTION 3-4 BREAKER
- \_\_\_ 3.0 **ENSURE** the following 13KV Ground Disconnects are OPEN:
  - \_\_\_ ◆ 3J1YDBS 2T81, 13KV BUS SECTION T2 GROUND (north yard)
  - \_\_\_ ◆ 3J1YDBS D480, 13KV BUS SECTION D4 GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS C80, NO. 14 SPT GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS CD80, 13KV BKR C-D GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS D80, 13KV BUS SECT D GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS DE80, 13KV BKR D-E GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS E80, NO. 23 SPT GROUND (south yard)

ATTACHMENT 6  
(Page 2 of 10)

## 13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION

**Part A** (continued)

- \_\_\_ 4.0 **LOCKOUT** 13KV BS C-D breaker, AND REMOVE key 19119.
- \_\_\_ 5.0 **LOCKOUT** 13KV BS D-E breaker, AND REMOVE key 19109.
- \_\_\_ 6.0 **ENSURE** 2T60, NO. 2 STA PWR TRANS 500KV LOAD BREAK DISC, is OPEN, AND REMOVE key 3376.
- \_\_\_ 7.0 **INSERT** the following keys in 3J1YD2T50, NO. 2 STATION POWER TRANSFORMER SECTION 4 13KV DISCONNECT (north yard):
  - ◆ 3376
  - ◆ 10553
- \_\_\_ 8.0 **OPEN** 3J1YD2T50, AND REMOVE key 10553.
- \_\_\_ 9.0 **ENSURE** 4T60, NO. 4 STA PWR TRANS 500KV LOAD BREAK DISC, is OPEN, AND REMOVE key 19590.
- \_\_\_ 10.0 **INSERT** key 19590 in 3J1YD4T50, NO. 4 STATION POWER TRANSFORMER SECTION D 13KV DISCONNECT, AND OPEN 3J1YD4T50.
- \_\_\_ 11.0 **REMOVE** key 19147 from 3J1YD4T50.

**ATTACHMENT 6**  
**(Page 3 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**Part A** (continued)

- \_\_\_ 12.0 **INSERT** the following keys in 3J1YDBTDB50, 13KV BUS SECTION D TO D4 DISCONNECT (southyard):
- ◆ 10553
  - ◆ 19109
  - ◆ 19119
  - ◆ 19147
- \_\_\_ 13.0 **CLOSE** 3J1YDBTDB50, AND REMOVE key 19129.
- \_\_\_ 14.0 **INSERT** key 19129 in 3J1YDBT4B50, 13KV BUS SECTION T2 TO D4 DISCONNECT, AND CLOSE 3J1YDBT4B50(northyard).
- \_\_\_ 15.0 **REMOVE** the following keys from 3J1YDBT4B50:
- ◆ 10553
  - ◆ 19109
  - ◆ 19119
- \_\_\_ 16.0 **INSERT** key 19119, AND UNLOCK 13KV BS C-D breaker.
- \_\_\_ 17.0 **RESET** 13KV BS C-D breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 18.0 **INSERT** key 19109, AND UNLOCK 13KV BS D-E breaker.
- \_\_\_ 19.0 **RESET** 13KV BS D-E breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 20.0 **NOTIFY** NCO 13KV Bus Section 4 is cross-tied to 13KV Bus Section "D".
- \_\_\_ 21.0 **RETURN** key 10553 to Work Control Center.



**ATTACHMENT 6**  
**(Page 4 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**Part B** **Connecting 13KV Bus Section A To 13KV Bus Section 1**

- \_\_\_ 1.0 **IF** Unit 3 is required to support Hope Creek operation,  
**THEN INITIATE** Attachment 9, Energizing Salem-Hope Creek Tie Line (5037)  
 From Salem Unit 3.
- \_\_\_ 2.0 **NOTIFY** Hope Creek Operations to prepare for cross-tie.
- \_\_\_ 3.0 **OBTAIN** key 19140 from Work Control Center (key #52).
- \_\_\_ 4.0 **ENSURE** the following breakers are OPEN:
  - \_\_\_ ◆ 3J1YDBS1-2, 13KV BUS SECTION 1-2 BREAKER
  - \_\_\_ ◆ 3J1YDBS1-6, 13KV BUS SECTION 1-6 BREAKER
- \_\_\_ 5.0 **ENSURE** the following 13KV Ground Disconnects are OPEN:
  - \_\_\_ ◆ 3J1YDBS 1T81, 13KV BUS SECTION T1 GROUND (north yard)
  - \_\_\_ ◆ 3J1YDBS A180, 13KV BUS SECTION A1 GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS F80, NO. 13 SPT GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS AF80, 13KV BKR A-F GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS A80, 13KV BUS SECT A GROUND (A80) (south yard)
  - \_\_\_ ◆ 3J1YDBS AB80, 13KV BKR A-B GROUND (south yard)
  - \_\_\_ ◆ 3J1YDBS B80, NO. 24 SPT GROUND (south yard)
- \_\_\_ 6.0 **LOCKOUT** 13KV BS A-F breaker, **AND REMOVE** key 19130.
- \_\_\_ 7.0 **LOCKOUT** 13KV BS A-B breaker, **AND REMOVE** key 19120.
- \_\_\_ 8.0 **ENSURE** 1T60, NO. 1 STA PWR TRANS 500KV LOAD BREAK DISC, is OPEN  
**AND REMOVE** key 3375.

ATTACHMENT 6  
(Page 5 of 10)

## 13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION

**Part B** (continued)

- \_\_\_ 9.0 **INSERT** the following keys in 3J1YD1T50, NO. 1 STATION POWER TRANSFORMER SECTION 1 13KV DISCONNECT:
- ◆ 3375
  - ◆ 19140
- \_\_\_ 10.0 **OPEN** 3J1YD1T50, AND REMOVE key 19140.
- \_\_\_ 11.0 **ENSURE** 3T60, NO. 3 STA PWR TRANS 500KV LOAD BREAK DISC, is OPEN, AND REMOVE key 19585.
- \_\_\_ 12.0 **INSERT** key 19585 in 3J1YD3T50, NO. 3 STATION POWER TRANSFORMER SECTION A 13KV DISCONNECT, AND OPEN 3J1YD3T50.
- \_\_\_ 13.0 **REMOVE** key 19097 from 3J1YD3T50.
- \_\_\_ 14.0 **INSERT** the following keys in 3J1YDBTAB50, 13KV BUS SECTION A TO A1 DISCONNECT:
- ◆ 19097
  - ◆ 19120
  - ◆ 19130
  - ◆ 19140
- \_\_\_ 15.0 **CLOSE** 3J1YDBTAB50.
- \_\_\_ 16.0 **REMOVE** key 19110 from 3J1YDBTAB50.
- \_\_\_ 17.0 **INSERT** key 19110 in 3J1YDBT1B50, 13KV BUS SECTION T1 TO A1 DISCONNECT, AND CLOSE 3J1YDBT1B50.
- \_\_\_ 18.0 **REMOVE** the following keys from 3J1YDBT1B50:
- ◆ 19120
  - ◆ 19130
  - ◆ 19140

ATTACHMENT 6  
(Page 6 of 10)

13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION

**Part B** (continued)

- \_\_\_ 19.0 **INSERT** key 19120, AND UNLOCK 13KV BS A-B breaker.
- \_\_\_ 20.0 **RESET** 13KV BS A-B breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 21.0 **INSERT** key 19130, AND UNLOCK 13KV BS A-F breaker.
- \_\_\_ 22.0 **RESET** 13KV BS A-F breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 23.0 **NOTIFY** NCO 13KV Bus Section 1 is cross-tied to 13KV Bus Section "A".
- \_\_\_ 24.0 IF Unit 3 is required to support Hope Creek operation,  
THEN:
  - \_\_\_ A. **INSERT** key 19140 in 3J1YD1T50,  
AND CLOSE 3J1YD1T50, NO. 1 STATION POWER TRANSFORMER  
SECTION 1 13KV DISCONNECT.
  - \_\_\_ B. **REMOVE** the following keys from 3J1YD1T50:
    - ◆ 3375
    - ◆ 19140
  - \_\_\_ C. **INSERT** key 3375 in 1T60, NO. 1 STA PWR TRANS  
500KV LOAD BREAK DISC.
- \_\_\_ 25.0 **STANDBY** to perform 13KV North Ring Bus breaker manipulations  
when directed by the Control Room.
- \_\_\_ 26.0 **RETURN** key 19140 to Work Control Center.

**ATTACHMENT 6**  
**(Page 7 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**Part C Separating 13KV Bus Section A From 13KV Bus Section 1**

- \_\_\_ 1.0 **OBTAIN** key 19140 from Work Control Center (key #52).
- \_\_\_ 2.0 IF Unit 3 is aligned to 500KV Bus Section 10 to support Hope Creek,  
THEN:
  - \_\_\_ A. **NOTIFY** Hope Creek Shift Manager that Unit 3 will be separated from 500KV Bus Section 10.
  - \_\_\_ B. Direct Unit 2 to **OPEN** 500KV BS 2-10 breaker.
  - \_\_\_ C. **OPEN** 1T60, NO. 1 SPT 500KV LOAD BREAK DISC.
- \_\_\_ 3.0 **OPEN** the following 13KV breakers:
  - \_\_\_ A. 3J1YDBS1-2, 13KV BUS SECTION 1-2 BREAKER
  - \_\_\_ B. 3J1YDBS1-6, 13KV BUS SECTION 1-6 BREAKER
- \_\_\_ 4.0 **LOCKOUT** 13KV BS A-B breaker, AND REMOVE key 19120.
- \_\_\_ 5.0 **LOCKOUT** 13KV BS A-F breaker, AND REMOVE key 19130.
- \_\_\_ 6.0 **INSERT** the following keys in 3J1YDBT1B50, 13KV BUS SECTION T1 TO A1 DISCONNECT (north yard):
  - ◆ 19120
  - ◆ 19130
  - ◆ 19140
- \_\_\_ 7.0 **OPEN** 3J1YDBT1B50, AND REMOVE key 19110.
- \_\_\_ 8.0 **INSERT** key 19110 in 3J1YDBTAB50, 13KV BUS SECTION A TO A1 DISCONNECT, AND OPEN 3J1YDBTAB50 (south yard).
- \_\_\_ 9.0 **REMOVE** the following keys from 3J1YDBTAB50:
  - ◆ 19097
  - ◆ 19120
  - ◆ 19130
  - ◆ 19140

**ATTACHMENT 6**  
**(Page 8 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**Part C** (continued)

- \_\_\_ 10.0 **INSERT** key 19097 in 3J1YD3T50, NO. 3 STATION POWER TRANSFORMER SECTION A 13KV DISCONNECT (south yard).
- \_\_\_ 11.0 IF 1 SPT is to be placed in service,  
THEN:
  - \_\_\_ A. **ENSURE** 3J1YD1T80, NO. 1 STATION POWER TRANSFORMER 13KV GROUND, is OPEN (north yard).
  - \_\_\_ B. IF Unit 3 was aligned to the Salem-Hope Creek Tie Line (5037),  
THEN:
    - \_\_\_ 1. **REMOVE** key 3375 from 1T60.
    - \_\_\_ 2. **INSERT** key 3375 in 3J1YD1T50,  
 NO. 1 STATION POWER TRANSFORMER SECTION 1  
 13KV DISCONNECT.
  - \_\_\_ C. IF Unit 3 was NOT aligned to the Salem-Hope Creek Tie Line (5037),  
THEN **ENSURE** Key 3375 is installed in 3J1YD1T50,  
 NO. 1 STATION POWER TRANSFORMER SECTION 1 13KV DISCONNECT.
  - \_\_\_ D. **INSERT** key 19140 in 3J1YD1T50, AND **CLOSE** 3J1YD1T50.
  - \_\_\_ E. **REMOVE** key 19140 from 3J1YD1T50.
- \_\_\_ 12.0 **INSERT** key 19120, AND **UNLOCK** 13KV BS A-B breaker (south yard).
- \_\_\_ 13.0 **RESET** 13KV BS A-B breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 14.0 **INSERT** key 19130, AND **UNLOCK** 13KV BS A-F breaker.
- \_\_\_ 15.0 **RESET** 13KV BS A-F breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 16.0 **NOTIFY** NCO 13KV Bus Section 1 is separated from 13KV Bus Section "A".
- \_\_\_ 17.0 **RETURN** key 19140 to Work Control Center.

**ATTACHMENT 6**  
**(Page 9 of 10)**

**13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION**

**Part D Separating 13KV Bus Section D From 13KV Bus Section 4**

- \_\_\_ 1.0 **OBTAIN** key 10553 from Work Control Center (key #26).
- \_\_\_ 2.0 **ENSURE** the following breakers are OPEN:
  - \_\_\_ A. 3J3GT1, 3 UNIT 13KV OUTPUT BREAKER
  - \_\_\_ B. 3J1YDBS4-5, 13KV BUS SECTION 4-5 BREAKER
  - \_\_\_ C. 3J1YDBS3-4, 13KV BUS SECTION 3-4 BREAKER
- \_\_\_ 3.0 **LOCKOUT** 13KV BS C-D breaker, AND REMOVE key 19119.
- \_\_\_ 4.0 **LOCKOUT** 13KV BS D-E breaker, AND REMOVE key 19109.
- \_\_\_ 5.0 **INSERT** the following keys, AND UNLOCK 3J1YDBT4B50, 13KV BUS SECTION T2 TO D4 DISCONNECT:
  - ◆ 10553
  - ◆ 19109
  - ◆ 19119
- \_\_\_ 6.0 **OPEN** 3J1YDBT4B50, AND REMOVE key 19129.
- \_\_\_ 7.0 **INSERT** key 19129, AND OPEN 3J1YDBTDB50, 13KV BUS SECTION D TO D4 DISCONNECT (south yard).
- \_\_\_ 8.0 **REMOVE** the following keys from 3J1YDBTDB50:
  - ◆ 10553
  - ◆ 19109
  - ◆ 19119
  - ◆ 19147
- \_\_\_ 9.0 **INSERT** key 19147 in 3J1YD4T50, NO. 4 STATION POWER TRANSFORMER SECTION D 13KV DISCONNECT.

ATTACHMENT 6  
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## 13KV CROSS-TIE DISCONNECT EMERGENCY OPERATION

**Part D** (continued)

- \_\_\_ 10.0 IF 2 SPT is to be placed in service,  
THEN:
- \_\_\_ A. **ENSURE** the following:
- \_\_\_ 1. 3J1YD2T80, NO. 2 STATION POWER TRANSFORMER  
13KV GROUND, is OPEN.
- \_\_\_ 2. Key 3376 is installed in 3J1YD2T50, NO. 2 STATION POWER  
TRANSFORMER SECTION 4 13KV DISCONNECT (north yard)
- \_\_\_ B. **INSERT** key 10553 in 3J1YD2T50, AND **CLOSE** 3J1YD2T50.
- \_\_\_ C. **REMOVE** key 10553 from 3J1YD2T50.
- \_\_\_ 11.0 **INSERT** key 19119, AND **UNLOCK** 13KV BS C-D breaker.
- \_\_\_ 12.0 **RESET** 13KV BS C-D breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 13.0 **INSERT** key 19109, AND **UNLOCK** 13KV BS D-E breaker.
- \_\_\_ 14.0 **RESET** 13KV BS D-E breaker lockout toggle switch (inside breaker cabinet).
- \_\_\_ 15.0 **NOTIFY** NCO 13KV Bus Section 4 has been separated from 13KV Bus Section "D".
- \_\_\_ 16.0 **RETURN** key 10553 to Work Control Center.

**ATTACHMENT 7**  
**(Page 1 of 10)**

**RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION**

**NOTES**

- ◆ Use of this attachment requires availability of at least one 500KV Bus Section and both 500/13KV transformers associated with the energized bus section.
- ◆ 13KV breaker manipulations required by this attachment will affect Salem Unit 2. Each 13KV breaker manipulation is to be clearly communicated to the Unit 2 CRS.
- ◆ Step 1.0 must be completed before continuing with this attachment. Hope Creek Operations concurrence must be obtained to separate Unit 3 from the Salem-Hope Creek Tie Line.

- \_\_\_ 1.0 IF Salem Unit 3 is in service to support Hope Creek,  
THEN:
- \_\_\_ A. **OBTAIN** Hope Creek Operations concurrence to separate the Salem-Hope Creek Tie Line from Salem Unit 3.
- \_\_\_ B. **NOTIFY** Salem Unit 3 operator that Salem-Hope Creek Tie Line is to be separated from Salem Unit 3.
- \_\_\_ C. Direct Unit 2 to **OPEN** 500KV BS 2-10.
- \_\_\_ D. **OPEN** 1T60, NO. 1 STA PWR TRANS 500KV LOAD BREAK DISC.
- \_\_\_ 2.0 **ENSURE** Multi-Trips are reset IAW Attachment 5, Multi-Trip Reset Scheme.
- \_\_\_ 3.0 **ENSURE** at least one of the following 500KV lines is energized from associated substation or switchyard:
- \_\_\_ ◆ Orchard (5021)
- \_\_\_ ◆ New Freedom (5024)
- \_\_\_ ◆ Salem - Hope Creek Tie-line (5037)



**ATTACHMENT 7**  
**(Page 2 of 10)**

**RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION**

**NOTE**

- ◆ Electric System Operator (ESO) approval is required for all 500KV AND 13KV switching evolutions.
- ◆ Steps 4.0 through 6.0, including substeps, may be performed in any order as directed by the Electric System Operator (ESO).

- \_\_\_ 4.0 IF 500KV Orchard line (5021) is available,  
THEN:
- \_\_\_ A. IF 500KV Bus Sections 1 and 8 are clear of faults,  
THEN:
- \_\_\_ 1. **CLOSE** 500KV BS 1-8 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- \_\_\_ 2. **CLOSE** 500KV BS 1-8 breaker (20X)  
IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.
- \_\_\_ B. IF 500KV Bus Sections 2 and 8 are clear of faults,  
THEN:
- \_\_\_ 1. **CLOSE** 500KV BS 2-8 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- \_\_\_ 2. **CLOSE** 500KV BS 2-8 breaker (21X)  
IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.
- \_\_\_ 5.0 IF 500KV New Freedom line (5024) is available,  
AND 500KV Bus Sections 2 and 6 are clear of faults,  
THEN:
- \_\_\_ A. **CLOSE** 500KV BS 2-6 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- \_\_\_ B. **CLOSE** 500KV BS 2-6 breaker (11X)  
IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.

ATTACHMENT 7  
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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

- 6.0 IF 500KV Hope Creek Tie line (5037) is available,  
AND 500KV Bus Sections 2 and 10 are clear of faults,  
THEN:
- A. CLOSE 500KV BS 2-10 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- B. Direct Unit 2 to CLOSE 500KV BS 2-10 breaker (31X)  
IAW S2.OP-SO.500-0001(Q), 500KV Bus Operation.

7.0 Is 500KV Bus Section 2 energized?

YES NO —> GO TO Step 33.0

Time

V

8.0 Are any Unit 1 4KV Vital Buses energized from Unit 3 via 13 SPT?

YES NO —> GO TO Step 14.0

Time

V

9.0 Is 14 SPT energized?

YES NO —> GO TO Step 13.0

Time

V

10.0 TRANSFER 4KV Vital Buses energized from 13 SPT to 14 SPT  
IAW applicable procedure(s):

- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation

11.0 IF 1CW 4KV Bus Section 13 is energized from 13 SPT,  
THEN TRANSFER 1CW Bus Section 13 to 1CW Bus Section 14  
IAW S1.OP-SO.4KV-0009(Z), 1CW 4KV Bus Operation.

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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

- \_\_\_ 12.0 **GO TO** Step 14.0 Time
- \_\_\_ 13.0 **COORDINATE** with Unit 3 Operator  
AND REMOVE all loads from Unit 1 4KV Vital Buses and 1CW 4KV Bus powered from Unit 3.
- \_\_\_ 14.0 **OPEN** the following breakers:
- \_\_\_ ♦ 13KV BS 1-2
- \_\_\_ ♦ 13KV BS A-F
- \_\_\_ 15.0 Direct Unit 2 to **OPEN** the following breakers:
- \_\_\_ ♦ 13KV BS 1-6
- \_\_\_ ♦ 13KV BS A-B
- \_\_\_ 16.0 IF the following 13KV disconnects are CLOSED:
- \_\_\_ ♦ 3J1YD BTAB50, 13KV BUS SECTION A TO A1 DISCONNECT
- \_\_\_ ♦ 3J1YD BT1B50, 13KV BUS SECTION T1 TO A1 DISCONNECT
- \_\_\_ THEN direct NEO to **SEPARATE** 13KV Bus Section A from 13KV Bus Section 1 IAW Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation, Part C.
- \_\_\_ 17.0 **PLACE** 3, 13, and 24 SPTs in service IAW SC.OP-SO.13-0013(Q), 3, 13, and 24 Station Power Transformers Operation.
- \_\_\_ 18.0 IF any available Unit 1 4KV Vital Bus(es) are de-energized,  
THEN ENERGIZE available 4KV Vital Bus(es) from 13 SPT,  
AND RESTORE loads as required to support plant operation IAW applicable procedure(s):
- \_\_\_ ♦ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- \_\_\_ ♦ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation

**ATTACHMENT 7**  
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**RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION**

- \_\_\_ 19.0 IF any Unit 1 4KV Vital Bus(es) are energized from 14 SPT,  
THEN:
- \_\_\_ A. **COORDINATE** with Unit 3 Operator AND **TRANSFER** loads from each 4KV Vital Bus to be transferred to 13 SPT.
- \_\_\_ B. **TRANSFER** 4KV Vital Buses energized from 14 SPT to 13 SPT IAW applicable procedure(s):
- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
  - ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
  - ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation
- \_\_\_ C. **RESTORE** loads to Vital Buses energized from 13 SPT as required to support plant operation.
- \_\_\_ 20.0 IF 1CW 4KV Bus Section 13 is energized from 1CW Bus Section 14,  
THEN **COORDINATE** with Unit 3 Operator AND **PERFORM** the following IAW S1.OP-SO.4KV-0009(Z), 1CW 4KV Bus Operation:
- \_\_\_ A. **TRANSFER** 1CW Bus Section 13 to 13 SPT.
- \_\_\_ B. **TRANSFER** 1CW Bus Section 14 to 1CW Bus Section 13.
- \_\_\_ 21.0 IF 1CW 4KV Bus is de-energized,  
THEN **PLACE** 1CW 4KV Bus in service IAW S1.OP-SO.4KV-0009(Z), 1CW 4KV Bus Operation.
- \_\_\_ 22.0 IF any Unit 1 4KV Vital Buses are energized from Diesel Generators,  
THEN **SHUTDOWN** Diesel Generator(s)  
AND **ENERGIZE** 4KV Vital Buses from 13 SPT IAW applicable procedure(s):
- ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
  - ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
  - ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- \_\_\_ 23.0 Direct Unit 2 to **COORDINATE** with Unit 3 Operator  
AND **REMOVE** all loads from 2E and 2H 4KV Group Buses.

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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

- \_\_\_ 24.0 **COORDINATE** with Unit 3 Operator  
AND REMOVE all loads from 1E and 1H 4KV Group Buses.
- \_\_\_ 25.0 **OPEN** 13KV BS 2-3 breaker.
- \_\_\_ 26.0 Direct Unit 2 to **OPEN** 13KV BS 5-6 breaker.
- \_\_\_ 27.0 **PLACE** 1, 11, and 21 SPTs in service IAW SC.OP-SO.13-0011(Q),  
1, 11, and 21 Station Power Transformers Operation.
- \_\_\_ 28.0 **ENERGIZE** 1E and 1H 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation  
IAW applicable procedures:
  - ◆ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
  - ◆ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation
- \_\_\_ 29.0 **COORDINATE** with Unit 3 Operator  
AND ENERGIZE 22 SPT from 13KV Bus Section 1  
IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 30.0 **COORDINATE** with Unit 3 Operator  
AND ENERGIZE 12 SPT from 13KV Bus Section 1  
IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 31.0 Direct Unit 3 Operator to **OPEN** 3J3GT1, 3 UNIT 13KV OUTPUT BREAKER.
- \_\_\_ 32.0 IF the following 13KV disconnects are CLOSED:
  - ◆ 3J1YD BTDB50, 13KV BUS SECTION D TO D4 DISCONNECT
  - ◆ 3J1YD BT4B50, 13KV BUS SECTION T2 TO D4 DISCONNECT

THEN direct NEO to **SEPARATE** 13KV Bus Section D from 13KV Bus Section 4  
IAW Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation, Part D.

ATTACHMENT 7  
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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

33.0 Is 500KV Bus Section 1 energized?

|     |    |     |          |                 |       |
|-----|----|-----|----------|-----------------|-------|
| ___ | NO | ___ | YES ———> | GO TO Step 36.0 | _____ |
|     |    |     |          |                 | Time  |
|     | V  |     |          |                 |       |

34.0 Are 1 SPT AND 3 SPT energized from 500KV Bus Section 2?

|     |    |     |          |                 |       |
|-----|----|-----|----------|-----------------|-------|
| ___ | NO | ___ | YES ———> | GO TO Step 51.0 | _____ |
|     |    |     |          |                 | Time  |
|     | V  |     |          |                 |       |

|     |      |           |                                     |       |
|-----|------|-----------|-------------------------------------|-------|
| ___ | 35.0 | RETURN TO | main body of procedure at Step 3.98 | _____ |
|     |      |           |                                     | Time  |

36.0 Are 1 SPT AND 3 SPT energized from 500KV Bus Section 2?

|     |    |     |          |                 |       |
|-----|----|-----|----------|-----------------|-------|
| ___ | NO | ___ | YES ———> | GO TO Step 53.0 | _____ |
|     |    |     |          |                 | Time  |
|     | V  |     |          |                 |       |

|     |      |            |  |  |
|-----|------|------------|--|--|
| ___ | 37.0 | COORDINATE | with Unit 2 and Unit 3 Operator              |  |
|     |      | AND REMOVE | all loads from both Units 4KV Group Buses    |  |
|     |      |            | and any 4KV Vital Buses powered from Unit 3. |  |

|     |      |      |                         |
|-----|------|------|-------------------------|
| ___ | 38.0 | OPEN | the following breakers: |
|-----|------|------|-------------------------|

- ◆ 13KV BS 1-2
- ◆ 13KV BS 2-3
- ◆ 13KV BS 4-5
- ◆ 13KV BS A-F
- ◆ 13KV BS C-D

ATTACHMENT 7  
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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

\_\_\_ 39.0 Direct Unit 2 to **OPEN** the following breakers:

- ◆ 13KV BS 1-6
- ◆ 13KV BS 5-6
- ◆ 13KV BS 3-4
- ◆ 13KV BS A-B
- ◆ 13KV BS D-E

\_\_\_ 40.0 IF the following 13KV disconnects are CLOSED:

- ◆ 3J1YD BTDB50, 13KV BUS SECTION D TO D4 DISCONNECT
- ◆ 3J1YD BT4B50, 13KV BUS SECTION T2 TO D4 DISCONNECT

THEN direct NEO to **SEPARATE** 13KV Bus Section D from 13KV Bus Section 4, IAW Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation, Part D.

\_\_\_ 41.0 **PLACE** 4, 14, and 23 SPTs in service IAW SC.OP-SO.13-0014(Q), 4, 14, and 23 Station Power Transformers Operation.

\_\_\_ 42.0 IF any available Unit 1 4KV Vital Bus(es) are de-energized,  
THEN **ENERGIZE** available 4KV Vital Bus(es) from 14 SPT,  
AND **RESTORE** loads as required to support plant operation IAW applicable procedure(s):

- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation

\_\_\_ 43.0 **ENERGIZE OR ALIGN** 1CW 4KV Bus to 14 SPT as required to support plant operation IAW S1.OP-SO.4KV-0009(Z), 1CW 4KV Bus Operation.

ATTACHMENT 7  
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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

- \_\_\_ 44.0 IF the following 13KV disconnects are CLOSED:
- ◆ 3J1YD BTAB50, 13KV BUS SECTION A TO A1 DISCONNECT
  - ◆ 3J1YD BT1B50, 13KV BUS SECTION T1 TO A1 DISCONNECT
- THEN direct NEO to **SEPARATE** 13KV Bus Section A from 13KV Bus Section 1, IAW Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation, Part C.
- \_\_\_ 45.0 **PLACE** 2, 12, and 22 SPTs in service IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 46.0 **ENERGIZE** 1F and 1G 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation  
IAW applicable procedures:
- ◆ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
  - ◆ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation
- \_\_\_ 47.0 **ENERGIZE** 11 SPT from 13KV North Ring Bus Section 4  
IAW SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation.
- \_\_\_ 48.0 **ENERGIZE** 1E and 1H 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation  
IAW applicable procedures:
- ◆ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
  - ◆ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation
- \_\_\_ 49.0 **ENERGIZE** 21 SPT from 13KV North Ring Bus Section 4  
IAW SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation.
- \_\_\_ 50.0 Direct Unit 2 to **ENERGIZE** 2E and 2H 4KV Group Buses  
AND RESTORE loads as necessary to support plant operation  
IAW applicable procedures:
- ◆ S2.OP-SO.4KV-0004(Z), 2E 4KV Group Bus Operation
  - ◆ S2.OP-SO.4KV-0007(Z), 2H 4KV Group Bus Operation



ATTACHMENT 7  
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RESTORING OFF-SITE POWER WITH UNIT 3 IN OPERATION

- \_\_\_ 51.0 **REMOVE** Unit 3 from service IAW S3.OP-SO.JET-0002(Q),  
Dead Bus Operation - Station Blackout.
- \_\_\_ 52.0 **RETURN** to main body of procedure at Step 3.113
- \_\_\_ 53.0 **PLACE** 4, 14, and 23 SPTs in service IAW SC.OP-SO.13-0014(Q),  
4, 14, and 23 Station Power Transformers Operation.
- \_\_\_ 54.0 **ALIGN** power to Unit 1 4KV Vital Buses and 1CW 4KV Bus  
as required to support plant operation IAW applicable procedures:
- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
  - ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
  - ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation
  - ◆ S1.OP-SO.4KV-0009(Q), 1CW 4KV Bus Operation
- \_\_\_ 55.0 **PERFORM** the following IAW SC.OP-SO.13-0012(Q),  
2, 12, and 22 Station Power Transformers Operation:
- \_\_\_ A. **PLACE** 2 SPT in service.
  - \_\_\_ B. **TRANSFER** 12 SPT to 13KV Bus Section 4.
  - \_\_\_ C. **TRANSFER** 22 SPT to 13KV Bus Section 4.
- \_\_\_ 56.0 **RETURN** to main body of procedure at Step 3.103

Time

Time

**ATTACHMENT 8**  
**(Page 1 of 6)**

**RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM**

**NOTE**

Use of this attachment requires availability of at least one 500KV Bus Section and both 500/13KV transformers associated with the energized bus section.

- \_\_\_ 1.0 **ENSURE** Multi-Trips are reset IAW Attachment 5, Multi-Trip Reset Scheme.
- \_\_\_ 2.0 **ENSURE** at least one of the following 500KV lines is energized from associated substation or Switchyard:
  - \_\_\_ ♦ Orchard (5021)
  - \_\_\_ ♦ New Freedom (5024)
  - \_\_\_ ♦ Salem - Hope Creek Tie-line (5037)

**NOTE**

- ♦ Electric System Operator (ESO) approval is required for all 500KV AND 13KV switching evolutions.
- ♦ Steps 3.0 through 5.0, including substeps, may be performed in any order as directed by the Electric System Operator (ESO).

- \_\_\_ 3.0 IF 500KV Orchard line (5021) is available,  
THEN:
  - \_\_\_ A. IF 500KV Bus Sections 1 and 8 are clear of faults,  
THEN:
    - \_\_\_ 1. **CLOSE** 500KV BS 1-8 breaker disconnects  
 IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
    - \_\_\_ 2. **CLOSE** 500KV BS 1-8 breaker (20X)  
 IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.
  - \_\_\_ B. IF 500KV Bus Sections 2 and 8 are clear of faults,  
THEN:
    - \_\_\_ 1. **CLOSE** 500KV BS 2-8 breaker disconnects  
 IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
    - \_\_\_ 2. **CLOSE** 500KV BS 2-8 breaker (21X)  
 IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.

ATTACHMENT 8  
(Page 2 of 6)

RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM

- \_\_\_ 4.0 IF 500KV New Freedom line (5024) is available,  
AND 500KV Bus Sections 2 and 6 are clear of faults,  
THEN:
- \_\_\_ A. CLOSE 500KV BS 2-6 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- \_\_\_ B. CLOSE 500KV BS 2-6 breaker (11X)  
IAW S1.OP-SO.500-0001(Q), 500KV Bus Operation.
- \_\_\_ 5.0 IF 500KV Hope Creek Tie line (5037) is available,  
AND 500KV Bus Sections 2 and 10 are clear of faults,  
THEN:
- \_\_\_ A. CLOSE 500KV BS 2-10 breaker disconnects  
IAW SC.OP-SO.500-0005(Z), Salem Switchyard Key Interlock Scheme.
- \_\_\_ B. Direct Unit 2 to CLOSE 500KV BS 2-10 breaker (31X)  
IAW S2.OP-SO.500-0001(Q), 500KV Bus Operation.
- 6.0 Is 500KV Bus Section 2 energized?
- \_\_\_ YES    \_\_\_ NO ———> GO TO Step 11.0
- \_\_\_  
|  
V
- Time
- \_\_\_ 7.0 INITIATE the following procedures:
- \_\_\_ ♦ SC.OP-SO.13-0013(Q), 3, 13, And 24 Station Power Transformers Operation  
to place 3, 13, and 24 SPTs in service.
- \_\_\_ ♦ SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation  
to place 1, 11, and 21 SPTs in service.

ATTACHMENT 8  
(Page 3 of 6)

RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM

**NOTE**

Steps 8.0 through 10.0 may be performed in any order as transformers become available.

\_\_\_ 8.0 IF any Unit 1 4KV Vital Bus is de-energized AND capable of being placed in service,  
THEN ENERGIZE affected Vital Bus(es) from 13 SPT  
AND RESTORE loads IAW applicable procedure(s):

- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation

\_\_\_ 9.0 **REMOVE** Diesel Generators from service  
AND ENERGIZE 4KV Vital Buses from 13 SPT IAW applicable procedure(s):

- ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation

\_\_\_ 10.0 **PLACE** 1E and 1H 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
IAW applicable procedures:

- ◆ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation

11.0 Is 500KV Bus Section 1 energized?

\_\_\_ NO      \_\_\_ YES ———>      **GO TO** Step 14.0

|

V

Time

ATTACHMENT 8  
(Page 4 of 6)

RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM

12.0 Are 1 SPT AND 3 SPT energized from 500KV Bus Section 2?

\_\_\_ NO      \_\_\_ YES ———>      **GO TO** Step 24.0  
           |  
           V

Time

\_\_\_ 13.0 **RETURN** to main body of procedure at Step 3.98

Time

\_\_\_ 14.0 **INITIATE** the following procedures:

- ◆ SC.OP-SO.13-0014(Q), 4, 14, and 23 Station Power Transformers Operation, to place 4, 14, and 23 SPTs in service.
- ◆ SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation, to place 2, 12, and 22 SPTs in service.

**NOTE**

Steps 15.0 through 17.0 may be performed in any order as transformers become available.

\_\_\_ 15.0 IF any Unit 1 4KV Vital Bus is de-energized AND capable of being placed in service, THEN **ENERGIZE** affected Vital Bus(es) from 14 SPT AND **RESTORE** loads IAW applicable procedure(s):

- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation

\_\_\_ 16.0 **REMOVE** Diesel Generators from service AND **ENERGIZE** 4KV Vital Buses from 14 SPT IAW applicable procedure(s):

- ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation

**ATTACHMENT 8**  
**(Page 5 of 6)**

**RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM**

\_\_\_ 17.0 **PLACE** 1F and 1G 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
 IAW applicable procedures:

- ◆ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation

18.0 Are 1 SPT AND 3 SPT energized from 500KV Bus Section 2?

\_\_\_ NO      \_\_\_ YES ———>      **GO TO** Step 29.0

↓

V

Time

\_\_\_ 19.0 **ENERGIZE** 21 SPT from 13KV North Ring Bus Section 4  
 IAW SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation.

\_\_\_ 20.0 Direct Unit 2 to **PLACE** 2E and 2H 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
 IAW applicable procedures:

- ◆ S2.OP-SO.4KV-0004(Z), 2E 4KV Group Bus Operation
- ◆ S2.OP-SO.4KV-0007(Z), 2H 4KV Group Bus Operation

\_\_\_ 21.0 **ENERGIZE** 11 SPT from 13KV North Ring Bus Section 4  
 IAW SC.OP-SO.13-0011(Q), 1, 11, and 21 Station Power Transformers Operation.

\_\_\_ 22.0 **PLACE** 1E and 1H 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
 IAW applicable procedures:

- ◆ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation

\_\_\_ 23.0 **RETURN** to main body of procedure at Step 3.103

Time

ATTACHMENT 8  
(Page 6 of 6)

RESTORING OFF-SITE POWER TO DE-ENERGIZED 13KV SYSTEM

- \_\_\_ 24.0 **ENERGIZE** 22 SPT from 13KV North Ring Bus Section 1  
IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 25.0 Direct Unit 2 to **PLACE** 2F and 2G 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
IAW applicable procedures:
- ◆ S2.OP-SO.4KV-0005(Z), 2F 4KV Group Bus Operation
  - ◆ S2.OP-SO.4KV-0006(Z), 2G 4KV Group Bus Operation
- \_\_\_ 26.0 **ENERGIZE** 12 SPT from 13KV North Ring Bus Section 1  
IAW SC.OP-SO.13-0012(Q), 2, 12, and 22 Station Power Transformers Operation.
- \_\_\_ 27.0 **PLACE** 1F and 1G 4KV Group Buses in service  
AND RESTORE loads as required to support plant operation  
IAW applicable procedures:
- ◆ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
  - ◆ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation
- \_\_\_ 28.0 **RETURN** to main body of this procedure at Step 3.113 \_\_\_  
Time
- \_\_\_ 29.0 **RETURN** to main body of this procedure at Step 3.103 \_\_\_  
Time

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

**ENERGIZING SALEM-HOPE CREEK TIE LINE (5037) FROM SALEM UNIT 3**

**NOTE**

This attachment is to be initiated when requested by Hope Creek Operations.

This attachment will be used in conjunction with Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation (Part B) when both Salem AND Hope Creek are experiencing a loss of all AC power,

- \_\_\_ 1.0 IF Unit 3 is to be aligned to support both Salem AND Hope Creek,  
THEN INITIATE Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation, Part B,  
Connecting 13KV Bus Section A To 13KV Bus Section 1.
- \_\_\_ 2.0 **ENSURE** the following 500KV breakers are OPEN:
  - ◆ 500KV BS 2-6
  - ◆ 500KV BS 2-8
  - ◆ 500KV BS 2-10
- \_\_\_ 3.0 **OPEN** all 1H 4KV (1HD1TB) breakers.
- \_\_\_ 4.0 **OPEN** all 1H 460V (1HX1TB) breakers.
- \_\_\_ 5.0 **CLOSE** 11HSD FROM STN PWR
- \_\_\_ 6.0 **CLOSE** 1H3D TO 208 XFMR (provides cooling to #1 SPT)
- \_\_\_ 7.0 **CLOSE** 1H5D TO 480 & 230 (provides cooling to #11 SPT).

**NOTE**

Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation is only required when both Salem AND Hope Creek are experiencing a loss of all AC power.

- \_\_\_ 8.0 IF Unit 3 is to be aligned to support both Salem AND Hope Creek,  
THEN COMPLETE Attachment 6, 13KV Cross-Tie Disconnect Emergency Operation,  
Part B, Connecting 13KV Bus Section A To 13KV Bus Section 1.



ATTACHMENT 9  
(Page 2 of 3)

ENERGIZING SALEM-HOPE CREEK TIE LINE (5037) FROM SALEM UNIT 3

- \_\_\_ 9.0 **INITIATE** S3.OP-SO.JET-0002(Q), Dead Bus Operation - Station Blackout  
AND PREPARE to START Unit 3 when directed by this attachment.
- \_\_\_ 10.0 **ALIGN** 13KV North Ring Bus breakers as follows:
- \_\_\_ A. **PRESS** the Mimic Bus 13KV BUS SEC. 1-2 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bezel 1-2 MIMIC BUS INTERLOCK  
CLOSE SELECTION is illuminated.
- \_\_\_ B. **PRESS** 13KV Ring Bus 1-2 CLOSE pushbutton,  
AND ENSURE 13KV BS 1-2 breaker is closed.
- \_\_\_ C. **PRESS** the Mimic Bus 13KV BUS SEC. 4-5 BKR pushbutton,  
AND ENSURE Control Console 13KV Ring Bus Bezel 4-5 MIMIC BUS  
INTERLOCK CLOSE SELECTION is illuminated.
- \_\_\_ D. **PRESS** 13KV Ring Bus 4-5 CLOSE pushbutton,  
AND ENSURE 13KV BS 4-5 breaker is closed.
- \_\_\_ E. Direct Unit 2 to **CLOSE** the following breakers:
- \_\_\_ ♦ 13KV BS 3-4
- \_\_\_ ♦ 13KV BS 1-6

**NOTE**

Because of an electrical interlock, 13KV Bus Section 1 and Bus Section 4 cannot be cross-tied from the Control Rooms. The interlock does NOT prevent local/manual breaker operation.

- \_\_\_ F. Direct NEO to manually **CLOSE** the following breakers  
at the 13KV North Ring Bus:
- \_\_\_ ♦ 13KV BS 2-3
- \_\_\_ ♦ 13KV BS 5-6

ATTACHMENT 9  
(Page 3 of 3)

ENERGIZING SALEM-HOPE CREEK TIE LINE (5037) FROM SALEM UNIT 3

- \_\_\_ 11.0 **START** Unit 3 IAW S3.OP-SO.JET-0002(Q), Dead Bus Operation - Station Blackout.
- \_\_\_ 12.0 **NOTIFY** Salem Unit 3 operator AND Hope Creek Operations that the 500KV Salem-Hope Creek Tie Line (5037) is about to be energized from Salem Unit 3.
- \_\_\_ 13.0 **CLOSE** 1T60, NO. 1 STA PWR TRANS 500KV LOAD BREAK DISC.
- \_\_\_ 14.0 Direct Unit 2 to **CLOSE** 500KV BS 2-10.

**CAUTION**

**Maximum Unit 3 loading is to be maintained IAW S3.OP-SO.JET-0001(Q), Gas Turbine Operation, Exhibit 1, Estimated Installed Power Trim Curve.**

- \_\_\_ 15.0 **NOTIFY** Hope Creek Operations that the 500KV Salem-Hope Creek Tie Line (5037) is energized from Salem Unit 3.

ATTACHMENT 10  
(Page 1 of 2)PLACING 23 CHARGING PUMP IN SERVICE  
TO UNIT 1 FROM THE UNIT 2 RWST**NOTE**

When utilizing 23 Charging Pump, Unit 2 should monitor RWST level to ensure compliance with Technical Specification 3.5.5. If Unit 2 RWST approaches the minimum volume required to satisfy Technical Specification 3.5.5, then either continued operation of the 23 Charging Pump should be evaluated or appropriate compensatory actions implemented.

- \_\_\_ 1.0 **VERIFY ALL** 11-14 RCP Seal Inlet Temperatures <225°F as indicated on ICC1 or the Plant Computer.
- \_\_\_ 2.0 **IF ANY** 11-14 RCP Seal Inlet Temperature is ≥225°F,  
**THEN PERFORM** the following to establish charging flow ONLY to the RCS for inventory control:
  - \_\_\_ ♦ **CLOSE** 1CV83, SEAL WATER FILTER INLET.
  - \_\_\_ ♦ **CLOSE** 1CV89, SEAL WATER FILTER INLET.
  - \_\_\_ ♦ **CLOSE** 1CV95, SEAL WATER FILTER BYPASS.
- \_\_\_ 3.0 **ENSURE** 23 Charging Pump is aligned for Appendix R Only (Unit 1) IAW S2.OP-SO.CVC-0002(Q), Charging Pump Operation.
- \_\_\_ 4.0 **PLACE** 23 Charging Pump in MANUAL.
- \_\_\_ 5.0 **SET** 23 Charging Pump Speed Controller Demand to 10-12%.
- \_\_\_ 6.0 **OPEN** 2CV462, CHARGING CROSS TIE MOV.

(continued on next page)

ATTACHMENT 10  
(Page 2 of 2)PLACING 23 CHARGING PUMP IN SERVICE  
TO UNIT 1 FROM THE UNIT 2 RWST**CAUTION**

If ANY 11-14 RCP Seal Inlet Temperature is  $\geq 225^{\circ}\text{F}$ , then do NOT start 23 Charging Pump until ALL Unit 1 RCP seal injection isolation valves are closed to prevent thermal shock of the RCP seals.

- \_\_\_ 7.0 **START** 23 Charging Pump AND immediately **INCREASE** speed demand to couple pump (Oil Press Low alarm clearing is indication that pump is coupled).
- \_\_\_ 8.0 **ADJUST** 23 Charging Pump to desired flow.
- \_\_\_ 9.0 IF RCP Seal Injection is NOT isolated,  
THEN **ENSURE** Seal Injection Flow 6-12 gpm to each Reactor Coolant Pump,  
not to exceed 40 gpm total Seal Injection Flow.
- \_\_\_ 10.0 IF required,  
THEN **PLACE** Excess Letdown in service to control Pressurizer level,  
IAW S1.OP-SO.CVC-0003(Q), Excess Letdown Flow.
- \_\_\_ 11.0 IF AT ANY TIME **Unit 2** RWST approaches the minimum volume required  
to satisfy Technical Specification 3.5.5,  
THEN **EVALUATE** continued operation of 23 Charging Pump, or  
**IMPLEMENT** appropriate compensatory actions as directed by the SM/CRS.
- \_\_\_ 12.0 **UPDATE** WCM to reflect valve positions.

**ATTACHMENT 11**  
**(Page 1 of 2)**

## COMPLETION SIGN-OFF SHEET

1.0 **COMMENTS:** (Include procedure deficiencies and corrective actions.)

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ATTACHMENT 11  
(Page 2 of 2)

COMPLETION SIGN-OFF SHEET

2.0 SIGNATURES

| Print | Initials | Signature | Date  |
|-------|----------|-----------|-------|
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3.0 SM/CRS FINAL REVIEW AND APPROVAL

This procedure with Attachments 1-11 is reviewed for completeness and accuracy.  
Entry conditions and all deficiencies, including corrective actions, are clearly recorded  
in the COMMENTS Section of this Attachment.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
SM/CRS

**EXHIBIT 1**  
**(Page 1 of 1)**

**BRIEFING SHEET**

**NOTE**

The following items are a list of potential topics which should be covered during the briefing at the SM/CRS discretion.

**1.0    SAFETY**

- ◆     **ENSURE** Personal Protective Equipment is worn as required by the Health and Safety Manual section on Electrical PPE.

**2.0    TECHNICAL SPECIFICATIONS and ECGs**

- ◆     **REFER** to the following Technical Specifications as applicable:
  - 3.8.1.1,     Electrical Power Systems - A.C. Sources - Operating
  - 3.8.1.2,     Electrical Power Systems - A.C. Sources - Shutdown
  - 3.8.2.1,     Electrical Power Systems - A.C. Distribution - Operating
  - 3.8.2.2,     Electrical Power Systems - A.C. Distribution - Shutdown

**3.0    PARAMETERS TO BE MONITORED**

- ◆     **MONITOR** bus and transformer voltages
- ◆     **MONITOR** Diesel Generator / Gas Turbine loading

**4.0    PLANNED COURSE OF ACTION**

- ◆ None

**5.0    CONTINGENCIES**

- ◆ IF \_\_\_ shutdown when implemented,  
   THEN CONSIDER briefing S1.OP-AB.RC-0004(Q), Natural Recirculation
- ◆     **DISCUSS** the effects of Attachment 2, Blackout Coping Actions
- ◆     **ENSURE** ESO is informed of all switching evolutions
- ◆ IF \_\_\_ any Diesel Generator is without Service Water for >5 minutes,  
   THEN SHUTDOWN the affected Diesel Generator(s)
- ◆     **DISCUSS** most likely success path for power restoration

## LOSS OF OFFSITE POWER TECHNICAL BASES DOCUMENT

### 1.0 REFERENCES

#### 1.1 Technical Documents

- A. FSAR Section 15.2.9, Loss of Offsite Power to the Station Auxiliaries (Station Blackout)
- B. Technical Specifications:
  - 1. 3.8.1.1 AC Sources Operating
  - 2. 3.8.1.2 Electrical Power Systems Shutdown
  - 3. 3.8.2.1 Onsite Power Distribution Systems AC Distribution - Operating
  - 4. 3.8.2.2 Electrical Power Systems AC Distribution - Shutdown
- C. Technical/Engineering Letters:
  - 1. NUMARC 87-00, Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors
  - 2. Flour Daniel, Inc. Blackout Coping Study for Salem Units 1 and 2
  - 3. ES 15-008(Q), Salem Units 1 & 2 Degraded Grid Study

#### 1.2 Procedures

- ◆ 1-EOP-LOPA-1, Loss of All AC Power
- ◆ 1-EOP-TRIP-1, Reactor Trip or Safety Injection
- ◆ SC.OP-SO.CA-0001(Q), SBO Diesel Control Air Compressor
- ◆ S1.OP-AB.115-0007(Q), Loss of 13 MAC
- ◆ S1.OP-AB.115-0008(Q), Loss of 14 MAC
- ◆ S1.OP-AB.CA-0001(Q), Loss of Control Air
- ◆ S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Pool Cooling
- ◆ S1.OP-AR.ZZ-0009(Q), Overhead Annunciators - Window J
- ◆ S1.OP-AR.ZZ-0010(Q), Overhead Annunciators - Window K
- ◆ SC.OP-SO.COM-0002(Q), Start/Stop Sequence For The Computer
- ◆ S1.OP-SO.COM-0003(Q), Plant Computer Inverter Operation
- ◆ S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- ◆ S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- ◆ S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- ◆ S1.OP-SO.LTS-0001(Z), Lighting Distribution Power Supply Transfer
- ◆ S1.OP-SO.PZR-0010(Q), Pressurizer Backup Heaters Power Supply Transfer
- ◆ S1.OP-SO.WG-0003(Q), Gaseous Waste Disposal System Operation
- ◆ S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0002(Q), 1B 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation
- ◆ S1.OP-SO.4KV-0004(Z), 1E 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0005(Z), 1F 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0006(Z), 1G 4KV Group Bus Operation
- ◆ S1.OP-SO.4KV-0007(Z), 1H 4KV Group Bus Operation
- ◆ SC.OP-SO.500-0125(Q), SBO Diesel - Miscellaneous Switchyard
- ◆ S1.OP-SO.500-0125(Q), SBO Diesel - Vital Battery Chargers
- ◆ S2.OP-AB.LOOP-0001, Loss of Offsite Power



1.2 (continued)

- ◆ S2.OP-AR.ZZ-0009(Q), Overhead Annunciators - Window J
- ◆ S2.OP-AR.ZZ-0010(Q), Overhead Annunciators - Window K
- ◆ S2.OP-SO.CVC-0023(Q), CVCS Cross-Connect Alignment to Unit 1
- ◆ S2.OP-SO.DG-0001(Q), 2A Diesel Generator Operation
- ◆ S2.OP-SO.DG-0002(Q), 2B Diesel Generator Operation
- ◆ S2.OP-SO.DG-0003(Q), 2C Diesel Generator Operation
- ◆ S2.OP-SO.4KV-0001(Q), 2A 4KV Vital Bus Operation
- ◆ S2.OP-SO.4KV-0002(Q), 2B 4KV Vital Bus Operation
- ◆ S2.OP-SO.4KV-0003(Q), 2C 4KV Vital Bus Operation
- ◆ S2.OP-SO.4KV-0004(Z), 2E 4KV Group Bus Operation
- ◆ S2.OP-SO.4KV-0005(Z), 2F 4KV Group Bus Operation
- ◆ S2.OP-SO.4KV-0006(Z), 2G 4KV Group Bus Operation
- ◆ S2.OP-SO.4KV-0007(Z), 2H 4KV Group Bus Operation
- ◆ S3.OP-SO.JET-0001(Q), Gas Turbine Operation
- ◆ S3.OP-SO.JET-0002(Q), Dead Bus Operation - Station Blackout

1.3 **Drawings**

203970, No. 1 & 2 Units Relay Protection Tripping Arrangement

1.4 **Other**

- A. PSBP 314204, Station Blackout Analysis for Salem Units 1 & 2
- B. DCP 1SC-2269, 13KV Electrical Upgrade, Change Packages 6 & 7
- C. DCP 1EC-3184, Station Blackout Diesel Driven Control Air Compressor
- D. DCP 1EC-3206, Installation of Advanced Digital Feedwater Control System
- E. DCP 1EC-3360, Control Room Area Modification
- F. DCP 1EC-3389, P250 Plant Computer Replacement
- G. DCP 1EC-3505, Control Room Ventilation Modification
- H. DCPs 80029150/80029155, Unit CVCS Cross-Tie.
- I. DCP 80099009, EAC PRA/MSPI Upgrade Project
- J. SAP 70086875, 4Q07 Salem Unit 1 EAC MSPI Yellow Indicator

1.5 **Conformance Documents**

- A. C0588, NRC Viol 272/93-82-07
- B. NRC Letter NLR-N92031, Response to Safety Evaluation on Station Blackout (SBO) Salem Generating Station, Units 1 and 2

**2.0 DISCUSSION**

- 2.1 This discussion is intended to provide information concerning bases for directed actions and logic behind the procedure flowpath. It does not provide additional direction for use of the procedure.
- 2.2 The Salem 13KV distribution system design introduces several unique possibilities having potential to meet the definition of loss of off-site power. Included among these is the possibility of Unit 1 suffering loss of off-site power with no affect on Unit 2, and no loss of power to Unit 1 4KV Group Buses (for example, 13KV BS A-F breaker trips during a 14 SPT outage). This procedure is intended to provide the direction necessary for response to loss of off-site power while the Unit is in Modes 3-6 or Defueled.
- 2.3 Entry Conditions
  - A. Entry into this procedure is based on recognition that Station Power Transformers are de-energized. Direct entry into this procedure is only upon a loss of two or more 4KV Vital Buses.
  - B. Entry conditions may be recognized by multiple OHA K Window alarms, and Main Control Board indications for Switchyard, SPT output, and Vital Bus voltages.
- 2.4 Immediate Actions There are no immediate actions associated with this procedure.
- 2.5 Subsequent Actions
  - A. Step 3.1 initiates Attachment 1, Continuous Action Summary.
  - B. Step 3.2 checks for entry from the EOP network. If entry was from the EOP network, or if entry was not from the EOP network.
  - C. Step 3.3 provides for quickly initiating Blackout Coping Actions (Attachment 2) if this procedure was entered from 1-EOP-LOPA-1, Loss of All AC Power. Note that in order to enter this procedure from 1-EOP-LOPA-1, all 4KV Vital Buses are de-energized.
  - D. If initiation of this procedure was not as a result of direction provided in 1-EOP-LOPA-1, Step 3.5 maintains the EOP/AB hierarchy structure by directing the Operator to 1-EOP-TRIP-1, Reactor Trip or Safety Injection. This covers situations where this procedure is entered in Mode 1 with Reactor power >P-7 and two or more 4KV Group Buses are de-energized.

(step continued on next page)

**2.5 Subsequent Actions (continued)**

- E. Step 3.6 provides direction to go to S1.OP-AB.LOOP-0003(Q) if conditions indicate only a partial loss of off-site power has occurred.
- F. Step 3.7 is a reminder to ensure the Event Classification Guide and Technical Specifications are reviewed for applicability.
- G. Step 3.8 determines if the plant was on RHR in shutdown cooling mode. In situations where the plant is not initially on RHR, the crew will start a natural circulation cooldown. Depending on the length of time it takes to establish the conditions and to restore forced cooling flow, the crew can cooldown the plant with natural circulation (Step 3.9) and establish the prerequisites for RHR system operation.
- H. Step 3.10 directs initiation of S1.OP-AB.RHR-0001(Q), Loss of RHR or S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory when RHR cooling is lost due to loss of power or at any time while in this procedure. Normally, RHR would only suffer momentary interruption until Vital Buses are energized, the SECs are reset or de-energized, and RHR restarted. In Modes 4-6, maintaining RHR cooling is necessary for decay heat removal.
- I. Step 3.11 directs initiation of S1.OP-AB.SF-0001(Q), Loss of Spent Fuel Pool Cooling, if Spent Fuel cooling is lost.
- J. When all Unit 1 Charging Pumps are unavailable, Step 3.12 takes action to align 23 Charging Pump via the CVCS Cross-Connect System from Unit 2 to supply charging flow for RCS inventory control and boration capability to facilitate cooldown to Mode 5, and RCP seal injection after all RCP seal inlet temperatures are verified to be less than 225°F. The 23 Charging Pump is aligned IAW Attachment 10. Section 4.0, Steps 4.2 and 4.3 ensure that Unit 1 CVCS restoration is accomplished.
- K. Steps 3.13 - 3.16 de-energize all three SECs when two or more 4KV vital buses are lost. A standing under-voltage (UV) signal is present which inhibits gaining control of the equipment on the one energized bus. In all cases, including the loss of all three 4KV vital buses, the SECs are de-energized to remove the standing under-voltage (UV) signal which will prevent closing in the infeed breakers once 3 Unit is aligned and available.
- L. Steps 3.17 - 3.22 are used to ensure SEC blackout loading occurred for available equipment on each energized 4KV Vital Bus. If automatic loading did not occur, instructions are provided to manually load energized buses.

(step continued on next page)

**2.5 Subsequent Actions (continued)**

- M. Even if all Diesels start, Service Water is required for continued Diesel operation. Step 3.20 determines if this is the case. This step is included as a lesson learned from LER 84-014-00 where the Diesels ran for 30 minutes without cooling water. If the answer to Step 3.20 is NO, then the Operator is directed to make efforts to place Service Water in service. If successful, then the crew returns to address the starting and stopping of available equipment to support plant operation. When Service Water cannot be immediately started, the Diesels are stopped (Step 3.38) to prevent damage. Attachment 2, Blackout Coping Actions, is initiated (Step 3.39) to respond to loss of power condition.
- N. Step 3.21 directs the operator to initiate Attachment 2, Part D for reasons discussed in Step 2.6, for Attachment 2, of this document.
- O. Step 3.23 starts the process of checking for proper response of Vital systems. First, sources of 4KV Vital power are assessed. If less than two 4KV Vital Buses are energized, instructions are provided to initiate Blackout Coping Actions (Step 3.31). An attempt is made to start the Diesels (Step 3.32) using their associated Diesel operating procedures. Crew efforts continue to place the diesels in service as the priority power source to the Vital Buses until off-site power is restored (Step 3.42). Note that 3 Unit generator (shared between the Salem Units and Hope Creek), the group buses, vital buses, and circulating water bus sections are considered Onsite Power Systems.
- P. Step 3.25 directs initiation of Attachment 4, Loss of Group Buses, which has the action steps necessary to mitigate the consequences for a loss of power to the Secondary plant. The explanation of these specific coping action steps is provided later in this document.
- Q. Steps 3.26 - 3.30 provide the guidance to restore Charging and Letdown. This path in the procedure is only possible if there is at least two 4KV Vital Buses energized. Letdown is lost when the Charging Pumps are de-energized and subsequently started by the SECs. The crew should have secured one centrifugal charging pump at Step 3.22 to prevent driving the pressurizer solid with two charging pumps. After letdown is in service, charging pump suction is returned to the VCT.
- R. Step 3.33 - 3.41 direct the crew to evaluate the status of the Diesel Generators and Off-site power sources.
- S. Step 1 directs the operator to SC.OP-SO.500-0005(Z) to open 500KV breaker disconnects for reasons discussed in Step 2.5U of this document.

(step continued on next page)

**2.5**    **Subsequent Actions** (continued)

- T.    Step 3.42 initiates the process of determining the origin and extent of the loss of power incident. If response to Step 3.42 is NO, the Operator is directed to Step 3.48 to check 500KV Bus Section 1 energized.
  
- U.    If both 500KV Bus Sections are de-energized (Step 3.54), direction is provided to separate from the 500KV distribution system by opening all 500KV BS breakers and the T60 disconnects for each 500/13KV transformer. Further direction is provided to determine the 13KV North Ring Bus availability (Step 3.55). Coordination with the Hope Creek SM and the ESO will be required if Hope Creek requires the use of Unit 3 to energize the 5037 line due to a concurrent loss of A.C. When available, the North 13KV Bus is configured to provide power to at least one of the Unit's 13/4KV Vital Bus transformer. Unit 3 is then started to provide power to the de-energized Group and Vital Buses. When a 500KV breaker is opened, the associated breaker disconnects are to be opened as soon as possible. Breakers are susceptible to failure when left open and energized. The failure is related to grading capacitor overheating. Repeated overheating cycles can lead to failure, refer to 70017881.
  
- V.    If one or both 500KV Bus Sections are energized, then the only remaining possibilities for loss of off-site power are on-site lockout relay actuations or a failure of one or more 13KV Bus breakers. Instructions are provided to determine the type of fault or failure that has occurred.
  
- W.    Once a determination has been made that a 500KV Bus Section is energized, direction is provided to check the associated 13KV Bus Section. If the associated 13KV Bus Section is energized, then a probable fault condition is one resulting in a trip of the associated 13KV BS breaker (A-F or C-D). If the 13KV Bus Section is de-energized, then the fault condition was one that actuated the associated 500/13KV transformer trip(s) (1-3 or 2-4). Note: any lockout causing a trip of 1 SPT also relays 3 SPT. Any lockout causing trip of 3 SPT also relays 1 SPT (likewise for SPTs 2 and 4).
  
- X.    Once the extent of the fault has been identified, direction is provided to initiate efforts to clear the fault condition and return available equipment to service.

**2.6 Attachments**

Attachment 1, Continuous Action Summary - Provides actions to be continuously monitored during the procedure use.

- Steps 1.0 through 9.0 indicate various recovery actions to be implemented during procedure use.
- Steps 10.0 and 11.0 indicate to dispatch an Operator to manually close 1SW26, TURB AREA (TG HDR INLET MOV) if at any time 1A and 1B Vital Bus, or 1B and 1C Vital Bus, are BOTH deenergized. This addresses the scenario where 1A and 1B (1B and 1C) Vital Busses are deenergized, and 1C (1A) is the only Vital Bus energized supplying either the 11 or 12 (15 or 16) SW Pump. In this situation, a low SW header pressure condition will exist until the Turbine Building SW Header is manually isolated. Johnston Pump Company has indicated that operation of a SW pump at runout conditions for periods up to 30 minutes is acceptable with negligible risk of catastrophic failure due to poor hydraulic conditions. Following identification of the above indicated condition, it is intended an Operator be dispatched, and 1SW26 manually closed within 30 minutes to preclude further pump degradation.

**2.6 Attachments (continued)**

Attachment 2 provides direction for removing all but crucial equipment from service. Additional compensatory actions are provided to cope with equipment ventilation during a loss of all AC. Steps for restoration are included in Attachment 2 following the recovery of AC power.

Part A Step 1 lists actions required within a half hour of the onset of the blackout to support Station Blackout Coping requirements (refer to PSBP 314204, Station Blackout Analysis for Salem Units 1 & 2):

Steps 1.A removes the ASDS Computer Inverter Power Supply from service to extend the availability of Vital Battery power.

Step 1.B removes power from the ADFCS EWS to support Station Blackout Coping requirements.

Steps 1.C - 1.K Open breakers on 11 and 12 MAC 115V distribution panel to limit the battery loading during a Station Black out event.

Steps 1.L - 1.P open equipment cabinets to reduce potential heat buildup due to loss of ventilation and forced cooling.

Step 1.Q removes the Plant Computer Inverter from service which reduces heat load in the control room cabinet room area.

Step 2 provides protection for Unit 3 batteries and are NOT coping actions as part of the blackout study, but are necessary to prevent running the battery down. Since the actions to prepare the switchyard consume more than an hour of time and the batteries only last an hour the battery loads are removed to be sure the battery is available to operate Unit 3 when the switchyard has been aligned.

Step 3 is a one-hour requirement for placing the SBO Diesel Control Air Compressor in service to provide backup source of Control Air (refer to NRC Letter NLR-N92031).

Step 4 provides procedure reference for loss of Control Air.

Step 5 is based on risk measures generated by PRA to significantly reduce the risk significance of EDG performance issues by improving the ability to recover off-site power during a prolonged station blackout. Portable diesel generators will provide an alternate power source to the 28VDC & 125VDC backup Battery Chargers and 500KV Switchyard breaker controls. PSE&G has committed to implement physical improvements to the facility that will result in an improvement in EAC margin.

**2.6 Attachments (continued)**

Part B provides direction to return affected systems and components to normal configuration when power is restored.

Part C provides direction to return the Plant Computer to service when non-vital AC power has been restored.

Part D provides direction to minimize 11 CC Pump room temperature when the pump room cooler is unavailable. This is to preclude the potential for exposing sensitive equipment to high temperatures, or minimizing their exposure, from the perspective of long term effects on the equipment.

Attachment 3 lists loads which should automatically start on SEC Blackout loading. This list is also used as a guide to placing equipment in service if automatic loading does not occur.

Attachment 4 lists actions required to respond to loss of power to the Group Buses:

Part A Step 1 directs the operator to adjust 11-14MS10 setpoints to maintain Steam Generator pressure stable or lowering. This action prevents lifting the Main Steam Safety Valves and assists in establishing natural circulation.

Step 2 secures the turbine driven auxiliary feedwater pump when both motor driven pumps are in service.

Step 3 ensures sources of steam to the Main Turbine and condenser are closed. During a loss of offsite power the circulators and condenser vacuum pumps are lost.

Step 3.9 in the body of the procedure directs initiation of the Natural Circulation AB. The crew takes actions to monitor and maintain conditions for natural circulation cooling. The Natural Circulation AB provides direction for pressure control and cooldown of the RCS (maintain subcooling). Steps 4 and 5 provide directions to transfer power for the Pressurizer Backup Heaters to the Vital Bus power supplies. When the Vital Buses are energized, Auxiliary spray flow and the PORVs are available for pressure control.

Step 6 provides guidance to maintain control of Steam Generator levels.

Step 7 directs tripping 12 SGFP to prevent 12 SGFP overspeed when power is restored to 14 MAC.

Step 8 ensures Main Generator Emergency Seal Oil Pump has started to prevent uncontrolled gas escape.



**2.6 Attachments (continued)**

Step 9 ensures DC Emergency Lube Oil pumps have started for equipment which may have tripped or have been on turning gear.

Step 10 evaluates the need to start the Station Blackout Diesel Air Compressor.

Step 11 stops 11 and 12 Waste Gas Compressors due to effects of loss of 13 MAC. 11 WG Compressor suction valve fails closed and WGDT inlet valves fail closed.

Step 12 directs stopping any evolution(s) which could cause Vent Header pressure to rise. Evolution(s) should be stopped due to loss of Waste Gas Compressors.

**Attachment 4, Part A (continued)**

Steps 13 and 14 break condenser vacuum and secure gland sealing steam to assist in coasting down the Main Turbine. This direction also minimizes air intrusion past the gland seals when the steam supply is lost.

Step 15 initiates guidance to protect the Main Generator and personnel from an uncontrolled hydrogen escape. A controlled purge of hydrogen from the generator casing is directed IAW the operating procedure. If power is restored to the AC Seal Oil Pump or the amount of hydrogen is reduced to less than 5%, then the possibility has been minimized for an uncontrolled hydrogen escape.

Step 16 directs evaluation of Service Water System availability. If adequate capacity exists, restoration of Service Water to the Turbine Building (Part B) provides cooling to SGFP and Turbine lube oil systems and is readily available once power is restored so a SAC and the TAC System can be operated.

Step 17 is action taken to protect Unit 3 batteries. Removing battery loads while lining up the switchyard will help ensure Unit 3 can be started when required. Step 17 directs notification of the Fire Protection Supervisor that Unit 3 fire protection system has been disabled.

Step 18 directs notification of the Fire Protection Supervisor of degradation of the Fire Protection System due to loss of the Fire Protection Maintenance Pump. NOTE is provided to inform the Operator of possible Fire Pump start.

Step 19 and 20 direct opening all 4KV and 460V Group Bus s to facilitate bus restoration when power is restored.

Step 21 removes the 250 VDC Battery Charger from service so that it will be returned to service in accordance with the associated operating procedure.

2.6 Attachments (continued)

Step 22 is provided to review loss of MAC Abnormal Procedures due to loss of 13 and 14 MAC Panels.

Part B provides direction for restoring Service Water to the Turbine Header. Steps are sequenced to minimize possibility of water hammer while returning the Turbine Header piping and components to service.

Part C initiates equipment restoration for the Group Buses when the 13KV North Ring Bus has been energized from Unit 3 (Step 3.55.11). Lighting, station air, lube oil pumps, and battery chargers are returned to the normal power sources. Direction is provided in Step 3.55.11 for coordination between Units when loading Unit 3, and cautions against overloading Unit 3.

Attachment 4 Part D initiates equipment restoration when the 13KV North Ring Bus has been energized from some source of off-site power (Steps 3.104 - 3.118). Actions in Part D may have already been performed when Group Buses are placed in service IAW associated operating procedures, however Steps 3.104 - 3.118 serve as reminders to ensure required steps are completed. Part D is used whether or not power was ever supplied from Unit 3.

Attachment 5 provides direction for resetting lockout relays. The attachment is designed to reset lockouts in correct sequence with minimum personnel requirements regardless of the extent of the incident. Steps are worded such that only tripped relays will be reset. The general reset order is:

- ◆ Breaker failure relays
- ◆ Ground relays
- ◆ Ground summation relays
- ◆ Transformer Differential relays
- ◆ 500KV Breaker Flashover relays
- ◆ 500/13KV SPT regular and backup protection relays
- ◆ Unit 3 lockout relays

The note above Step 10 informs the Operator that there may be some relays that have actuated such as unit isolation trip relays that will be necessary for closing generators. These relays are specified in the Turbine startup procedure but are not necessary for restoring offsite power. Step 10 addresses relays on individual 4KV buses. Step 11 has the Operator determine what relays in the relay rooms remain actuated, and with SM/CRS concurrence in Step 12, these relays are also reset.

2.6 Attachments (continued)

Attachment 6 provides direction for manipulation of the 13KV system cross-tie disconnects. This attachment was developed to minimize time required to cross-tie and separate 13KV Bus Sections when Unit 3 is required to energize the 4KV Vital Buses.

Part A of this attachment connects 13KV Bus Section D to 13KV Bus Section 4.

Supports 14 SPT and 23 SPT operation from Unit 3.

Part B of this attachment connects 13KV Bus Section A to 13KV Bus Section 1.

Supports 13 SPT and 24 SPT operation from Unit 3. Because Part B aligns 13KV Bus Section 1 with Unit 3, it must be used in conjunction with Attachment 9 when both Salem and Hope Creek stations are experiencing a loss of all AC power.

Attachment 7 provides instructions for restoring off-site power when the 13KV North Ring Bus is energized from Unit 3 and some source of off-site power becomes available.

Direction is provided to ensure a 500KV Bus section is energized, align the 13KV and 4KV distribution systems to accept off-site power, and remove Unit 3 from service.

Attachment 8 provides instructions for restoring off-site power to a de-energized 13KV distribution system. Direction is provided to ensure a 500KV Bus Section is energized, and place equipment in service IAW associated System Operating Procedures.

Attachment 9 Energizing Salem-Hope Creek Tie Line (5037) From Salem Unit 3 is to be initiated when requested by Hope Creek Operations. Because this attachment aligns 13KV Bus Section 1 with Unit 3, it must be used in conjunction with Attachment 6 when both Salem and Hope Creek stations are experiencing a loss of all AC power.

Attachment 10 provides instructions for aligning 23 Charging Pump to Unit 1 when all Unit 1 Charging Pumps are unavailable. This attachment aligns 23 Charging Pump via the CVCS Cross-Connect System from the Unit 2 RWST to supply charging flow for RCS inventory control and boration capability to facilitate cooldown to Mode 5, and RCP seal injection after all RCP seal inlet temperatures are verified to be less than 225°F. If ANY 11-14 RCP Seal Inlet Temperature is  $\geq 225^{\circ}\text{F}$ , then 23 Charging Pump is NOT started until ALL Unit 1 RCP seal injection isolation valves are closed to prevent thermal shock of the RCP seals when 23 Charging Pump is started.

Attachment 11 Completion Sign-Off Sheet, provides space to record procedure deficiencies, entry conditions, comments, names and dates, and SM/CRS review and signature.

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