

PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS

S1.OP-AB.4KV-0003(Q) - REV. 8

LOSS OF 1C 4KV VITAL BUS

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

REVISION SUMMARY:

The following changes were incorporated into this revision:

- ◆ Incorporated CAS Item 2.0 into the SELECTED CAS ITEMS pages, and Attachment 1, Continuous Action Summary indicating "IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours AND a LOCA is in progress, THEN DISPATCH an Operator to BLOCK OPEN the 11 CC Pump Room Doors (Auxiliary Building 84' Elevation)". This change was incorporated to ensure steady state temperature of the 11 CC Pump Room is maintained within limitations when operating the 11 CC Pump during LOOP/LOCA conditions coincident with a loss of 4KV Vital Bus 1C [i.e., 11 Component Cooling Pump Room Cooler (VHE33) is not available], and is consistent with guidance currently delineated in calculation S-1-ABV-MDC-2050, Salem Unit 1 Auxiliary Building Temperature Calculation - Normal and Emergency Modes. When 1C Vital Bus restoration is not expected to occur within two hours and a LOCA is in progress, an Operator is dispatched to block open the 11 CC Pump Room Doors to provide additional area cooling. [70045063-0350]
- ◆ Revised the numbering of the SELECTED CAS ITEMS to ensure consistency with the numbering methodology currently delineated in Attachment 1, Continuous Action Summary. This change was incorporated to provide additional clarification regarding CAS performance, and is considered to be editorial in nature. Revision bars were not utilized to indicate changes.

IMPLEMENTATION REQUIREMENTS

Effective Date: 11/29/2007

None

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
 - 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN DISPATCH an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN DISPATCH an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

LOSS OF 1C 4KV VITAL BUS

1.0 ENTRY CONDITIONS

TIME: _____ DATE: _____

- 1.1 The Overhead Annunciator Alarm Response Procedure.
- 1.2 Loss of 1C 4KV Vital bus as identified by the operator.
- 1.3 Blackout Loading on 1C Vital Bus only.

2.0 IMMEDIATE ACTIONS

- 2.1 None

3.0 SUBSEQUENT ACTIONS

- ___ 3.1 **INITIATE** Attachment 1, Continuous Action Summary.
- ___ 3.2 **INITIATE** Diesel Generator running checks for any operating Diesel Generator(s) 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
- ___ 3.3 Was 12 Charging Pump providing Seal Injection and Charging Flow?

___ YES ___ NO —————> **GO TO Step 3.12**

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V
- ___ 3.4 **CLOSE** 1CV55, CHARGING FLOW.

Time _____

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
 - 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN DISPATCH an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN DISPATCH an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

3.5 **START** 11 Charging Pump.

3.6 Is 11 Charging Pump running?

☐ YES ☐ NO ———> **GO TO** Step 3.10
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 V

Time

3.7 **ADJUST** 1CV55 to obtain desired flow.

3.8 When PZR Level is stable at the program level:

A. **ENSURE** Charging System Master Flow Controller in AUTO.

B. **PLACE** 1CV55 in Automatic.

3.9 **GO TO** Step 3.11.

3.10 IF 13 Charging Pump is available to supply Unit 1 Charging System,
THEN START 13 Charging Pump as follows:

A. **PLACE** 13 Charging Pump in MANUAL.

B. **PLACE** Charging Master Flow Controller in MANUAL.

C. **SET** 13 Charging Pump Speed Demand to 10-12%.

D. **START** 13 Charging Pump
AND immediately **INCREASE** Speed Demand to couple pump.

E. **ADJUST** 13 Charging Pump Speed Demand to obtain desired flow.

F. When PZR Level is stable at the program level:

1. **SET** Charging Master Flow Controller Flow Demand to match
 13 Charging Pump Speed Demand.

2. **PLACE** Charging Master Flow Controller in AUTO.

3. **PLACE** 13 Charging Pump Speed in AUTO.

3.11 **ENSURE** Seal Injection Flow 6-12 gpm to each Reactor Coolant Pump not to
 exceed 40 gpm total Seal Injection Flow.

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
- 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
- 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN DISPATCH an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN DISPATCH an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

- ___ 3.12 **PLACE** 11 Primary Water Pump in AUTO.
- ___ 3.13 **PLACE** 11 BAT Pump in AUTO.
- ___ 3.14 Is 1C 4KV Vital Bus energized from the Diesel Generator?

___ YES ___ NO ———> **GO TO** Step 3.21

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 V

Time

- ___ 3.15 **RESET** EMERGENCY loading for 1C Diesel Generator.
- ___ 3.16 **RESET** 230V Control Center.
- ___ 3.17 **OPEN** 11SW20, TURB AREA.

CAUTION

Diesel Generator operation is limited by the following KW output ratings:

- ◆ 2600 KW continuous
- ◆ 2750 KW for 2000 hours
- ◆ 2860 KW for 2 hours
- ◆ 3100 KW for 30 minutes

- ___ 3.18 **START/STOP** 1C Vital Bus loads (Attachment 2) as necessary.

NOTE

Automatic starting of a CCW pump can cause a DISCHARGE FLOW HI alarm, closing 1CC131, RCP THERMAL BARRIER VALVE.

- ___ 3.19 IF the automatic start of a CCW pump closed 1CC131,
 THEN OPEN 1CC131 AND PLACE in AUTO.
- ___ 3.20 **GO TO** Step 3.29

Time

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
 - 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN **DISPATCH** an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN **DISPATCH** an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

3.21 Does a Service Water low pressure condition exist?

☐ YES ☐ NO —————> **GO TO Step 3.25**
 ↓
 V

Time

3.22 **START** additional Service Water Pumps as necessary to clear the low pressure alarms.

3.23 Does a Service Water low pressure condition exist?

☐ YES ☐ NO —————> **GO TO Step 3.25**
 ↓
 V

Time

3.24 **INITIATE** S1.OP-AB.SW-0001(Q), Loss of Service Water Header Pressure.

3.25 Does a Component Cooling Water low Flow condition exist?

☐ YES ☐ NO —————> **GO TO Step 3.29**
 ↓
 V

Time

3.26 **START** additional Component Cooling Water Pumps as necessary to clear the low flow alarms.

3.27 Does a Component Cooling Water low Flow condition exist?

☐ YES ☐ NO —————> **GO TO Step 3.29**
 ↓
 V

Time

3.28 **INITIATE** S1.OP-AB.CC-0001(Q), Component Cooling Abnormality.

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
- 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
- 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN DISPATCH an Operator to **BLOCK OPEN** the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN DISPATCH an Operator to manually **CLOSE** 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

3.29 IF letdown isolated,
THEN:

- A. **OPEN** 1CV2 and 1CV277 and place in Automatic.
- B. **ENSURE** Charging flow \approx 80 gpm.
- C. Simultaneously **OPEN** 1CV3, 1CV4 or 1CV5
AND ADJUST 1CV18 to maintain letdown pressure at \approx 300 psig.
- D. **PLACE** 1CV18 in Automatic.

3.30 When PZR Level is stable at the program level:

- A. **ENSURE** Charging System Master Flow Controller in AUTO.
- B. IF a Centrifugal Charging Pump is in service,
THEN PLACE 1CV55 in Automatic.

3.31 **SEND** an operator to record any flags on the breaker relays.

3.32 **NOTIFY** System Engineering and Electrical Maintenance to investigate the cause of the loss of bus.

3.33 **NOTIFY** the SM/CRS to refer to the following:

- ◆ Attachment 2, 1C VITAL 4KV BUS LOADS
- ◆ Attachment 3, APPLICABLE TECHNICAL SPECIFICATIONS REQUIRING ACTION - 8 HOURS OR LESS MODES 1, 2, 3 OR 4
- ◆ Attachment 4, APPLICABLE TECHNICAL SPECIFICATIONS REQUIRING ACTION - 8 HOURS OR LESS MODES 5 OR 6
- ◆ Event Classification Guide

3.34 IF 1C 460/230V Vital Buses are deenergized,
THEN INITIATE S1.OP-AB.460-0003(Q), Loss of 1C 460/230V Vital Bus.

3.35 When the problem is resolved AND bus de-energized,
PERFORM the following:

- A. **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET Breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
- B. **RESTORE** 1C Vital Bus to Normal Operation IAW S1.OP-SO.4KV-0003(Q),
1C 4KV Vital Bus Operation.

3.36 When the problem is resolved AND bus is energized from 1C Diesel Generator,
ALIGN 1C Diesel Generator for automatic operation following SEC Actuation IAW
S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation.

SELECTED CAS ITEMS

- 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
 - 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN **DISPATCH** an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN **DISPATCH** an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

* Refer to EXHIBIT 1 for briefing sheet

4.0 **COMPLETION AND REVIEW**

- 4.1 **CIRCLE** Entry Condition number in Section 1.0,
OR EXPLAIN Entry Condition in Comments Section of Attachment 5.
- 4.2 **COMPLETE** Attachment 5, Sections 1.0 and 2.0,
AND FORWARD this procedure to SM/CRS for review and approval.
- 4.3 SM/CRS **PERFORM** the following:
- A. **REVIEW** this procedure with Attachment 5 for completeness and accuracy.
 - B. **COMPLETE** Attachment 5, Section 3.0.
 - C. **FORWARD** completed procedure to Operations Staff.

END OF PROCEDURE

ATTACHMENT 1
(Page 1 of 1)

CONTINUOUS ACTION SUMMARY

NOTE

Extended "No Load" operation of 1C Emergency Diesel Generator will result in excessive carbon buildup. If a generator load can not be applied, then running time should be limited to ≤ 2 hours. Diesel Generator operation without electrical load for >2 hours requires loading to 1500KW at 1125KVAR for a minimum of 1 hour prior to shutdown.

- ___ 1.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours,
THEN:
- ___ 1.1 **OPEN** 1CVIB9, 1C SAFEGUARD EMERGENCY CABINET breaker
(1C 115V Vital Bus, Elev. 100' Relay Rm).
- ___ 1.2 **SHUT DOWN** 1C Diesel Generator IAW S1.OP-SO.DG-0003(Q),
1C Diesel Generator Operation.
- ___ 2.0 IF AT ANY TIME 1C Vital Bus restoration is NOT expected within 2 hours
AND a LOCA is in progress,
THEN DISPATCH an Operator to BLOCK OPEN the 11 CC Pump Room Doors
(Auxiliary Building 84' Elevation).
- ___ 3.0 IF AT ANY TIME 1B Vital Bus AND 1C Vital Bus are BOTH deenergized,
THEN DISPATCH an Operator to manually CLOSE 1SW26, TURB AREA
(TG HDR INLET MOV).

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

1C VITAL 4KV BUS LOADS

COMPONENT

240/480V Supply Breaker

12 Charging Pump

13 Component Cooling Water Pump

11 Service Water Pump

12 Service Water Pump

12 Safety Injection Pump

12 Containment Spray Pump

ATTACHMENT 3
(Page 1 of 1)

APPLICABLE TECHNICAL SPECIFICATIONS
REQUIRING ACTION - 8 HOURS OR LESS
MODES 1, 2, 3 OR 4

NOTE

All conditions must be evaluated in terms of the operability of redundant equipment to determine if T/S 3.0.3 or T/S 3.8.1.1 is applicable.

<u>LCO #</u>	<u>TSAS</u>	<u>TITLE</u>
3.0.3	1-Hour	Applicability - 13 Component Cooling Pump and 11 Component Cooling Pump room cooler due to the loss of "C" 4KV Vital Bus
3.5.3	1-Hour	ECCS Subsystems - Tavg < 350°F, Loss of 12 Charging Pump
3.6.1.1	1-Hour	Containment Integrity - due to inoperable 11SW20
3.8.1.1	1-Hour	A.C. Sources
3.8.2.3	2-Hour	125 VDC Distribution - Operating (Battery Chargers)
3.8.2.5	2-Hour	28 VDC Distribution - Operating (Battery Chargers)
3.6.3.1	4-Hour	Containment Isolation Valves
3.8.2.1	8-Hour	A.C. Distribution - Operating

ATTACHMENT 4
(Page 1 of 1)

APPLICABLE TECHNICAL SPECIFICATIONS
REQUIRING ACTION - 8 HOURS OR LESS
MODES 5 OR 6

<u>LCO #</u>	<u>TITLE</u>
3.1.2.1	Boration Systems Flow Paths - Shutdown (Suspend core alterations or positive reactivity changes)
3.4.1.4	Cold Shutdown (RHR Loop Operability), (Suspend Boron Dilution operations)
3.8.1.2	A.C. Sources - Shutdown (Suspend core alterations or positive reactivity changes)
3.9.8.1	Coolant Circulation (RHR Loop Operability), (Suspend operations increasing decay heat or reducing Boron concentration)
3.8.2.2	A.C. Distribution - Shutdown, (Establish containment integrity within 8 hours)
3.8.2.4	125 VDC Distribution - Shutdown (Battery chargers), (Establish containment integrity within 8 hours)
3.8.2.6	28 VDC Distribution - Shutdown (Battery Chargers), (Establish containment integrity within 8 hours)

COMPLETION SIGN-OFF SHEET

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

ATTACHMENT 5
(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 Attachment 5 has been reviewed for completeness and accuracy.
Entry conditions and all deficiencies, including corrective actions, have been 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 SM/CRS discretion.

1) **SAFETY**

- ◆ Exercise appropriate industrial safety in the vicinity of operating diesel generators.

2) **TECHNICAL SPECIFICATIONS AND ECGs**

- ◆ Refer to Attachment 3 or Attachment 4, as applicable.

3) **PARAMETERS TO BE MONITORED**

- ◆ Diesel Generator loading.

4) **CONTINGENCIES**

- ◆ Refer to Attachment 1 of S1.OP-AB.460-0003(Q) for a list of 460V equipment lost.
- ◆ All Tech Spec considerations must be evaluated in terms of redundant equipment operability to determine if T/S 3.0.3 or T/S 3.8.1.1 are applicable (refer to S1.OP-SO.DG-0005(Q)).
- ◆ Limit unloaded running time of Diesel Generator to <2 hrs.

LOSS OF 1C 4KV VITAL BUS TECHNICAL BASES DOCUMENT

1.0 REFERENCES

1.1 Technical Documents

A. Salem Generating Station Updated Final Safety Analysis Report:

1. Section 8.3.1.2

B. Salem Generating Station Technical Specifications Unit 1:

1. 3.1.2.1 Boration System Flow Paths - Shutdown
2. 3.1.2.3 Charging Pump - Shutdown
3. 3.1.2.2 Boration Systems Flow Paths - Operating
4. 3.1.2.4 Charging Pumps - Operating
5. 3.1.2.7 Borated Water Sources - Shutdown
6. 3.1.2.8 Borated Water Sources - Operating
7. 3.4.1.4 Cold Shutdown (RHR Loop Operability)
8. 3.4.4 Pressurizer (Heater Emergency Power Supply)
9. 3.5.2 ECCS Subsystems - $T_{avg} \geq 350^{\circ}F$
10. 3.5.3 ECCS Subsystems - $T_{avg} < 350^{\circ}F$
11. 3.6.1.1 Containment Integrity
12. 3.6.2.1 Containment Spray System
13. 3.6.2.2 Spray Additive System
14. 3.6.2.3 Containment Cooling System
15. 3.6.3.1 Containment Isolation Valves
16. 3.6.4.2 Electric Hydrogen Recombiners - W
17. 3.7.7.1 Auxiliary Building Exhaust Air Filtration System
18. 3.7.1.2 Auxiliary Feedwater System
19. 3.7.3.1 Component Cooling Water System
20. 3.7.4.1 Service Water System
21. 3.7.6.1 Control Room Emergency Air Conditioning System
22. 3.7.10.2 Spray and/or Sprinkler Systems
23. 3.8.1.1 A.C. Sources
24. 3.8.1.2 A.C. Sources
25. 3.8.2.1 A.C. Distribution - Operating
26. 3.8.2.2 A.C. Distribution - Shutdown
27. 3.8.2.3 125 VDC Distribution - Operating (Battery Chargers)
28. 3.8.2.4 125 VDC Distribution - Shutdown (Battery Chargers)
29. 3.8.2.5 28 VDC Distribution - Operating (Battery Chargers)
30. 3.8.2.6 28 VDC Distribution - Shutdown (Battery Chargers)
31. 3.9.8.1 Coolant Circulation (RHR Loop Operability)
32. 3.9.8.2 Low Water Level (RHR Loop Operability)

1.2 Procedures

- A. S1.OP-AB.CC-0001(Q), Component Cooling Abnormality
- B. S1.OP-AB.460-0003(Q), Loss of 1C 460/230 Vital Bus
- C. S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation
- D. S1.OP-SO.DG-0002(Q), 1B Diesel Generator Operation
- E. S1.OP-SO.DG-0003(Q), 1C Diesel Generator Operation
- F. S1.OP-SO.4KV-0003(Q), 1C 4KV Vital Bus Operation
- G. S1.OP-SO.CVC-0002(Q), Charging Pump Operation
- H. S1.OP-AB.SW-0001(Q), Loss of Service Water Header Pressure

1.3 Drawings

- A. 203002, 4160V Vital Buses

1.4 Conformance Documents

- A. None

1.5 Others

- A. DCP 80029150 and 80029155, Unit CVC System Cross-Tie
- B. S-1-ABV-MDC-2050, Salem Unit 1 Auxiliary Building Temperature Calculation - Normal and Emergency Modes

2.0 DISCUSSION

- 2.1 This procedure provides the direction necessary for plant operation with a loss of 1C 4KV Vital Bus power. It is the intent of this discussion to provide the reasoning behind the logic and flowpath of the procedure. It is not intended to provide additional direction to the procedure.

2.2 Entry Conditions

- A. Entry conditions are based on operators recognition that a single Vital Bus has been lost. The symptoms available to the Operator are as follows:
- ◆ 1C 4KV Vital Bus Voltmeter
 - ◆ Numerous alarms associated with bus undervoltage, bus trip.

2.3 Immediate Actions

- A. None

2.4 Subsequent Actions

- A. The initial steps in this section has the Operator initiating operating checks of any running Diesel Generators followed by starting redundant equipment, powered from another source, to replace those loads which could have been lost when the bus was de-energized.
- B. The next actions check to see if the bus power has been restored. If power is back on the bus the operators are directed to the end of the procedure for notifications, troubleshooting and restoration.
- C. The next systems to be looked at are Service water, CCW and Letdown in that order due to the priority of the need for operation of those systems.
- D. At this point the plant is in a stable condition. Time can now be spent making notifications to System Engineering and maintenance. An operator can be sent out to record breaker relay status.
- E. The instructions necessary to start/load the Diesel Generator if it had failed to do so automatically, were not needed in this procedure. The decision on when and how to do so would be made by the SM/CRS as deemed necessary.

2.5 Attachments:

- A. Attachment 1, Continuous Action Summary - Provides actions to be continuously monitored during procedure use.
- CAS 1.0 - This CAS ensures extended "no load" operation of the EDG is precluded to prevent excessive carbon buildup. When vital bus restoration is not expected to occur within two hours, the diesel generator is secured.
 - CAS 2.0 - This CAS ensures steady state temperature of the 11 CC Pump Room is maintained within limitations when operating the 11 CC Pump during LOOP/LOCA conditions coincident with a loss of 4KV Vital Bus 1C [i.e., 11 Component Cooling Pump Room Cooler (VHE33) is not available]. When 1C Vital Bus restoration is not expected to occur within two hours during LOCA conditions, an Operator is dispatched to block open the 11 CC Pump Room Doors to provide additional area cooling.
 - CAS 3.0 - This CAS addresses the scenario where 1B and 1C Vital Busses are deenergized, and 1A is the only Vital Bus energized supplying either the 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. [70055569]
- B. Attachment 2, 1C Vital 4KV Bus Loads - Self-Explanatory
- C. Attachment 3, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 1- 4 - Self-Explanatory
- D. Attachment 4, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 5- 6 - Self-Explanatory
- E. Attachment 5, Completion Sign-Off Sheet - Self-Explanatory
- F. Exhibit 1, Briefing Sheet - Brief Sheet that indicates various topics including Safety, Technical Specifications and ECGs, Parameters to be Monitored, and Contingencies to be discussed during a shift briefing.

END OF DOCUMENT