

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

S1.OP-AB.4KV-0001(Q) - REV. 9

LOSS OF 1A 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) were incorporated into this revision: None

REVISION SUMMARY:

The following changes were incorporated into this revision:

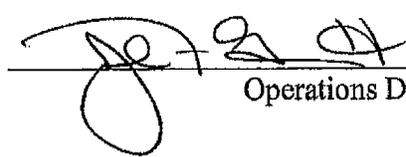
- ◆ Incorporated additional CAS item into the SELECTED CAS ITEMS pages, and Attachment 1, Continuous Action Summary indicating "IF AT ANY TIME 1A Vital Bus AND 1B Vital Bus are BOTH deenergized, THEN DISPATCH an Operator to manually CLOSE 1SW26, TURB AREA (TG HDR INLET MOV)". This change was incorporated to address the scenario where 1A and 1B Vital Busses are deenergized, and 1C is the only Vital Bus energized supplying either the 11 or 12 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. [70055569-0030]
- ◆ Revised SELECTED CAS ITEMS pages to indicate "Refer to EXHIBIT 1 for briefing sheet". This change was incorporated to provide additional clarification regarding usage of EXHIBIT 1, and is considered editorial in nature.

IMPLEMENTATION REQUIREMENTS

Effective Date: 9/18/2007

None

APPROVED:



 Operations Director - Salem

9-13-07

 Date

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.

- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

LOSS OF 1A 4KV VITAL BUS

1.0 ENTRY CONDITIONS

DATE: _____ TIME: _____

- 1.1 The Overhead Annunciator Alarm Response Procedure.
- 1.2 Loss of 1A 4KV Vital bus as identified by the Operator.
- 1.3 Blackout Loading on 1A 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 IF 13 Charging Pump was providing Seal Injection and Charging Flow to Unit 2, THEN NOTIFY Unit 2 NCO.
- 3.4 Was 13 Charging Pump providing Seal Injection and Charging Flow to Unit 1?
 - ___ YES ___ NO —> **GO TO** Step 3.13
 - |
 - v
- ___ 3.5 **CLOSE** 1CV55.
- ___ 3.6 **START** 11 Charging Pump.

_____ Time

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.

- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.
- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

3.20 OPEN 13SW20 Turbine Area 11 Header isolation.

CAUTION
Diesel Generator operation is limited by the following KW output ratings:
<ul style="list-style-type: none"> ◆ 2600 KW continuous ◆ 2750 KW for 2000 hours ◆ 2860 KW for 2 hours ◆ 3100 KW for 30 minutes

3.21 START/STOP the following 1A Vital Bus loads as necessary.

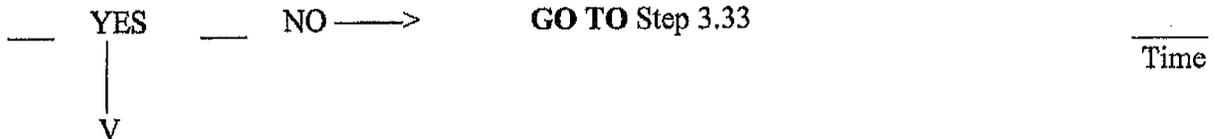
- ◆ 11 Component Cooling Water Pump
- ◆ 15 Service Water Pump
- ◆ 16 Service Water Pump
- ◆ 11 RHR Pump
- ◆ 11 Safety Injection Pump
- ◆ 11 Containment Spray Pump

NOTE
Automatic starting of a CCW pump can cause a DISCHARGE FLOW HI alarm, closing 1CC131, RCP Thermal Barrier Valve.

3.22 IF the automatic start of a CCW pump closed 1CC131, THEN OPEN 1CC131, RCP Thermal Barrier Valve AND PLACE in AUTO.

3.23 GO TO Step 3.41

3.24 Is the AFW System required to maintain S/G level?



3.25 START 12 AFW Pump.

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours, THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.

- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.
- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

3.33 Are all Service Water low pressure alarms clear?

___	NO	___	YES —>	GO TO Step 3.37	_____ Time
	V				

___ 3.34 **START** additional Service Water Pumps as necessary to clear the low pressure alarms.

3.35 Are all Service Water low pressure alarms clear?

___	NO	___	YES —>	GO TO Step 3.37	_____ Time
	V				

___ 3.36 **INITIATE** S1.OP-AB.SW-0001(Q), Loss of Service Water Header Pressure.

3.37 Are all Component Cooling Water low Flow alarms clear?

___	NO	___	YES —>	GO TO Step 3.41	_____ Time
	V				

___ 3.38 **START** additional Component Cooling Water Pumps as necessary to clear the low flow alarms.

3.39 Are all Component Cooling Water low Flow alarms clear?

___	NO	___	YES —>	GO TO Step 3.41	_____ Time
	V				

___ 3.40 **INITIATE** S1.OP-AB.CC-0001(Q), Component Cooling Abnormality.

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker
(1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q),
1A Diesel Generator Operation.
- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

- ___ 3.41 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.

- ___ 3.42 IF Blackout Loading started 11 Aux Feed Pump,
THEN:
 - ___ A. **VERIFY** Steam Generator levels are being maintained above low level trip setpoint.
 - ___ B. **DEPRESS** 11 AFW Pump START pushbutton to reset AFW Interlock.
 - ___ C. **OPEN** 11-14SS94 to restore SGBD sampling to the 1R19 RMS.
 - ___ D. IF SGBD is required to be established,
THEN RESTORE IAW S1.OP-SO.GBD-0002(Q),
Steam Generator Blowdown - Normal Operation

- ___ 3.43 IF 11 Aux Feed Pump is running and not required to maintain S/G levels,
THEN:
 - ___ A. **STOP** 11 Aux Feed Pump.
 - ___ B. **PERFORM** backleakage surveillance IAW S1.OP-PT.AF-0002(Q),
Auxiliary Feedwater Backleakage.

- ___ 3.44 **DISPATCH** an Operator to record any flags on the breaker relays.

- ___ 3.45 **NOTIFY** Maintenance to investigate the cause of the loss of bus.

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.

- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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

___ 3.46 NOTIFY SM/CRS to reference the following:

- ◆ Attachment 2, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 1-4
- ◆ Attachment 3, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 5-6
- ◆ Event Classification Guide

___ 3.47 IF 1A 460/230V Vital Buses are deenergized,
THEN INITIATE S1.OP-AB.460-0001(Q), Loss of 1A 460/230V Vital Buses.

___ 3.48 When the problem is resolved AND the bus is de-energized,
PERFORM the following:

- ___ A. **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET Breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
- ___ B. **RESTORE** 1A Vital Bus to Normal Operation IAW S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation.

___ 3.49 When the problem is resolved AND the bus is energized from 1A EDG,
ALIGN 1A EDG for automatic operation following SEC actuation IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.

SELECTED CAS ITEMS

- ◆ IF AT ANY TIME 1A Vital Bus restoration is NOT expected within 2 hours,
THEN:
 - **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker (1A 115V Vital Bus, Elev. 100' Relay Rm).
 - **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q), 1A Diesel Generator Operation.
- ◆ IF AT ANY TIME 1A Vital Bus AND 1B 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 4.

- ___ 4.2 **COMPLETE** Attachment 4, Sections 1.0 and 2.0,
AND FORWARD this procedure to SM/CRS for review and approval.

- ___ 4.3 **SM/CRS PERFORM** the following:
 - ___ A. **REVIEW** this procedure with Attachment 4 for completeness and accuracy.
 - ___ B. **COMPLETE** Attachment 4, 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 1A 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** 1A Vital Bus restoration is **NOT** expected within 2 hours,
THEN:
 - ___ 1.1 **OPEN** 1AVIB24, 1A SAFEGUARD EMERGENCY CABINET breaker
(1A 115V Vital Bus, Elev. 100' Relay Rm).
 - ___ 1.2 **SHUT DOWN** 1A Diesel Generator IAW S1.OP-SO.DG-0001(Q),
1A Diesel Generator Operation.
- ___ 2.0 **IF AT ANY TIME** 1A Vital Bus **AND** 1B 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)

APPLICABLE ODCM AND TECHNICAL SPECIFICATIONS
REQUIRING ACTION - 8 HOURS OR LESS
MODES 1-4

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.
- ◆ Loss of 1A 4KV Bus renders 11 AFP inoperable (S14KV-1AD1AX1D). [70022802]
Loss of #1 AFP Room Cooler renders 13 AFP inoperable (S1230-1AY1EP2D).

<u>LCO #</u>	<u>TSAS</u>	<u>TITLE</u>
3.9.12	Immediate	Fuel Handling Area Ventilation System, (Suspend Fuel Handling)
3.4.3	1-Hour	Relief Valves (PORVs), Loss of power to 1PR6
3.6.1.1	1-Hour	Containment Integrity - due to inoperable 13SW20
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
3.7.1.2	6-Hour	Auxiliary Feedwater System (Modes 1-3) 11 <u>AND</u> 13 AFPs are inoperable
3.7.6.1	4 hours	CREACS - Due to loss of power to 11EACS Fan
3.8.2.1	8-Hour	A.C. Distribution - Operating
ODCM	-	Radioactive Liquid Effluent Monitoring Instrumentation (S/G Blowdown Line)

USER RESPONSIBLE FOR VERIFYING REVISION, STATUS AND CHANGES

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

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

<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)
3.7.6.1	4 hours CREACS - Due to loss of power to 11EACS Fan
3.8.1.2	A.C. Sources - Shutdown (Suspend core alterations or positive reactivity changes)
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)
3.9.8.1	Coolant Circulation (RHR Loop Operability), (Suspend operations increasing decay heat or reducing Boron concentration)
3.9.12	Fuel Handling Area Ventilation System, (Suspend fuel movement or crane operation with loads over fuel pool)
ODCM	Radioactive Liquid Effluent Monitoring Instrumentation (S/G Blowdown Line)

**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 2 or Attachment 3, as applicable.
- ◆ With the Unit in Modes 1-3, if 1PR6 is not restored to operable status within one hour, 1PR1 must be placed in MANUAL to comply with T.S. 3.4.3.
- ◆ An inoperable 13SW20 requires entry into T.S. 3.6.1.1 in Modes 1-4. The 13SW20 shall be CLOSED within one hour and remain CLOSED to satisfy the requirements of T.S. 3.6.1.1.
- ◆ Due to loss of power to 11EACS Fan the CREACS must be placed in the Maintenance Mode of Operation IAW S1.OP-SO.CAV-0001(Q), within 4 hrs from the loss of power, in Modes 1-6, to comply with T.S. 3.7.6.1.

3) **PARAMETERS TO BE MONITORED**

- ◆ Diesel Generator loading.
- ◆ Reactor Power to ensure it remains <100% if 11 AFP started.

4) **CONTINGENCIES**

- ◆ Refer to Attachment 1 of S1.OP-AB.460-0001(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)).
- ◆ Reactivity affects of running 11 AFP.
- ◆ Limit unloaded running time of Diesel Generator to <2 hrs.

**LOSS OF 1A 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. 3.1.2.2 Boration Systems Flow Paths - Operating
2. 3.1.2.4 Charging Pumps - Operating
3. 3.1.2.8 Borated Water Sources - Operating
4. 3.1.2.1 Boration System Flow Paths - Shutdown
5. 3.1.2.3 Charging Pump - Shutdown
6. 3.1.2.7 Borated Water Sources - Shutdown
7. 3.4.1.4 Cold Shutdown (RHR Loop Operability)
8. 3.4.3 Relief Valves (PORVs)
9. 3.4.4 Pressurizer (Heater Emergency Power Supply)
10. 3.5.2 ECCS Subsystems - $T_{avg} \geq 350^{\circ}F$
11. 3.5.3 ECCS Subsystems - $T_{avg} < 350^{\circ}F$
12. 3.6.1.1 Containment Integrity
13. 3.6.2.1 Containment Spray System
14. 3.6.2.2 Spray Additive System
15. 3.6.2.3 Containment Cooling System
16. 3.6.3.1 Containment Isolation Valves
17. 3.6.4.2 Electric Hydrogen Recombiners - W
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. 3.7.7.1 Auxiliary Building Exhaust Air Filtration System
23. 3.7.10.2 Spray and/or Sprinkler Systems
24. 3.8.1.1 A.C. Sources
25. 3.8.1.2 A.C. Sources
26. 3.8.2.1 A.C. Distribution - Operating
27. 3.8.2.2 A.C. Distribution - Shutdown
28. 3.8.2.3 125 VDC Distribution - Operating (Battery Chargers)
29. 3.8.2.4 125 VDC Distribution - Shutdown (Battery Chargers)
30. 3.8.2.5 28 VDC Distribution - Operating (Battery Chargers)
31. 3.8.2.6 28 VDC Distribution - Shutdown (Battery Chargers)
32. 3.9.8.1 Coolant Circulation (RHR Loop Operability)
33. 3.9.8.2 Low Water Level (RHR Loop Operability)
34. 3.9.12 Fuel Handling Area Ventilation System
35. 6.8.4.g Radioactive Effluent Control Program

C. Configuration Baseline Documentation:

1. None

D. Technical/Engineering Letters:

1. None

1.2 **Procedures**

- A. S1.OP-AB.CC-0001(Q), Component Cooling Abnormality
- B. S1.OP-AB.460-0001(Q), Loss of 1A 460/230 Vital Buses
- 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.GBD-0002(Q), Steam Generator Blowdown - Normal Operation
- G. S1.OP-SO.4KV-0001(Q), 1A 4KV Vital Bus Operation
- H. S1.OP-SO.RHR-0001(Q), Initiating RHR
- I. S1.OP-AB.RHR-0001(Q), Loss of RHR
- J. S1.OP-AB.RHR-0002(Q), Loss of RHR at Reduced Inventory
- K. S1.OP-SO.CVC-0001(Q), Charging, Letdown & Seal Injection
- L. S1.OP-SO.CVC-0002(Q), Charging Pump Operation
- M. S1.OP-AB.SW-0001(Q), Loss of Service Water Header Pressure
- N. S1.OP-PT.AF-0002(Q), Auxiliary Feedwater Backleakage

1.3 **Drawings**

- A. 203002 REV. 15 4160V Vital Buses

1.4 **Conformance Documents**

- A. None

1.5 **Other**

- A. Offsite Dose Calculation Manual (ODCM)
- B. DCP 80065300, Restoration Of The Positive Displacement Pump
As The Normal Charging Pump

2.0 **DISCUSSION**

- 2.1 This procedure provides the direction necessary for plant operation with a loss of 1A 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 operator recognition that a single Vital Bus has been lost. The symptoms available to the Operator are as follows:
- ◆ 1A 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 the Operators starting redundant equipment, powered from another source, to replace those loads which could have been lost if the bus remains de-energized. 13 Charging Pump may be cross tied to Unit 2 CVCS charging header from the Unit 1 RWST to provide a Post-Fire Safe Shutdown Function IAW 10CFR Part 50 Appendix R Regulation.
- B. The next actions check to see if the bus power is restored. If the bus is powered from the DG, the Emergency Loading is reset.
- C. The next systems to be looked at are Auxiliary Feedwater, Service Water, Component Cooling Water 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. The operators are reminded to reset Aux Feedwater Interlock to regain control of the S/G blowdown and sampling valves and to remove from service any Aux Feedwater Pump not required, to prevent an overpower condition and thermal shock with the addition of cold water to the system. Time can now be spent making notifications to 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, are 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 addresses the scenario where 1A and 1B Vital Busses are deenergized, and 1C is the only Vital Bus energized supplying either the 11 or 12 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, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 1- 4 - Self-Explanatory
- C. Attachment 3, Applicable ODCM and Technical Specifications Requiring Action - 8 Hours or Less Modes 5- 6 - Self-Explanatory
- D. Attachment 4, Completion Sign-Off Sheet - Self-Explanatory
- E. 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