PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS

S2.OP-AB.CR-0002(Q) - REV. 26

CONTROL ROOM EVACUATION DUE TO FIRE IN THE CONTROL ROOM, RELAY ROOM, 460/230V SWITCHGEAR ROOM, OR 4KV SWITCHGEAR ROOM

FIELD COPY EXISTS

- Biennial Review Performed: Yes ___ No ✓
- Change Package(s) and Affected Document Numbers incorporated into this revision: None
- The following OTSC(s) were incorporated into this revision: None

REVISION SUMMARY:

The following changes were incorporated into this revision:

- Incorporated Step 3.6 NOTE indicating the use of radio transmitters and cell phones within Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) sensitive areas should be minimized during evacuation of the Control Room, and that areas that prohibit radio or cellular phone use should be considered EMI "Radio Free Zones" unless otherwise specified by the SM/CRS. This change was incorporated to provide additional clarification regarding the use of portable radios and cell phones, is consistent with guidance currently delineated within OP-AA-101-111-1004, Operations Standards, and is considered to be editorial in nature. **[70055672-0060]**

- Revised Attachment 3, Step 8.3 to indicate when HSD Panel 213-2 is aligned to Unit 2 ASDS Inverter Power Supply as reported by the Plant Operator (Attachment 5, Step 12.3), and CVCS Cross-Connect Alignment to Unit 1 is established, then to perform the specified directed actions. This change was incorporated to provide additional clarification regarding required plant conditions for step performance, is consistent with guidance currently delineated in the TBD for Attachment 3, Step 8.3, and is considered to be editorial in nature.

- Revised Attachment 4, Steps 19.0, 43.0 and 59.0 to indicate the respective control panel is located in the 2C EDG Control Area. This change was incorporated to provide additional clarification regarding equipment location, and is considered to be editorial in nature.

IMPLEMENTATION REQUIREMENTS Effective Date: 01/13/2009

None

PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS

S2.OP-AB.CR-0002(Q) - REV. 26

CONTROL ROOM EVACUATION DUE TO FIRE IN THE CONTROL ROOM, RELAY ROOM, 460/230V SWITCHGEAR ROOM, OR 4KV SWITCHGEAR ROOM

REVISION SUMMARY: (continued)

- Revised Attachments 7 through 11 (as applicable) to indicate closing the breaker door following field operation of the respective breaker. This change was incorporated to provide additional clarification regarding breaker door closure, is in response to Operator Feedback, and is considered to be editorial in nature. **[70055734-0010]**

- Revised Attachment 7, Step 1.0 to include rope to be used for blocking open the Outer Piping Penetration Area Door in Step 32.0, and Step 32.0 to indicate the Outer Piping Penetration Area Door may be blocked open utilizing the rope provided (tied between a watertight door hinge and electrical conduit to hold the door open), or by any other available means. These changes were incorporated to provide additional clarification regarding door blockage, ensure successful completion of the indicated task, are in response to System Engineering Feedback, and are considered to be editorial in nature.

- Revised Attachment 7, Steps 30.1.E, 30.1.F, 37.0 and 38.0 to indicate each MS18 is equipped with two parallel pressure regulators for valve control, and that opening either drain cock on the parallel pressure regulators will ensure the respective MS18 valve is failed to the CLOSED position. This change was incorporated to provide additional clarification, is in response to System Engineering Feedback, and is considered to be editorial in nature.

- Deleted previous Step 21.2 of Attachment 8 indicating to verify the battery charger switch in the off position. This change was incorporated as the SBO Air Compressor "battery charger" was replaced with a "battery tender" that deleted all switches, is consistent with changes previously reviewed and approved in SC.OP-SO.CA-0001(Q), SBO Diesel Control Air Compressor, and is considered to be editorial in nature.

- Revised Attachment 8, Steps 7.1 and 7.2 to indicate "2A" versus "2B" Auxiliary Power Transformer Infeed Breaker, and Steps 7.7 and 7.8 to indicate "2B" versus "2A" Auxiliary Power Transformer Infeed Breaker. This change was incorporated to correct previously incorporated editing errors, is consistent with actual installed field labeling and Electrical Drawing No. 203000, and is considered to be editorial in nature.

- Deleted redundant "Does 22SW20 indicate OPEN?" question in Step 15.0 of Attachment 8. This change was incorporated to correct a previously incorporated editing error, and is considered to be editorial in nature.

PSEG NUCLEAR L.L.C.
SALEM/OPERATIONS

S2.OP-AB.CR-0002(Q) - REV. 26

CONTROL ROOM EVACUATION DUE TO FIRE IN THE CONTROL ROOM, RELAY ROOM, 460/230V SWITCHGEAR ROOM, OR 4KV SWITCHGEAR ROOM

REVISION SUMMARY: (continued)

- Revised Attachments 10 and 11, Step 1.0 NOTEs to indicate the H661 key is "Key #10" versus "Key #7" in the Work Control Center Key Box. These changes were incorporated to correct previously incorporated editing errors, are in response to Operator Feedback, are consistent with guidance currently delineated in OP-SA-108-101-1002, Key Control - Salem, and are considered to be editorial in nature.

- Incorporated Attachment 11, Step 19.2 NOTE indicating S2.OP-SO.ABV-0001(Q), Auxiliary Building Ventilation System Operation, may be referred to for additional clarification regarding the Auxiliary Building Ventilation System fan and filter unit required damper alignments. This change was incorporated to provide additional clarification, is in response to Operator Feedback, and is considered to be editorial in nature.

- Revised Attachment 13, Step 1.0 to indicate "SMT" versus "RO" for the Attachment 9, Step 19 signoff. This change was incorporated to correct a previously incorporated editing error, is in response to Operator Feedback, and is considered to be editorial in nature.

- Revised Step 1.0 of Attachments 4 (RO) and 9 (SMT) to include screwdrivers, and Attachment 6 (#1 NEO) to include wire cutters. These changes were incorporated in response to Operator Feedback, ensure successful completion of the indicated task, and are considered to be editorial in nature.

- Revised titles of Operators throughout procedure to ensure consistency. This change was incorporated to provide additional clarification, is in response to Operator Feedback, and is considered to be editorial in nature. **[70054628-0010]**

- Revised procedure to reflect current procedure format requirements.

CONTROL ROOM EVACUATION DUE TO FIRE IN THE CONTROL ROOM, RELAY ROOM, 460/230V SWITCHGEAR ROOM, OR 4KV SWITCHGEAR ROOM

1.0 ENTRY CONDITIONS

DATE:_____ TIME:_____

1.1 A fire event in any of the following areas requiring shutdown from outside the Control Room:

- ♦ Control Room
- ♦ Relay Room
- ♦ 460/230V Switchgear Room (Elev. 84')
- ♦ 4Kv Switchgear Room (Elev. 64')

2.0 IMMEDIATE ACTIONS

___ 2.1 **DO NOT ENTER** any EOPs during this procedure.

___ 2.2 **TRIP** the Reactor.

___ 2.3 **ANNOUNCE** twice on the Station PA System:

"Fire in Unit 2 Control Room Area. Unit 2 Duty Personnel assemble at the Appendix R Locker in Unit 2 Turbine Building on 120' elevation."

3.0 SUBSEQUENT ACTIONS

___ 3.1 IF the fire is located in the 4Kv Switchgear Room (El. 64'), THEN **ISOLATE** all 4Kv Vital Buses from Off-site power as follows:

___ ♦ **OPEN** 13 KV SOUTH BUS BREAKER SECTION A-B breaker.

___ ♦ **OPEN** 13 KV SOUTH BUS BREAKER SECTION D-E breaker.

___ 3.2 IF Control Room conditions permit, THEN:

___ A. **TRIP** the Main Turbine.

___ B. **INITIATE** a Main Steam Isolation.

___ C. **LOWER** 23 AFW Pump speed until:

___ ♦ Total AFW flow drops to 22E04 lbm/hr

OR

___ ♦ Minimum speed is reached

___ D. IF the fire is located in either of the Switchgear Rooms (El. 64' or 84'), THEN **DIRECT** Unit 1 Control Room to align the CVCS/BAST Systems IAW S1.OP-SO.CVC-0023(Q), CVCS Cross-Connect Alignment to Unit 2.

NOTE

The following keys are located in the Emergency Key Lock Box in the SM Office:
- ♦ Appendix "R" Locker Keys
- ♦ Alternate Shutdown Cabinet Keys
- ♦ Unit 2 Security Key Ring (containing seven Security Keys)

___ 3.3 **ENSURE** the Appendix "R", Alternate Shutdown Cabinet, and Unit 2 Security Keys are obtained from the Emergency Key Lock Box located in the SM Office prior to evacuating the Control Room Area.

___ 3.4 **DIRECT** Unit 2 Control Room personnel to evacuate from the Control Room Area.

___ 3.5 **PROCEED** to the Appendix R Locker in Unit 2 Turbine Building on 120' elevation.

NOTES

- The EOPs are not applicable during Control Room Evacuation. They should be used for information or as recommended by the Emergency Coordinator (EC) while performing this procedure.
- This procedure is written for the plant initially in Mode 1, 2, or 3. If the plant is in Mode 4, 5 or 6, only those steps to restore shutdown cooling and stabilize the plant systems after evacuation are necessary.
- The following keys are located in the Emergency Key Lock Box in the SM Office:
  - Appendix "R" Locker Keys
  - Alternate Shutdown Cabinet Keys
  - Unit 2 Security Key Ring (containing seven Security Keys).
- The use of radio transmitters and cell phones within Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) sensitive areas should be minimized during evacuation of the Control Room. Areas that prohibit radio or cellular phone use should be considered EMI "Radio Free Zones" unless otherwise specified by the SM/CRS.

___ 3.6 At the Appendix R Locker in Unit 2 Turbine Building on 120' elevation:

___ ♦ Shift Manager (SM), **IMPLEMENT** Attachment 1.

___ ♦ Shift Technical Advisor (STA), **IMPLEMENT** Attachment 2.

___ ♦ Control Room Supervisor (CRS), **IMPLEMENT** Attachment 3

___ ♦ Reactor Operator (RO), **IMPLEMENT** Attachment 4.

___ ♦ Plant Operator (PO), **IMPLEMENT** Attachment 5.

___ ♦ No. 1 Nuclear Equipment Operator (NEO), **IMPLEMENT** Attachment 6.

___ ♦ No. 2 Nuclear Equipment Operator (NEO), **IMPLEMENT** Attachment 7.

___ ♦ No. 3 Nuclear Equipment Operator (NEO), **IMPLEMENT** Attachment 8.

___ ♦ Shift Maintenance Technician (SMT), **IMPLEMENT** Attachment 9.

4.0 COMPLETION AND REVIEW

___ 4.1 **COMPLETE** Attachment 15, Sections 1.0 and 2.0, AND **FORWARD** this procedure to the SM/CRS for review and approval.

___ 4.2 SM/CRS, **COMPLETE** the following:

___ A. **REVIEW** this procedure with Attachments 1 through 15 for completeness and accuracy.

___ B. **COMPLETE** Attachment 15, Section 3.0.

___ C. **FORWARD** completed procedure to Operations Staff.

END OF PROCEDURE

ATTACHMENT 1
(Page 1 of 1)

SHIFT MANAGER

___ 1.0 **OBTAIN** the following materials:

___ ♦ One full copy of this procedure
___ ♦ One radio
___ ♦ The Unit 2 Security Key Ring (located in located in the Emergency Key Lock Box in the SM Office)

___ 2.0 **DISTRIBUTE** the Unit 2 Security Key Ring (containing seven Security Keys) to the Unit 2 CRS.

___ 3.0 **PERFORM** a briefing with the CRS and STA on plant status and fire impacted area.

___ 4.0 **DIRECT** Plant Security (X-2222) to open the Technical Support Center (TSC) AND **NOTIFY** Plant Security of the following:

♦ Possible loss of electrical power
♦ Operators utilizing security keys for access to security zones

___ 5.0 IF Unit 1 Control Room and Conference Room Areas are available, THEN **PROCEED** to the Operations Support Center (OSC).

___ 6.0 IF both Unit 2 and Unit 1 are in a simultaneous Alternate Shutdown, THEN **PROCEED** to the Technical Support Center (TSC).

___ 7.0 **NOTIFY** Radiation Protection (X-2644) of the following:

♦ Unit 2 Control Room Evacuation

♦ Personnel will be accessing the Control Point and Unit 2 Contaminated Area between the Mechanical and Electrical Penetration Areas on 78' elevation, unimpeded

___ 8.0 **NOTIFY** the Electric System Operator (ESO) of the following:

♦ Unit 2 Control Room Evacuation

♦ Shutdown of Unit 2

___ 9.0 **PERFORM** duties of the Emergency Coordinator (EC) IAW the Event Classification Guide (ECG).

___ 10.0 WHEN relieved by the Emergency Duty Officer (EDO), **COORDINATE** plant stabilization/shutdown IAW Attachments 3 through 9.

ATTACHMENT 2
(Page 1 of 1)

SHIFT TECHNICAL ADVISOR

___ 1.0 **OBTAIN** the following materials:

- ___ ♦ One full copy of this procedure
- ___ ♦ One radio

___ 2.0 **VERIFY** the CRS briefs personnel on plant status and fire impacted area.

___ 3.0 **VERIFY** personnel have the appropriate copies of this procedure:

- ___ ♦ CRS has a full copy of this procedure
- ___ ♦ RO has Attachment 4
- ___ ♦ PO has Attachment 5
- ___ ♦ #1 NEO has Attachment 6
- ___ ♦ #2 NEO has Attachment 7
- ___ ♦ #3 NEO has Attachment 8
- ___ ♦ Shift Maintenance Technician has Attachment 9.

___ 4.0 IF additional personnel are available,
THEN **DIRECT** personnel to report to the TSC/OSC for ECG implementation.

___ 5.0 IF both Unit 2 and Unit 1 are in a simultaneous Alternate Shutdown,
THEN **PROCEED** to the Technical Support Center (TSC).

___ 6.0 IF Unit 1 Control Room and Conference Room Areas are available,
THEN **PROCEED** to the Operations Support Center (OSC).

___ 7.0 **ESTABLISH** communication with the CRS.

___ 8.0 **IMPLEMENT** Attachment 13, CRS/STA TRACKING & OVERVIEW STATUS, to aid in tracking the status of this procedure for establishing Hot Standby conditions.

___ 9.0 WHEN the control of all shutdown systems is reported as established IAW Attachment 13, Steps 4.1 through 4.6,
NOTIFY the SM that control of the Shutdown Systems required for maintaining Hot Standby is established.

___ 10.0 **MONITOR** Plant Status/Direction.

ATTACHMENT 3
(Page 1 of 7)

CONTROL ROOM SUPERVISOR

___ 1.0 **OBTAIN** the following materials:

- ___ ♦ One full copy of this procedure
- ___ ♦ One radio
- ___ ♦ One portable emergency light unit
- ___ ♦ Key ring set (JA Master and E25)
- ___ ♦ A Security Master Key from the Unit 2 Security Key Ring **[C0363]**
- ___ ♦ Tools (adjustable wrench)

___ 2.0 **DISTRIBUTE** Security Keys located on the Unit 2 Security Key Ring (containing the six remaining Security Keys) to the following individuals:

- ♦ Reactor Operator (RO) - Attachment 4
- ♦ Plant Operator (PO) - Attachment 5
- ♦ #1 NEO - Attachment 6
- ♦ #2 NEO - Attachment 7
- ♦ #3 NEO - Attachment 8
- ♦ Shift Maintenance Technician (SMT) - Attachment 9

___ 3.0 **RECORD** the location of the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

___ 4.0 **PERFORM** a briefing with shift personnel on plant status and fire impacted area.

RO	_____	#1 NEO	_____
PO	_____	#2 NEO	_____
SMT	_____	#3 NEO	_____

___ 5.0 **PROCEED** to the El. 84' Auxiliary Building, Hot Shutdown Panel area.

ATTACHMENT 3
(Page 2 of 7)

CONTROL ROOM SUPERVISOR

NOTE

- If at any time during the performance of this attachment the EDG Operator (RO) reports an Emergency Diesel Generator is tripped because of lack of Service Water, the EDG Operator (RO) will have to be notified upon completion of the alignment of the Service Water System.
- S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment, provides guidance for manual component operation to achieve and maintain Hot Standby.

___ 6.0 **IMPLEMENT** Attachment 13, CRS/STA TRACKING & OVERVIEW STATUS, to aid in tracking the status of this procedure for establishing Hot Standby conditions.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 7.0 **ESTABLISH** communication with the TSC/OSC and field personnel via radio.

___ 8.0 IF the Elev. 64' or 84' Switchgear Room is the fire impacted area, THEN:

___ 8.1 **DIRECT** Unit 1 Control Room to align the CVC and BAST Systems IAW S1.OP-SO.CVC-0023(Q), CVCS Cross-Connect Alignment to Unit 2.

___ 8.2 WHEN the CVCS Cross-Connect Alignment to Unit 2 is established, **COORDINATE** 13 Charging Pump SPEED DEMAND with Unit 1 CRS as required to establish Unit 2 Pressurizer level control.

___ 8.3 WHEN HSD Panel 213-2 is aligned to Unit 1 ASDS Inverter Power Supply as reported by the Plant Operator (Attachment 5, Step 12.3), AND CVCS Cross-Connect Alignment to Unit 2 is established,

___ A. **DIRECT** the EDG Operator (RO) to manually trip all Unit 2 EDGs by pulling on the Overspeed Trip Handle at each EDG engine.

___ B. IF the Elev. 84' Switchgear Room is the fire impacted area, THEN **DIRECT** the 4kv Vital Bus Switchgear Operator (#1 NEO) to open 4Kv breakers IAW Attachment 6, Step 123.

ATTACHMENT 3
(Page 3 of 7)

CONTROL ROOM SUPERVISOR

NOTE

When the Relay Room or Control Room is the fire impacted area, ALL available CFCUs should be started in SLOW SPEED to provide containment heat removal capability for potentially elevated RCP seal leakages.

___ 9.0 IF the Relay Room or Control Room is the fire impacted area, THEN **START** ALL available CFCUs in SLOW SPEED IAW S2.OP-SO.HSD-0001(Q).

___ 10.0 **COORDINATE** with other Operators to maintain the following parameters:

- Steam Generator Levels - 15% to 33% Narrow Range
  - 21 Steam Generator: LI-1640
  - 22 Steam Generator: LI-1641
  - 23 Steam Generator: LI-1642
  - 24 Steam Generator: LI-1643

CAUTION

Steam Generator Differential Pressure Safety Injection will occur at 100 psi differential pressure.

- Steam Generator Pressures - 1005 psig (Tave = 547°F):
  - 21 Steam Generator: PI-1644
  - 22 Steam Generator: PI-1645
  - 23 Steam Generator: PI-1646
  - 24 Steam Generator: PI-1647.
- Pressurizer Level 25% to 77% as indicated of LI-1649.
- Pressurizer Pressure 2200 psig to 2250 psig as indicated on PI-1648.

___ 11.0 **MAINTAIN** the plant in HOT STANDBY.

Date / Time

ATTACHMENT 3
(Page 4 of 7)

CONTROL ROOM SUPERVISOR

NOTE

- This section provides multiple steps to be performed with the assistance from TSC/OSC resources IAW S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment, and provides guidance to support the transition from Hot Standby to Cold Shutdown.
- Use of other procedures will be necessary to accomplish various lineups and evolutions throughout the remainder of this procedure. Due to plant conditions many prerequisites, precautions and limitations required by these procedures may not apply.

___ 12.0 WHEN the TSC/OSC is ACTIVATED,
DIRECT the OSC Coordinator (OSCC) to implement Attachment 14, Operations Support Center Activity.

___ 13.0 IF the Relay Room or Control Room is the fire impacted area,
THEN upon completion of Attachment 14, Step 1.5.1F:

___ 13.1 **SEND** an Operator to align the VCT to the Charging Pump suction by positioning the following valves as indicated IAW S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment:

___ A. **OPEN** 2CV40, VCT OUTLET

___ B. **OPEN** 2CV41, VCT OUTLET

___ C. **CLOSE** 2SJ1, RWST TO CHG PUMPS

___ D. **CLOSE** 2SJ2, RWST TO CHG PUMPS

___ 13.2 **DIRECT** an Operator to control 2CV55 as required for maintaining the following parameters while in communication with the HSD Panel Operator (PO):

- VCT level 14% to 77% at Panel 216-2 (located in Charging Pump Valve Alley)
- Pressurizer level 25% to 77% (located in HSD Panel)

ATTACHMENT 3
(Page 5 of 7)

CONTROL ROOM SUPERVISOR

NOTE

The following steps commence cooldown after the SM has so directed. The necessary procedures, steam tables, and etc. may be obtained from the OSC/TSC. The following are available at the Hot Shutdown Panel to provide guidance during RCS cooldown:

- S2.OP-AB.RC-0004(Q), NATURAL CIRCULATION COOLDOWN
- S2.OP-IO.ZZ-0006(Q), HOT STANDBY TO COLD SHUTDOWN
- S2.OP-SO.HSD-0001(Q), FIRE RELATED ALTERNATE SHUTDOWN EQUIPMENT

___ 14.0 WHEN directed by the SM to commence Plant Cooldown,

___ 14.1 IF ambient conditions in the Inner Penetration Area permit, THEN **ESTABLISH** Inner Piping Penetration Area manning.

___ 14.2 **INITIATE** plotting RCS temperature and cooldown rate at least every 30 minutes IAW S2.OP-TM.ZZ-0001(Q), RCS Pressure/Temperature Curves.

___ 15.0 **DIRECT** the Operators at the Inner (#3 NEO) and Outer (#2 NEO) Piping Penetration Areas, as applicable, to slowly raise steam release to the atmosphere through MS10s to establish cooldown rate of 25°F per hour, while maintaining Steam Generator pressures within 50 psig of each other.

___ 16.0 IF 2A 460V Vital Bus Power OR 2C 460V Vital Extension Bus Power is available, THEN **SEND** an Operator to complete the following:

___ 16.1 **ALIGN** the Pressurizer Heater power supplies IAW S2.OP-SO.PZR-0010(Q), Pressurizer Backup Heaters Power Supply Transfer.

___ 16.2 **OPERATE** the heaters as needed to maintain subcooling margin.

ATTACHMENT 3
(Page 6 of 7)

CONTROL ROOM SUPERVISOR

CAUTION

Maintaining a subcooling margin without pressurizer heaters is achieved by control of pressurizer level during RCS cooldown. The inherent pressurizer pressure control feature can be established by balancing the charging rate with the RCS cooldown rate such that pressurizer level is maintained constant. Since any insurge only exacerbates a lowering RCS pressure condition, attempts to raise pressurizer level following an outsurge should be avoided.

___ 17.0 **MAINTAIN** ≈200°F subcooling margin during cooldown IAW S2.OP-TM.ZZ-0001(Q), Pressure/Temperature Curves.

___ 18.0 **MAINTAIN** Pressurizer level between 25% and 77% as indicated on LI-1649.

___ 19.0 IF AT ANY TIME Pressurizer level fluctuates, indicating Reactor Vessel Head voids, THEN:

___ ♦ **RAISE** RCS pressure at least 50 psig, not to exceed maximum allowable IAW S2.OP-TM.ZZ-0001(Q), Pressure/Temperature Curves, for 2 hours before attempting depressurization.

OR

___ ♦ **LOWER** RCS temperature while maintaining pressurizer level constant and RCS pressure as high as possible to increase the subcooling margin to the maximum achievable.

___ 20.0 WHEN RCS temperature is between 350°F and 360°F AND RCS pressure is maximum allowable IAW S2.OP-TM.ZZ-0001(Q), Pressure/Temperature Curves,
HOLD these conditions for at least 8 hours to complete RCS soak requirements.

[C0381]

CAUTION

RCS pressure must be maintained greater than 650 psig until all the Accumulator Outlet valves are CLOSED.

___ 21.0 **DIRECT** the OSCC to close the following ACCUMULATOR OUTLET VALVES:

♦ 21SJ54
♦ 22SJ54
♦ 23SJ54
♦ 24SJ54

ATTACHMENT 3
(Page 7 of 7)

CONTROL ROOM SUPERVISOR

___ 22.0 WHEN the required soak time is completed
AND 21-24SJ54 valves are CLOSED,
DEPRESSURIZE the RCS at <750 psig/hour until <375 psig. **[C0381]**

NOTE

RCS depressurization results in lowering of the letdown flow rate.

___ 22.1 **OPEN** 2CV75, Pressurizer Auxiliary Spry Isolation Valve

___ 22.2 **CLOSE** 2CV77, Charging to No. 23 Cold Leg

___ 22.3 **CLOSE** 2CV79, Charging to No. 21 Cold Leg

___ 23.0 WHEN RCS is <350°F and <340 psig as indicated on PL-1482,
DIRECT the OSCC to initiate RHR IAW S2.OP-SO.RHR-0001(Q),
Initiating RHR.

___ 24.0 WHEN AFW is no longer required for SG inventory control, Date / Time
TRIP #23 AFW Pump.

___ 25.0 WHEN RCS temperature is ≤250°F,
DIRECT the Operators at the Inner (#3 NEO) and Outer (#2 NEO) Piping Penetration Areas, as applicable, to fully open the MS10s.

___ 26.0 **MAINTAIN** the following conditions:

- RCS temperature <200°F Date / Time
- Pressurizer level 25% to 77% as indicated on LI-1649
(Refer to Exhibit 1 for a discussion of ACTUAL versus INDICATED level at PZR temperatures less than or equal to 200 °F).
- RCS pressure between 320 psig to 350 psig as indicated on PL9876.
- RHR in service with at least one RHR pump operating at a flow rate that maintains RCS temperature stable.

ATTACHMENT 4
(Page 1 of 13)

REACTOR OPERATOR

___ 1.0 **OBTAIN** the following materials:

- ___ ♦ One copy of this attachment
- ___ ♦ One radio
- ___ ♦ One portable emergency light unit
- ___ ♦ Key ring set (Key #5 [T112])
- ___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**
- ___ ♦ Tools (screwdriver and adjustable wrench).

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

3.0 Is either elev. 64' or 84' Vital Bus Switchgear Room the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 72.0

V

Time

___ 4.0 **PROCEED** to El. 84' Auxiliary Building, Charging Pump Area.

___ 5.0 IF the Control Room is the fire impacted area,
OR Unit 2 Relay Room is the fire impacted area,
THEN **CLOSE** 2CV464, Charging Cross Tie Isolation Valve (Unit 1 Aux, 84').

___ 6.0 **PROCEED** to El. 84' Auxiliary Building, Seal Water Injection Filter Area.

___ 7.0 **ENSURE** the following Seal Water Injection Valves CLOSED:

- ___ ♦ 2CV83, SEAL WATER FILTER INLET.
- ___ ♦ 2CV89, SEAL WATER FILTER INLET.
- ___ ♦ 2CV95, SEAL WATER FILTER BYPASS.

ATTACHMENT 4
(Page 2 of 13)

REACTOR OPERATOR

___ 8.0 **PROCEED** to El. 84' Auxiliary Building, Emergency Diesel Generator FOST Area.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 9.0 **ESTABLISH** communication with the CRS via radio.

___ 10.0 **NOTIFY** the CRS and Shift Maintenance Technician of 21SW21 and 22SW21, Emergency Diesel Generator Cooling Water, valve positions.

___ 11.0 **PROCEED** to 2C Emergency Diesel Generator (EDG) Area.

NOTE

The following step reinstates all non-SEC trips for the EDG and may result in the diesel tripping if it is operating without service water.

___ 12.0 **PLACE** the following Keylock switches in BYPASS:

___ 12.1 69/1, FIRE EMERGENCY BY-PASS (Generator Control Panel)

___ 12.2 69/2, FIRE EMERGENCY BY-PASS (Engine Control Panel)

___ 12.3 69/3, FIRE EMERGENCY BY-PASS (Engine Control Panel)

NOTE

The 4Kv Vital Bus Switchgear Operator (#1 NEO) provides information about Off-site Power availability.

13.0 Is Off-site Power supplying 2C 4Kv Vital Bus?

___ NO ___ YES ——> **GO TO** Step 16.0

V

_____
Time

___ 14.0 **DIRECT** the 4Kv Vital Bus Switchgear Operator (#1 NEO) to remove loads from 2C 4Kv Vital Bus IAW Step 24 of Attachment 6.

ATTACHMENT 4
(Page 3 of 13)

REACTOR OPERATOR

___ 15.0 **WAIT** until notified by the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2C 4Kv Bus is stripped,

16.0 Is 2C EDG running?

___ YES ___ NO ------> **GO TO** Step 18.0

V

_____
Time

___ 17.0 **STOP** 2C EDG, by placing the local switch (2C-DF-SS) to the STOP position.

___ 18.0 At Panel 2CDC1DA, 2C Diesel Generator Alternate DC Starter Terminal Box:

___ 18.1 **PLACE** the following breakers in OFF:

___ A. 2CDC1DA1, Normal DC to 2C EDG Engine Controls from 2CCDC-34

___ B. 2CDC1DA2, Normal DC to 2C EDG Engine Controls from 2CCDC-36

___ C. 2CDC1DA5, Normal DC to 2C EDG Exciter from 2CCDC-32

___ 18.2 **PLACE** the following breakers in ON:

___ A. 2CDC1DA3, Standby DC to 2C EDG Engine Controls from 2CDCDG-10

___ B. 2CDC1DA4, Standby DC to 2C EDG Engine Controls from 2CDCDG-7

___ C. 2CDC1DA6, Standby DC to 2C EDG Exciter from 2CDCDG-9

___ 19.0 **PLACE** the following breakers at 2CDC2DA, NO 2A, 2B, and 2C 125V DC Distribution Cabinet, in ON (located in 2C EDG Control Area):

___ 19.1 2CDC2DA7, 2C EDG Control & Alarm

___ 19.2 2CDC2DA9, 2C EDG Control & Excitation

___ 19.3 2CDC2DA10, 2C EDG Trip & Breaker Failure Protection

___ 19.4 2CDC2DAX1/2CDC2DA1 (mechanically interlocked) 2CDCDG 125V DC Distribution Panel Main Breaker.

ATTACHMENT 4
(Page 4 of 13)

REACTOR OPERATOR

___ 20.0 **CHECK** 2C-DF-GCP-1, 2C DIESEL GEN LOADING SW indicates AUTO (ISOCR).

___ 21.0 **CHECK** EXCITER REGULATOR REMOTE MANUAL-AUTOMATIC switch AUTOMATIC lamp is ON.

22.0 Is it necessary to start 2C EDG?

___ YES ___ NO ——> **GO TO** Step 35.0

V

_____
Time

NOTE

Local "ALARM PANEL", alarms MUST be reset first.

___ 23.0 **VERIFY** the DUTR (2C-DF-GCP-2) is RESET.

___ 24.0 **START** 2C EDG by placing the local switch (2C-DF-SS) to START position.

___ 25.0 **CHECK** the following lights are illuminated:

- ♦ 2DAE38-LT2 EDG Voltage
- ♦ 2DAE38-LT3 EDG Speed

___ 26.0 **NOTIFY** the 4Kv Vital Bus Switchgear Operator (#1 NEO) and the CRS, that 2C Diesel is operating and Step 38 of Attachment 6 may be performed.

ATTACHMENT 4
(Page 5 of 13)

REACTOR OPERATOR

NOTE

Adequate time should be allotted for the 4Kv Vital Bus Switchgear Operator (#1 NEO) to CLOSE the 2C EDG Output and 26 Service Water Pump breakers.

CAUTION

A diesel may run for up to 30 minutes unloaded with no service water, but will trip in approximately 5 minutes if operating in a loaded condition.

27.0 Is Service Water available as indicated on 2DP9632I, 23 Service Water Diesel Gen Lube Oil Cooler & Jkt Wtr Ht Exch DP Ind, on Panel 740-2BB.

___ NO ___ YES ——> **GO TO** Step 34.0

V

_____ Time

28.0 Is 2C EDG operating with a load as indicated on 2WM180?

___ NO ___ YES ——> **GO TO** Step 32.0

V

_____ Time

29.0 Has 2C EDG been operating without a load for >25 minutes?

___ NO ___ YES ——> **GO TO** Step 32.0

V

_____ Time

___ 30.0 **NOTIFY** the CRS and 4Kv Vital Bus Switchgear Operator (#1 NEO) that the SW valve lineup is not correct.

___ 31.0 **RETURN TO** Step 27.0

_____ Time

ATTACHMENT 4
(Page 6 of 13)

REACTOR OPERATOR

___ 32.0 **STOP** 2C EDG as follows:

___ 32.1 **DIRECT** the 4Kv Vital Bus Switchgear Operator (#1 NEO) to open the 2C EDG Output Breaker.

___ 32.2 WHEN notified by the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2C EDG Output Breaker is OPEN, **PLACE** the local switch (2C-DF-SS) to STOP position.

___ 33.0 WHEN notified by the CRS that the SW valve lineup is correct, **RETURN TO** Step 23.0.

_____ Time

___ 34.0 **NOTIFY** the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2C EDG is available for further loads and Step 39 of Attachment 6 may be performed.

___ 35.0 **PROCEED** to 2A Emergency Diesel Generator (EDG) Area.

NOTE

The following step reinstates all non-SEC trips for the EDG.

___ 36.0 **PLACE** following Keylock switches in BYPASS

___ 36.1 69/1, FIRE EMERGENCY BY-PASS (Generator Control Panel)

___ 36.2 69/2, FIRE EMERGENCY BY-PASS (Engine Control Panel)

___ 36.3 69/3, FIRE EMERGENCY BY-PASS (Engine Control Panel)

NOTE

The 4Kv Vital Bus Switchgear Operator (#1 NEO) provides information about Off-site Power availability.

37.0 Is Off-site power supplying the 2A 4Kv Vital Bus?

___ NO ___ YES ——> **GO TO** Step 40.0

V

_____ Time

ATTACHMENT 4
(Page 7 of 13)

REACTOR OPERATOR

___ 38.0 **DIRECT** the 4Kv Vital Bus Switchgear Operator (#1 NEO) to remove loads from 2A 4Kv Vital Bus IAW Step 59 of Attachment 6.

___ 39.0 **WAIT** until notified by the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2A 4Kv Bus is stripped.

40.0 Is 2A EDG running?

___ YES ___ NO ——> **GO TO** Step 42.0

V

_____
Time

___ 41.0 **STOP** 2A EDG by placing the local switch (2A-DF-SS) to the STOP position.

___ 42.0 At Panel 2ADC1DA, 2A Diesel Generator Alternate DC Starter Terminal Box:

___ 42.1 **PLACE** the following breakers in OFF:

___ A. 2ADC1DA1, Normal DC to 2A EDG Engine Controls from 2AADC-26

___ B. 2ADC1DA2, Normal DC to 2A EDG Engine Controls from 2AADC-28

___ C. 2ADC1DA5, Normal DC to 2A EDG Exciter from 2AADC-24

___ 42.2 **PLACE** the following breakers in ON:

___ A. 2ADC1DA3, Standby DC to 2A EDG Engine Controls from 2CDCDG-2

___ B. 2ADC1DA4, Standby DC to 2A EDG Engine Controls from 2CDCDG-4

___ C. 2ADC1DA6, Standby DC to 2A EDG Exciter from 2CDCDG-3

ATTACHMENT 4
(Page 8 of 13)

REACTOR OPERATOR

___ 43.0 **PLACE** the following breakers at 2CDC2DA, NO 2A, 2B, & 2C 125V DC Distribution Cabinet, in ON (located in 2C EDG Control Area):

___ 43.1 2CDC2DA2, 2A EDG Trip & Breaker Failure Protection

___ 43.2 2CDC2DA3, 2A EDG Control & Excitation

___ 43.3 2CDC2DA4, 2A EDG Control & Alarm

___ 44.0 **CHECK** 2A-DF-GCP-1, 2A DIESEL GEN LOADING SW indicates AUTO (ISOCR).

___ 45.0 **CHECK** EXCITER REGULATOR REMOTE MANUAL-AUTOMATIC switch AUTOMATIC lamp is ON.

46.0 Is it necessary to start 2A EDG?

___ YES ___ NO ——> **GO TO** Step 51.0

V

_____
Time

NOTE

Local "ALARM PANEL", alarms MUST be reset first.

___ 47.0 **VERIFY** the DUTR (2A-DF-GCP-2) is RESET.

___ 48.0 **START** 2A EDG by placing the local switch (2A-DF-SS) to START position.

___ 49.0 **CHECK** the following lights are illuminated on Generator Control Panel:

- ♦ 2DAE4-LT2 EDG Voltage
- ♦ 2DAE4-LT3 EDG Speed

___ 50.0 **NOTIFY** the 4Kv Vital Bus Switchgear Operator (#1 NEO) and the CRS that 2A EDG is operating and Step 70 of Attachment 6 may be performed.

ATTACHMENT 4
(Page 9 of 13)

REACTOR OPERATOR

___ 51.0 **PROCEED** to 2B Emergency Diesel Generator (EDG) Area.

NOTE

The following step reinstates all non-SEC trips for the EDG.

___ 52.0 **PLACE** the following Keylock switches in BYPASS:

___ 52.1 69/1, FIRE EMERGENCY BY-PASS, (Generator Control Panel)

___ 52.2 69/2, FIRE EMERGENCY BY-PASS (Engine Control Panel)

___ 52.3 69/3, FIRE EMERGENCY BY-PASS (Engine Control Panel)

NOTE

The 4Kv Vital Bus Switchgear Operator (#1 NEO) provides information about Off-site Power availability.

53.0 Is Off-site power supplying the 2B 4Kv Vital Bus?

___ NO ___ YES ——> **GO TO** Step 56.0

V

Time

___ 54.0 **DIRECT** the 4Kv Vital Bus Switchgear Operator (#1 NEO) to remove loads from 2B 4Kv Vital Bus IAW Step 90 of Attachment 6.

___ 55.0 **WAIT** until notified by the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2B 4Kv Bus is stripped.

56.0 Is 2B EDG running?

___ YES ___ NO ——> **GO TO** Step 58.0

V

Time

___ 57.0 **STOP** 2B EDG by placing the local switch (2B-DF-SS) to the STOP position.

ATTACHMENT 4
(Page 10 of 13)

REACTOR OPERATOR

___ 58.0 At Panel 2BDC1DA, 2B Diesel Generator Alternate DC Starter Terminal Box:

___ 58.1 **PLACE** the following breakers in OFF:

___ A. 2BDC1DA1, Normal DC to 2B EDG Engine Controls from 2BBDC-6

___ B. 2BDC1DA2, Normal DC to 2B EDG Engine Controls from 2BBDC-8

___ C. 2BDC1DA5, Normal DC to 2B EDG Exciter from 2BBDC-4

___ 58.2 **PLACE** the following breakers in ON:

___ A. 2BDC1DA3, Standby DC to 2B EDG Engine Controls from 2CDCDG-6

___ B. 2BDC1DA4, Standby DC to 2B EDG Engine Controls from 2CDCDG-8

___ C. 2BDC1DA6, Standby DC to 2B EDG Exciter from 2CDCDG-5

___ 59.0 **PLACE** the following at 2CDC2DA, No 2A, 2B, & 2C 125V DC Distribution Panel, in ON (located in 2C EDG Control Area):

___ 59.1 2CDC2DA5, 2B EDG Control and Excitation

___ 59.2 2CDC2DA6, 2B EDG Trip & Breaker Failure Protection

___ 59.3 2CDC2DA8, 2B EDG Control and Alarm

___ 60.0 **CHECK** 2B-DF-GCP-1, 2B DIESEL GEN LOADING SW indicates AUTO (ISOCR).

___ 61.0 **CHECK** EXCITER REGULATOR REMOTE MANUAL-AUTOMATIC switch AUTOMATIC lamp is ON.

ATTACHMENT 4
(Page 11 of 13)

REACTOR OPERATOR

62.0 Is it necessary to start 2B EDG?

___ YES ___ NO ——> **GO TO** Step 67.0

V

Time _____

NOTE
Local "ALARM PANEL", alarms MUST be reset first.

___ 63.0 **VERIFY** the DUTR (2B-DF-GCP-2) is RESET.

___ 64.0 **START** 2B EDG by placing the local switch (2B-DF-SS) to START position.

___ 65.0 **CHECK** the following lights are illuminated:

- ♦ 2DAE23-LT2 EDG Voltage
- ♦ 2DAE23-LT3 EDG Speed

___ 66.0 **NOTIFY** the CRS and the 4Kv Vital Bus Switchgear Operator (#1 NEO) that 2B EDG is operating and Step 104 of Attachment 6 may be performed.

___ 67.0 **NOTIFY** the CRS that Steps 1 through 66 of Attachment 4 are completed.

68.0 Are any EDGs operating?

___ YES ___ NO ——> **GO TO** Step 77.0

V

Time _____

___ 69.0 **INITIATE** Diesel Generator Running Checks IAW the applicable procedure for each operating EDG:

___ ♦ 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

ATTACHMENT 4
(Page 12 of 13)

REACTOR OPERATOR

___ 70.0 IF any Fuel Oil Day Tank is NOT being maintained greater than 27 inches, THEN **OPERATE** either Fuel Oil Transfer Pump to maintain all Fuel Oil Day Tank levels greater than 27 inches as follows:

___ 70.1 At 2AY1DA No. 2A Diesel Generator 230V Vital Control Center:

___ A **OPEN** breaker 2AY1DA3D, 21 FUEL OIL TRANSFER PUMP.

___ B **OPEN** pan door for 2AY1DA3D.

___ C **PLACE** EMERG/NORM switch in the EMERGENCY position.

___ D **CLOSE** pan door for 2AY1DA3D.

___ E **OPERATE** breaker 2AY1DA3D as necessary to start and stop 21 Fuel Oil Transfer Pump.
(Red emergency light illuminates when breaker is closed.)

OR

___ 70.2 At 2BY1DA No. 2B Diesel Generator 230V Vital Control Center:

___ A **OPEN** breaker 2BY1DA3D, 22 FUEL OIL TRANSFER PUMP.

___ B **OPEN** pan door for 2BY1DA3D.

___ C **PLACE** EMERG/NORM switch in the EMERGENCY position.

___ D **CLOSE** pan door for 2BY1DA3D.

___ E **OPERATE** breaker 2BY1DA3D as necessary to start and stop 22 Fuel Oil Transfer Pump.
(Red emergency light illuminates when breaker is closed.)

___ 71.0 WHEN relieved by an NEO, **GO TO** Step 77.0

_____
Time

ATTACHMENT 4
(Page 13 of 13)

REACTOR OPERATOR

___ 72.0 IF Unit 2 84' Switchgear Room is the fire impacted area,
THEN **CLOSE** 2CV464, Charging Cross Tie Isolation Valve (Unit 1 Aux, 84').

___ 73.0 **PROCEED** to the Emergency Diesel Generator rooms.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 74.0 **ESTABLISH** communication with the CRS.

___ 75.0 WHEN notified by the CRS that the CVCS Cross-Connect and the Alternate Shutdown Transfer Panel (ASTP-2) are aligned:

___ 75.1 At 2A EDG engine,
TRIP 2A EDG by pulling on the Overspeed Trip Handle.

___ 75.2 At 2B EDG engine,
TRIP 2B EDG by pulling on the Overspeed Trip Handle.

___ 75.3 At 2C EDG engine,
TRIP 2C EDG by pulling on the Overspeed Trip Handle.

___ 76.0 **NOTIFY** the CRS that all EDGs are TRIPPED IAW Step 75 of Attachment 4.

___ 77.0 **PROCEED** to the Hot Shutdown Panel.

ATTACHMENT 5
(Page 1 of 9)

PLANT OPERATOR

___ 1.0 **OBTAIN** the following materials:

___ ♦ One copy of this attachment
___ ♦ One radio
___ ♦ One portable emergency light unit
___ ♦ Key ring set (JAM, CAT102)
___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**
___ ♦ Tools (screwdriver, adjustable wrench, and fuse puller)

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

___ 3.0 **PROCEED** to the El. 84' Auxiliary Building, Hot Shutdown Panel area.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 4.0 **ESTABLISH** communication with the CRS via radio.

5.0 Is either the Elev. 64' or 84' Vital Bus Switchgear Room the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 12.0

V

_____
Time

ATTACHMENT 5
(Page 2 of 9)

PLANT OPERATOR

___ 6.0 At No. 2 Unit Service Water Charging Pump Room Cooler Flow Panel 229-2B, **OPEN** 2SW185, No. 21 Chg Pump LO Cont Valve, as follows:

___ 6.1 **CLOSE** manual isolation valve 2SW185-A/S, Air supply to 2SW185 via SV-605.

___ 6.2 **OPEN** the drain cock of the pressure regulator for SV-605.

___ 7.0 At No. 2 Unit Service Water Charging Pump Room Cooler Flow Panel 229-2C, **OPEN** 2SW199, No. 22 Chg Pump LO Cont Valve, as follows:

___ 7.1 **CLOSE** manual isolation valve 2SW199-A/S, Air supply to 2SW199 via SV-607.

___ 7.2 **OPEN** the drain cock of the pressure regulator for SV-607.

NOTE

- 2CV55 design flowrate in the CLOSED position is 40 GPM with control air supply 2CA2015 in NORMAL position.
- 2CV55 fails OPEN on a loss of air.

___ 8.0 **VERIFY** 2CA2015, CONTROL AIR SUPPLY, in NORMAL position.

NOTE

The following indications and controls are available for local operation

- 2FI-128A, Charging Pump Flow Indication
- 2PI-142B, 21 and 22 Charging Pump Pressure Indication
- 2LT114, VCT Level

___ 9.0 At 21-22-23 Charging Pumps Flow and Pressure Panel 216-2, **CONTROL** 2CV55, Charging Flow Control Valve, as follows:

___ 9.1 At 2HC-128G, No. 21 & 22 Charging Pumps Flow to Regen HX, **PLACE** local E/P Bypass Line Selector Valve in MANUAL.

___ 9.2 **ADJUST** 2CV55 utilizing the installed Manual Hand Air Operator to control Pressurizer Level 25% to 77% as indicated on LI-1649. by raising air pressure.

ATTACHMENT 5
(Page 3 of 9)

PLANT OPERATOR

___ 10.0 **PLACE** the UHF/VHF MANUAL TRANSFER SWITCH to EMERGENCY position (directly across from Hot Shutdown Panel).

___ 11.0 **GO TO** Step 13.0.

Time

___ 12.0 **ALIGN** the HSD Panel 213-2 to the Unit 1 ASDS Inverter power supply as follows:

NOTE

The following Hot Shutdown Panel CHANNEL "D" section instrumentation is associated with the AUX SHUTDOWN TRANSFER PANEL (ASTP) power supply transfer alignment:

- SG Levels (LI-1640 / LI-1641 / LI-1642 / LI-1643)
- SG Pressures (PI-1644 / PI-1645 / PI-1646 / PI-1647)
- Pressurizer Pressure (PI-1648)
- Pressurizer Level (LI-1649)

___ 12.1 At the No. 2 UNIT AUX SHUTDOWN TRANSF PNL, ASTP-2, **ISOLATE** the 2ASDS power supply as follows:

___ A. **UNLOCK** AND **OPEN** the panel door.

___ B. **OPEN** 2ASTPIB5, S2 ASTP PANEL MAIN FEEDER BREAKER.

___ C. **CLOSE** 2ASTPIB1, S2 ASTP CROSS-TIE BREAKER.

___ D. **CLOSE** the panel door.

ATTACHMENT 5
(Page 4 of 9)

PLANT OPERATOR

___ 12.2 At the No. 1 UNIT AUX SHUTDOWN TRANSF PNL, ASTP-1, **ALIGN** the 1ASDS power supply as follows:

___ A. **UNLOCK** AND **OPEN** the panel door.

___ B. **VERIFY** 1ASTPIB5, S1 ASTP PANEL MAIN FEEDER BREAKER, is CLOSED.

___ C. **CLOSE** 1ASTPIB1, S1 ASTP PANEL CROSS-TIE BREAKER.

___ D. **CLOSE** the panel door.

___ 12.3 **NOTIFY** the CRS that Hot Shutdown Panel 213-2 is aligned to Unit 1 ASDS Inverter Power Supply.

NOTE

- The following indications are available for local operation:
  - #23 AFW Pump Suction Pressure
  - #23 AFW Pump Discharge Pressure
  - #23 AFW Pump Steam Pressure
- Attachment 12, TURBINE-DRIVEN AFW PUMP RESTORATION, provides guidance to RESET 2MS52, OVERSPEED TRIP MECHANISM.

13.0 Is any Motor Driven AFW Pump running?

___ YES ___ NO ——> **GO TO** Step 23.0

V

_____
Time

___ 14.0 At the 23 AFW Pump-Turbine governor, **ADJUST** 23 AFW Pump Manual Speed Setting Knurled Knob to minimum.

ATTACHMENT 5
(Page 5 of 9)

PLANT OPERATOR

___ 15.0 At 21AF11, No. 21 Steam Generator AFW Inlet Valve:

___ 15.1 Manually **ADJUST** the hand jack for 21AF11 to maintain the valve's present position.

___ 15.2 **CLOSE** the manual isolation valve, 21AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 21AF11 Panel 700-2K.

___ 15.3 **OPEN** the drain cock of the pressure regulator.

___ 15.4 **CLOSE** 21AF11.

___ 16.0 At 22AF11, No. 22 Steam Generator AFW Inlet Valve:

___ 16.1 Manually **ADJUST** the hand jack for 22AF11 to maintain the valve's present position.

___ 16.2 **CLOSE** manual isolation valve 22AF11-A/S to pressure regulator in No.2 Unit Redundant Air Supply 22AF11 Panel 700-2X.

___ 16.3 **OPEN** the drain cock of the pressure regulator.

___ 16.4 **CLOSE** 22AF11.

ATTACHMENT 5
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PLANT OPERATOR

___ 17.0 At 23AF11, No. 23 Steam Generator AFW Inlet Valve:

___ 17.1 Manually **ADJUST** the hand jack for 23AF11 to maintain the valve's present position.

___ 17.2 **CLOSE** manual isolation valve 23AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 23AF11 Panel 700-2J.

___ 17.3 **OPEN** the drain cock of the pressure regulator.

___ 17.4 **CLOSE** 23AF11.

___ 18.0 At 24AF11, No. 24 Steam Generator AFW Inlet Valve:

___ 18.1 Manually **ADJUST** the hand jack for 24AF11 to maintain the valve's present position.

___ 18.2 **CLOSE** manual isolation valve 24AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 24AF11 Panel 700-2L.

___ 18.3 **OPEN** the drain cock of the pressure regulator.

___ 18.4 **CLOSE** 24AF11.

___ 19.0 At No. 23 Aux Feedwater Panel 207-2,

___ 19.1 **OPEN** 2MS132, Steam Supply to No. 23 AFW Pump Turbine, as follows:

___ A. **CLOSE** the manual air isolation valve 2MS132-A/S to SV-509-2 (inside left door at bottom of panel.

___ B. **OPEN** the drain cock of the pressure regulator for SV-509-2.

___ 19.2 **OPEN** 2MS53, No. 23 Auxiliary Feedwater Pump Governor Valve, as follows:

___ A. **CLOSE** the manual air isolation valve FA-3964-A/S to FA-3964.

___ B. **OPEN** the drain cock of the pressure regulator for FA-3964.

ATTACHMENT 5
(Page 7 of 9)

PLANT OPERATOR

___ 20.0 **RAISE** speed of 23 AFW Pump with the Manual Speed Setting Knurled Knob until discharge pressure indicates 1500 psig as indicated on PL-1686-2 at Panel 207-2.

___ 21.0 **ADJUST** AF11 valves to maintain all Steam Generator levels between 15% and 33% Narrow Range as indicated on LI-1640 through LI-1643.

___ 22.0 **GO TO** Step 30.0

_____ Time

___ 23.0 At No. 23 Aux Feedwater Panel 207-2 (left cabinet section),

___ 23.1 **OPEN** 2MS132, Steam Supply to No. 23 AFW Pump Turbine, as follows:

___ A. **CLOSE** the manual air isolation valve 2MS132-A/S to SV-509-2 (left wall, top row).

___ B. **OPEN** the drain cock of the pressure regulator for SV-509-2.

___ 23.2 **OPEN** 2MS53, No. 23 Auxiliary Feedwater Pump Governor Valve, as follows:

___ A. **CLOSE** the manual air isolation valve FA-3964-A/S to FA-3964 (back wall, mid cabinet).

___ B. **OPEN** the drain cock of the pressure regulator for FA-3964.

___ 24.0 **CONTROL** speed of 23 AFW Pump with the Manual Speed Setting Knurled Knob until discharge pressure is ≈100 psig (PL-1686-2 at Panel 207-2) greater than Steam Generator Pressures at Hot Shutdown Panel 213-2.

___ 25.0 At 21AF11, No. 21 Steam Generator AFW Inlet Valve:

___ 25.1 Manually **ADJUST** the hand jack for 21AF11 to maintain the valve's present position.

___ 25.2 **CLOSE** the manual isolation valve, 21AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 21AF11 Panel 700-2K.

___ 25.3 **OPEN** the drain cock of the pressure regulator.

ATTACHMENT 5
(Page 8 of 9)

PLANT OPERATOR

___ 26.0 At 22AF11, No. 22 Steam Generator AFW Inlet Valve:

___ 26.1 Manually **ADJUST** the hand jack for 22AF11 to maintain the valve's present position.

___ 26.2 **CLOSE** manual isolation valve 22AF11-A/S to pressure regulator in No.2 Unit Redundant Air Supply 22AF11 Panel 700-2X.

___ 26.3 **OPEN** the drain cock of the pressure regulator.

___ 27.0 At 23AF11, No. 23 Steam Generator AFW Inlet Valve:

___ 27.1 Manually **ADJUST** the hand jack for 23AF11 to maintain the valve's present position.

___ 27.2 **CLOSE** manual isolation valve 23AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 23AF11 Panel 700-2J.

___ 27.3 **OPEN** the drain cock of the pressure regulator.

___ 28.0 At 24AF11, No. 24 Steam Generator AFW Inlet Valve:

___ 28.1 Manually **ADJUST** the hand jack for 24AF11 to maintain the valve's present position.

___ 28.2 **CLOSE** manual isolation valve 24AF11-A/S to pressure regulator in No. 2 Unit Redundant Air Supply 24AF11 Panel 700-2L.

___ 28.3 **OPEN** the drain cock of the pressure regulator.

___ 29.0 **ADJUST** AF11 valves to maintain all Steam Generator levels between 15% and 33% Narrow Range as indicated on LI-1640 through LI-1643.

___ 30.0 At the Hot Shutdown Panel,
PLACE Neutron Flux Monitoring 115V AC Power XFER switch in the 2ASDS FIRE PROT position.

___ 31.0 **VERIFY** neutron count rate is dropping or the reactor is subcritical as indicated on NEUTRON FLUX SR XA-6554I and PR XA-6555I.

ATTACHMENT 5
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PLANT OPERATOR

___ 32.0 IF the fire impacted area is either the Control Room or the Relay Room, THEN at No.2 Unit Redundant Air Supply 21SW122 Panel 700-2H, **OPEN** 21SW122, CC HX SW Inlet Valve, as follows:

NOTE

No. 2 Unit Redundant Air Supply 21SW122 Panel 700-2H is located in hallway outside of 21 CCHX Room.

___ 32.1 **CLOSE** manual isolation valve to pressure regulator, No. 2 Unit Redundant Air Supply 21SW122 Panel 700-2H.

___ 32.2 **OPEN** the drain cock of the pressure regulator.

___ 33.0 **MAINTAIN** the following parameters:

♦ Steam Generator Levels - 15% to 33% Narrow Range

- 21 Steam Generator: LI-1640
- 22 Steam Generator: LI-1641
- 23 Steam Generator: LI-1642
- 24 Steam Generator: LI-1643.

CAUTION

Steam Generator Differential Pressure Safety Injection will occur at 100 psi differential pressure.

♦ Steam Generator Pressures - 1005 psig (Tave = 547°F):

- 21 Steam Generator: PI-1644
- 22 Steam Generator: PI-1645
- 23 Steam Generator: PI-1646
- 24 Steam Generator: PI-1647.

♦ Pressurizer Level 25% to 77% as indicated of LI-1649.

♦ Pressurizer Pressure 2200 psig to 2250 psig as indicated on PI-1648.

___ 34.0 **NOTIFY** the CRS that Steps 1 through 33 of Attachment 5 are completed.

ATTACHMENT 6
(Page 1 of 23)

#1 NEO

___ 1.0 **OBTAIN** the following materials:

___ ♦ One copy of this attachment
___ ♦ One radio
___ ♦ One portable emergency light unit
___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**
___ ♦ Electrical gloves
___ ♦ Tools (wire cutters, rachet wrench and 5/8" socket)

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

3.0 Is either the Elev. 64' or 84' Vital Bus Switchgear Room the fire impacted area?

___ YES ___ NO ——> **GO TO** Step 8.0

V

_____ Time

4.0 Is the Elev. 84' 460/230V Vital Bus Switchgear Room the fire impacted area?

___ YES ___ NO ——> **GO TO** Step 126.0

V

_____ Time

___ 5.0 **PROCEED** to the Relay Room.

ATTACHMENT 6
(Page 2 of 23)

#1 NEO

___ 6.0 **ESTABLISH** RCS and SG inventory control as follows: **[UFSAR 9.5.1.4.3]**

NOTE

Deenergizing the circuitry at the AADC Distribution Cabinet ensures 2RC40 and 2RC43, Reactor Head Vent Isolation valves, fail closed.

___ 6.1 At 2ADC2AX, 2AADC 125V DC DISTRIBUTION CABINET, **OPEN** 2ADC2AX1, REACTOR HEAD VENT VALVES 2RC40 & 2RC43.

NOTE

Deenergizing the circuitry at the BBDC Distribution Cabinet ensures the following valves fail closed:

- 2CV2 and 2CV277 - Letdown Isolation
- 2RC41 and 2RC42 - Reactor Head Vent Isolation

___ 6.2 At 2BDC2AX, 2BBDC 125V DC DISTRIBUTION CABINET:

___ ♦ **OPEN** 2BDC2AX5, VCT LVL & DEGAS VLVS & RCS LTDWN VLVS 2CV2, 35, 243, & 277.

___ ♦ **OPEN** 2BDC2AX1, CONTROL AIR HDR B ISLN VALVE & RX HEAD VENT VALVES.

ATTACHMENT 6
(Page 3 of 23)

#1 NEO

NOTE

Deenergizing the circuitry at the CCDC Distribution Cabinet ensures:

- The following valves fail closed:
  - 2CV131 and 2CV278 - Excess Letdown Isolation
  - 21-24GB4 - SGBD Isolation
- The trip solenoid for 2MS52, 23 AUX FEED PUMP TRIP VALVE, remains de-energized to facilitate local reset capability.

___ 6.3 At 2CDC2AX, 2CCDC 125V DC DISTRIBUTION CABINET:

___ ♦ **OPEN** 2CDC2AX22, VALVES 2SJ19, 2CV131, 2CV134, & 2CV278.

___ ♦ **OPEN** 2CDC2AX23, 23 AUX FEED PUMP CONTROL & ALTERNATE SUCTION VALVE.

___ ♦ **OPEN** 2CDC2AX33, 21GB4-24GB4 SG BLDN ISOLATION VALVES.

___ 7.0 **GO TO** Step 11.0.

___ 8.0 **PROCEED** to Elev. 84' 460/230V Vital Bus Switchgear Room. _____ Time

___ 9.0 **PROCEED** to 2A 460VAC Vital Bus AND **PERFORM** the following:

___ 9.1 **OPEN** 2AX1AX7X#, 23 CHARGING PUMP BREAKER CONTROL POWER.

___ 9.2 **OPEN** 2AX1AX7X, 23 CHARGING PUMP.

ATTACHMENT 6
(Page 4 of 23)

#1 NEO

___ 10.0 **ESTABLISH** RCS and SG inventory control as follows: **[UFSAR 9.5.1.4.3]**

NOTE

Deenergizing the AADC Distribution Cabinet ensures 2RC40 and 2RC43, Reactor Head Vent Isolation Valves, fail closed.

___ 10.1 At 2ADC1AX, 2A 125V DC BUS,
OPEN 2ADC1AX19, 2AADC 125V DC DISTRIBUTION CABINET (REGULAR).

NOTE

Deenergizing the BBDC Distribution Cabinet ensures the following valves fail closed:

- 2CV2 and 2CV277 - Letdown Isolation
- 2RC41 and 2RC42 - Reactor Head Vent Isolation

___ 10.2 At 2BDC1AX, 2B 125V DC BUS,
OPEN 2BDC1AX20, 2BBDC 125V DC DISTRIBUTION CABINET (REG POWER).

NOTE

Deenergizing the CCDC Distribution Cabinet ensures:

- The following valves fail closed:
  - 2CV131 and 2CV278 - Excess Letdown Isolation
  - 21-24GB4 - SGBD Isolation
- The trip solenoid for 2MS52, 23 AUX FEED PUMP TRIP VALVE, remains de-energized to facilitate local reset capability.

___ 10.3 At 2CDC1AX, 2C 125V DC BUS,
OPEN 2CDC1AX21, 2CCDC 125V DC DISTRIBUTION CABINET (REGULAR).

ATTACHMENT 6
(Page 5 of 23)

#1 NEO

___ 11.0 **PROCEED** to Elev. 64' 4Kv Vital Bus Switchgear Room.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 12.0 **ESTABLISH** communication with the CRS, TSC/OSC, and EDG Operator (RO).

CAUTION

A fire in the Control Room, Relay Room, or the 84' Switchgear Room could cause a fire induced short in the 4Kv Vital Bus 125V DC control circuits that may lead to spurious breaker operation. Therefore, the 125V DC deion is opened that will prevent spurious breaker operation for the individual 4Kv Vital Bus breakers.

___ 13.0 **OPEN** the following 125V DC breakers in the back of the cubicle for 2A 4Kv Vital Bus 4Kv PT:

___ ♦ 2AD1AXX1, 2A 4Kv Vital Bus Reg Control Power from 2ADC30.

___ ♦ 2AD1AXX2, 2A 4Kv Vital Bus Emer Control Power from 2BDC30.

___ 14.0 **OPEN** the following 125V DC breakers in the back of the cubicle for 2B 4Kv Vital Bus 4Kv PT:

___ ♦ 2BD1AXX1, 2B 4Kv Vital Bus Reg Control Power from 2BDC31.

___ ♦ 2BD1AXX2, 2B 4Kv Bus Emerg Control Power from 2ADC31.

___ 15.0 **OPEN** the following 125V DC breakers in the back of the cubicle for 2C 4Kv Vital Bus 4Kv PTs:

___ ♦ 2CD1AXX1, 2C 4Kv Vital Bus Reg Control Power from 2CDC32.

___ ♦ 2CD1AXX2, 2C 4Kv Vital Bus Emerg Control Power from 2BDC32.

ATTACHMENT 6
(Page 6 of 23)

#1 NEO

NOTE

- The only reliable breaker indication is the OPEN - CLOSED indicator inside the cubicle door on the front of each breaker.
- All breaker operations are accomplished utilizing the Manual Trip or Close button inside each breaker cubicle.

16.0 Is the Elev. 84' 460/230V Vital Bus Switchgear Room the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 123.0

V

Time

17.0 Does breaker 2CD1AX23CSD, 23 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM60, on 2C 4Kv Vital Bus 4Kv PT cubicle door?

___ NO ___ YES ——> **GO TO** Step 41.0 (Off-site Power Supplying)

V

Time

18.0 Does breaker 2CD1AX24CSD, 24 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM60, on 2C 4Kv Vital Bus 4Kv PT cubicle door?

___ NO ___ YES ——> **GO TO** Step 41.0 (Off-site Power Supplying)

V

Time

___ 19.0 **NOTIFY** the EDG Operator (RO) that Off-site power is NOT supplying 2C 4Kv Vital Bus.

___ 20.0 **PROCEED** to breaker 2CD1AX4D, 2C 460V & 230V VITAL BUS TRANSFORMERS.

___ 21.0 **OPEN** 2CD1AX4D#, 125V DC CONTROL POWER.

ATTACHMENT 6
(Page 7 of 23)

#1 NEO

22.0 Is 4Kv Infeed to 2C 460V and 230V Vital Buses, breaker CLOSED?

___ NO ___ YES ——> **GO TO** Step 24.0

V

Time

___ 23.0 **CLOSE** 2C 460V & 230V Vital Bus Transformers breaker as follows:

___ 23.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 23.2 **OPERATE** eccentric in counter-clockwise direction until spring indicates CHGD.

___ 23.3 **REMOVE** wrench.

___ 23.4 **DEPRESS** Manual Close control button.

___ 23.5 **CHECK** breaker indicates CLOSED.

___ 24.0 WHEN notified by the EDG Operator (RO) to remove loads from 2C 4Kv Vital Bus,

___ 24.1 **OPEN** the 125V DC control power AND **OPEN** each 4Kv breaker listed by depressing the Manual Trip Button:

___ ♦ 2CD1AX23CSD, 23 Station Power Transformer Infeed
___ ♦ 2CD1AX2D, 22 Containment Spray Pump
___ ♦ 2CD1AX3D, 25 Service Water Pump
___ ♦ 2CD1AX5D, 22 Safety Injection Pump
___ ♦ 2CD1AX8D, 26 Service Water Pump
___ ♦ 2CD1AX9D, 22 Charging Pump
___ ♦ 2CD1AX10D, 23 Component Cooling Pump
___ ♦ 2CD1AX24CSD, 24 Station Power Transformer Infeed

___ 24.2 **OPEN** the 2CD1AX6D#, 125V DC CONTROL POWER.

___ 24.3 **OPEN** 2CD1AX6D, 2C Diesel Generator, 4Kv breaker by depressing the Manual Trip Button.

___ 25.0 **NOTIFY** EDG Operator (RO) that the 2C 4Kv Vital Bus is stripped.

ATTACHMENT 6
(Page 8 of 23)

#1 NEO

___ 26.0 **PROCEED** to breaker 2CD1AX8D, 26 Service Water Pump, with wrench.

27.0 Does 26 Service Water Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 29.0

V

_____
Time

___ 28.0 Inside 26 SW Pump breaker cubicle:

___ 28.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 28.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 28.3 **REMOVE** the wrench.

___ 29.0 **PROCEED** to breaker 2CD1AX9D, 22 Charging Pump, with wrench.

30.0 Does 22 Charging Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 32.0

V

_____
Time

___ 31.0 Inside 22 Charging Pump breaker cubicle:

___ 31.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 31.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 31.3 **REMOVE** the wrench.

___ 32.0 **PROCEED** to breaker 2CD1AX10D, 23 Component Cooling Pump, with wrench.

ATTACHMENT 6
(Page 9 of 23)

#1 NEO

33.0 Does 23 Component Cooling Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 35.0

V

Time

___ 34.0 Inside 23 Component Cooling Pump breaker cubicle:

___ 34.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 34.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 34.3 **REMOVE** the wrench.

___ 35.0 **PROCEED** to breaker 2CD1AX6D, 2C EDG Output, with wrench.

36.0 Does 2C EDG output breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 38.0

V

Time

___ 37.0 Inside 2C EDG breaker cubicle:

___ 37.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 37.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 37.3 **REMOVE** the wrench.

___ 38.0 WHEN the EDG Operator (RO) reports 2C EDG is operational,

___ 38.1 **CLOSE** 2CD1AX6D, 2C EDG Output Breaker

___ 38.2 **CLOSE** 2CD1AX8D, 26 Service Water Pump Breaker

ATTACHMENT 6
(Page 10 of 23)

#1 NEO

___ 39.0 WHEN notified by the EDG Operator (RO) 2C EDG is available for further loads,

___ 39.1 WHEN confirmed with the EDG Operator (RO)
RCP Seal Water Injection is isolated,
CLOSE 2CD1AX9D, 22 Charging Pump Breaker.

___ 39.2 WHEN confirmed with the Control Room Supervisor (CRS)
RCP Thermal Barrier Return (2CC131) is isolated,
CLOSE 2CD1AX10D, 23 Component Cooling Pump breaker.

___ 40.0 **GO TO** Step 50.0.

___ 41.0 **NOTIFY** the EDG Operator (RO) that Off-site power is supplying 2C 4Kv Vital Bus. _____ Time

___ 42.0 **VERIFY** 2CD1AX4D, 2C 460V & 230V Vital Bus Transformers, is CLOSED.

43.0 Is breaker 2CD1AX3D, 25 Service Water Pump, CLOSED?

___ YES ___ NO ——> **GO TO** Step 46.0

V

_____ Time

___ 44.0 **VERIFY** the following breakers OPEN:

___ ♦ 2CD1AX2D, 22 Containment Spray Pump

___ ♦ 2CD1AX5D, 22 Safety Injection Pump

___ ♦ 2CD1AX8D, 26 Service Water Pump

___ 45.0 **GO TO** Step 49.0.

_____ Time

46.0 Is breaker 2CD1AX8D, 26 Service Water Pump, CLOSED?

___ NO ___ YES ——> **GO TO** Step 48.0

V

_____ Time

___ 47.0 **CLOSE** breaker 2CD1AX8D, 26 Service Water Pump, by depressing the Manual Close button.

ATTACHMENT 6
(Page 11 of 23)

#1 NEO

___ 48.0 **VERIFY** the following breakers OPEN:

- ___ ♦ 2CD1AX5D, 22 Safety Injection Pump
- ___ ♦ 2CD1AX3D, 25 Service Water Pump
- ___ ♦ 2CD1AX2D, 22 Containment Spray Pump

___ 49.0 **VERIFY** the following breakers CLOSED:

- ___ ♦ 2CD1AX9D, 22 Charging Pump
- ___ ♦ 2CD1AX10D, 23 Component Cooling Pump

___ 50.0 **NOTIFY** the CRS that 2C 4Kv Vital Bus and essential loads are energized.

___ 51.0 **PROCEED** to 2A 4Kv Vital Bus.

NOTE

♦ The only reliable breaker indication is the OPEN - CLOSED indicator inside the cubicle door on the front of each breaker.

♦ All breaker operations are accomplished utilizing the Manual Trip or Close button inside each breaker cubicle.

52.0 Does breaker 2AD1AX23ASD, 23 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM62, on 2A 4Kv Vital Bus 4Kv PT cubicle door?

___ NO ___ YES ——> **GO TO** Step 72.0 (Off-site Power Supplying) Time

V

ATTACHMENT 6
(Page 12 of 23)

#1 NEO

53.0 Does breaker 2AD1AX24ASD, 24 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM62, on 2A 4Kv Vital Bus 4Kv PT cubicle door?

___ NO ___ YES ——> **GO TO** Step 72.0 (Off-site Power Supplying)

V

Time

___ 54.0 **NOTIFY** the EDG Operator (RO) that Off-Site power is <u>not</u> supplying the 2A 4Kv Vital Bus.

___ 55.0 **PROCEED** to breaker 2AD1AX4D, 2A 460V & 230V Vital Bus Transformers.

___ 56.0 **OPEN** 2AD1AX4D#, 125V DC CONTROL POWER.

57.0 Is 2A 460V and 230V Vital Bus Transformers breaker CLOSED?

___ NO ___ YES——> **GO TO** Step 59.0

V

Time

58.0 **CLOSE** 2A 460V & 230V Vital Bus Transformers breaker as follows:

___ 58.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 58.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHGD.

___ 58.3 **REMOVE** wrench.

___ 58.4 **DEPRESS** Manual Close Control button.

___ 58.5 **CHECK** breaker indicates CLOSED.

ATTACHMENT 6
(Page 13 of 23)

#1 NEO

___ 59.0 WHEN notified by the EDG Operator (RO) to remove loads from 2A 4Kv Vital Bus,

___ 59.1 **OPEN** the 125V DC control power AND **OPEN** each 4Kv breaker listed by depressing the Manual Trip Button:

___ ♦ 2AD1AX23ASD, 23 Station Power Transformer Infeed
___ ♦ 2AD1AX1D, 21 Auxiliary Feed Pump
___ ♦ 2AD1AX2D, 21 Containment Spray Pump
___ ♦ 2AD1AX3D, 21 Service Water Pump
___ ♦ 2AD1AX5D, 21 Safety Injection Pump
___ ♦ 2AD1AX7D, 21 RHR Pump
___ ♦ 2AD1AX8D, 22 Service Water Pump
___ ♦ 2AD1AX10D, 21 Component Cooling Pump
___ ♦ 2AD1AX24ASD, 24 Station Power Transformer Infeed

___ 59.2 **OPEN** 2AD1AX6D#, 125V DC CONTROL POWER.

___ 59.3 **OPEN** 2AD1AX6D, 2A Diesel Generator, by depressing the Manual Trip Button.

___ 60.0 **NOTIFY** the EDG Operator (RO) that 2A 4Kv Vital Bus is stripped.

___ 61.0 **PROCEED** to breaker 2AD1AX3D, 21 Service Water Pump, with wrench.

62.0 Does 21 Service Water Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 64.0

NO
|
V

_____
Time

___ 63.0 Inside 21 SW Pump breaker cubicle:

___ 63.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 63.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 63.3 **REMOVE** the wrench.

ATTACHMENT 6
(Page 14 of 23)

#1 NEO

___ 64.0 **PROCEED** to breaker 2AD1AX10D, 21 Component Cooling Pump, with wrench.

65.0 Does 21 Component Cooling Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 67.0

V

_____
Time

___ 66.0 Inside 21 Component Cooling Pump breaker cubicle:

___ 66.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 66.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 66.3 **REMOVE** the wrench.

___ 67.0 **PROCEED** to breaker 2AD1AX6D, 2A EDG Output, with wrench.

68.0 Does 2A EDG breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 70.0

V

_____
Time

___ 69.0 Inside 2A EDG breaker cubicle:

___ 69.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 69.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 69.3 **REMOVE** the wrench.

ATTACHMENT 6
(Page 15 of 23)

#1 NEO

___ 70.0 WHEN the EDG Operator (RO) reports 2A EDG is operational,

___ 70.1 **CLOSE** 2AD1AX6D, 2A EDG Output Breaker.

___ 70.2 **CLOSE** 2AD1AX3D, 21 Service Water Pump.

___ 70.3 WHEN confirmed with the Control Room Supervisor (CRS) RCP Thermal Barrier Return (2CC131) is isolated, **CLOSE** 2AD1AX10D, 21 Component Cooling Pump breaker.

___ 71.0 **GO TO** Step 81.0.

___ 72.0 **NOTIFY** the EDG Operator (RO) that Off-site power is supplying 2A 4Kv Vital Bus. _____ Time

___ 73.0 **VERIFY** 2AD1AX4D, 2A 460V & 230V Vital Bus Transformers, is CLOSED.

74.0 Is breaker 2AD1AX3D, 21 Service Water Pump, CLOSED?

___ YES ___ NO ——> **GO TO** Step 77.0

_____ Time

V

___ 75.0 **VERIFY** the following breakers OPEN:

___ ♦ 2AD1AX1D, 21 Auxiliary Feed Pump
___ ♦ 2AD1AX2D, 21 Containment Spray Pump
___ ♦ 2AD1AX5D, 21 Safety Injection Pump
___ ♦ 2AD1AX7D, 21 RHR Pump
___ ♦ 2AD1AX8D, 22 Service Water Pump

___ 76.0 **GO TO** Step 80.0. _____ Time

77.0 Is breaker 2AD1AX8D, 22 Service Water Pump, CLOSED?

___ NO ___ YES ——> **GO TO** Step 79.0

_____ Time

V

___ 78.0 **CLOSE** breaker 2AD1AX8D, 22 Service Water Pump, by depressing the Manual Close button.

ATTACHMENT 6
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#1 NEO

___ 79.0 **VERIFY** the following breakers OPEN:

- ___ ♦ 2AD1AX7D, 21 RHR Pump
- ___ ♦ 2AD1AX5D, 21 Safety Injection Pump
- ___ ♦ 2AD1AX3D, 21 Service Water Pump
- ___ ♦ 2AD1AX2D, 21 Containment Spray Pump
- ___ ♦ 2AD1AX1D, 21 Auxiliary Feed Pump

___ 80.0 **VERIFY** 2AD1AX10D, 21 Component Cooling Pump, is CLOSED.

___ 81.0 **NOTIFY** the CRS that 2A 4Kv Vital Bus and essential loads are energized.

___ 82.0 **PROCEED** to 2B 4Kv Vital Bus.

NOTE

♦ The only reliable breaker indication is the OPEN - CLOSED indicator inside the cubicle door on the front of each breaker.

♦ All breaker operations are accomplished utilizing the Manual Trip or Close button inside each breaker cubicle.

83.0 Does breaker 2BD1AX23BSD, 23 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM61, on 2B 4Kv Vital Bus 4Kv PT cubical door?

___ NO ___ YES ——> **GO TO** Step 108.0 (Off-Site Power Supplying)

NO
|
V

_____
Time

ATTACHMENT 6
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#1 NEO

84.0 Does breaker 2BD1AX24BSD, 24 Station Power Transformer Infeed, indicate CLOSED and voltage is between 4.3Kv and 4.5Kv as indicated on Bus Voltmeter, 2VM61, on 2B 4Kv Vital Bus 4Kv PT cubical door?

___ NO ___ YES ——> **GO TO** Step 108.0 (Off-Site Power Supplying)

V

Time

___ 85.0 **NOTIFY** the EDG Operator (RO) that Off-Site power is <u>not</u> supplying the 2B 4Kv Vital Bus.

___ 86.0 **PROCEED** to 2BD1AX4D, 2B 460V & 230V Vital Bus Transformers breaker.

___ 87.0 **OPEN** 2BD1AX4D#, 125V DC CONTROL POWER.

88.0 Is 2B 460V & 230V Vital Bus Transformers breaker CLOSED?

___ NO ___ YES ——> **GO TO** Step 90.0

V

Time

___ 89.0 **CLOSE** 2B 460V & 230V Vital Bus Transformers breaker as follows:

___ 89.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 89.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 89.3 **REMOVE** wrench.

___ 89.4 **DEPRESS** Manual Close Control button.

___ 89.5 **CHECK** breaker indicates CLOSED.

ATTACHMENT 6
(Page 18 of 23)

#1 NEO

___ 90.0 WHEN notified by the EDG Operator (RO) to remove loads from 2B 4Kv Vital Bus,

___ 90.1 **OPEN** the 125V DC control power AND **OPEN** each 4Kv breaker listed by depressing the Manual Trip Button:

___ ♦ 2BD1AX23BSD, 23 Station Power Transformer Infeed
___ ♦ 2BD1AX1D, 22 Auxiliary Feed Pump
___ ♦ 2BD1AX3D, 23 Service Water Pump
___ ♦ 2BD1AX7D, 22 Residual Heat Removal Pump
___ ♦ 2BD1AX8D, 24 Service Water Pump
___ ♦ 2BD1AX9D, 21 Charging Pump
___ ♦ 2BD1AX10D, 22 Component Cooling Pump
___ ♦ 2BD1AX24BSD, 24 Station Power Transformer Infeed

___ 90.2 **OPEN** 2BD1AX6D#, 125V DC CONTROL POWER.

___ 90.3 **OPEN** 2BD1AX6D, 2B Diesel Generator, by depressing the Manual Trip Button.

___ 91.0 **NOTIFY** the EDG Operator (RO) that 2B 4Kv Vital Bus is stripped.

___ 92.0 **PROCEED** to breaker 2BD1AX8D, 24 Service Water Pump, with wrench.

93.0 Does 24 Service Water Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 95.0

V

_____ Time

___ 94.0 Inside 24 SW Pump breaker cubicle:

___ 94.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 94.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 94.3 **REMOVE** the wrench.

ATTACHMENT 6
(Page 19 of 23)

#1 NEO

___ 95.0 **PROCEED** to breaker 2BD1AX9D, 21 Charging Pump, with wrench.

96.0 Does 21 Charging Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 98.0

Time

V

___ 97.0 Inside 21 Charging Pump breaker cubicle:

___ 97.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 97.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 97.3 **REMOVE** the wrench.

___ 98.0 **PROCEED** to breaker 2BD1AX10D, 22 Component Cooling Pump, with wrench.

99.0 Does 22 Component Cooling Pump breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 101.0

Time

V

___ 100.0 Inside 22 Component Cooling Pump breaker cubicle:

___ 100.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 100.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 100.3 **REMOVE** the wrench.

ATTACHMENT 6
(Page 20 of 23)

#1 NEO

___ 101.0 **PROCEED** to breaker 2BD1AX6D, 2B EDG Output, with wrench.

102.0 Does 2B Diesel Generator breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 104.0

V

_____
Time

___ 103.0 Inside 2B EDG breaker cubicle:

___ 103.1 **ATTACH** wrench to eccentric hexcharging stud.

___ 103.2 **OPERATE** eccentric stud in counter-clockwise direction until spring indicates CHARGED.

___ 103.3 **REMOVE** the wrench.

___ 104.0 WHEN the EDG Operator (RO) reports 2B EDG is operational, **CLOSE** the following breakers:

___ 104.1 2BD1AX6D, 2B Diesel Output Breaker

___ 104.2 2BD1AX8D, 24 Service Water Pump Breaker

___ 105.0 IF 21 OR 23 Component Cooling Pump breaker is NOT CLOSED AND the Control Room Supervisor (CRS) has confirmed RCP Thermal Barrier Return (2CC131) is isolated, THEN **CLOSE** 2BD1AX10D, 22 Component Cooling Pump breaker.

___ 106.0 IF 22 Charging Pump Breaker is NOT CLOSED AND the EDG Operator (RO) has confirmed RCP Seal Water Injection is isolated, THEN **CLOSE** 2BD1AX9D, 21 Charging Pump breaker.

___ 107.0 **GO TO** Step 120.0.

_____
Time

___ 108.0 **NOTIFY** the EDG Operator (RO) that Off-site power is supplying 2B 4Kv Vital Bus.

___ 109.0 **VERIFY** 2BD1AX4D, 2B 460V & 230V Vital Bus Transformers, is CLOSED.

ATTACHMENT 6
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#1 NEO

110.0 Is breaker 2BD1AX3D, 23 Service Water Pump, CLOSED?

___ YES ___ NO ——> **GO TO** Step 114.0

V

Time

___ 111.0 **VERIFY** the following breakers OPEN:

___ ♦ 2BD1AX1D, 22 Auxiliary Feed Pump
___ ♦ 2BD1AX7D, 22 Residual Heat Removal Pump
___ ♦ 2BD1AX8D, 24 Service Water Pump

___ 112.0 IF 22 Charging Pump is in-service,
THEN **VERIFY** 2BD1AX9D, 21 Charging Pump, breaker is OPEN.

___ 113.0 **GO TO** Step 118.0

Time

114.0 Is breaker 2BD1AX8D, 24 Service Water Pump, CLOSED?

___ NO ___ YES ——> **GO TO** Step 116.0

V

Time

___ 115.0 **CLOSE** breaker 2BD1AX8D, 24 Service Water Pump, by depressing the Manual Close button.

___ 116.0 IF 22 Charging Pump is in-service,
THEN **VERIFY** 2BD1AX9D, 21 Charging Pump breaker is OPEN.

___ 117.0 **VERIFY** the following breakers OPEN:

___ ♦ 2BD1AX7D, 22 Residual Heat Removal Pump
___ ♦ 2BD1AX3D, 23 Service Water Pump
___ ♦ 2BD1AX1D, 22 Auxiliary Feed Pump

ATTACHMENT 6
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#1 NEO

___ 118.0 IF 21 OR 23 Component Cooling Pump breaker is NOT CLOSED
AND the Control Room Supervisor (CRS) has confirmed
RCP Thermal Barrier Return (2CC131) is isolated,
THEN **CLOSE** 2BD1AX10D, 22 Component Cooling Pump breaker.

___ 119.0 **NOTIFY** the CRS that 2B 4Kv Vital Bus and essential loads are energized.

___ 120.0 **NOTIFY** the CRS that Steps 1 through 119 of Attachment 6 are completed.

___ 121.0 Utilizing the guidance contained within S2.OP-SO.HSD-0001(Q),
START CFCUs in SLOW SPEED as directed by the CRS.

___ 122.0 **GO TO** Step 128.0

_____
Time

___ 123.0 WHEN notified by the CRS that all EDGs are TRIPPED
IAW Step 75 of Attachment 4,

___ 123.1 At 2A 4Kv Vital Bus,
OPEN the 125V DC control power AND **OPEN** each 4Kv infeed breaker listed by depressing the Manual Trip Button:

___ ♦ 2AD1AX23ASD, 23 Station Power Transformer Infeed
___ ♦ 2AD1AX6D, 2A Diesel Generator
___ ♦ 2AD1AX24ASD, 24 Station Power Transformer Infeed

___ 123.2 At 2B 4Kv Vital Bus,
OPEN the 125V DC control power AND **OPEN** each 4Kv infeed breaker listed by depressing the Manual Trip Button:

___ ♦ 2BD1AX23BSD, 23 Station Power Transformer Infeed
___ ♦ 2BD1AX6D, 2B Diesel Generator
___ ♦ 2BD1AX24BSD, 24 Station Power Transformer Infeed

___ 123.3 At 2C 4Kv Vital Bus,
OPEN the 125V DC control power AND **OPEN** each 4Kv infeed breaker listed by depressing the Manual Trip Button:

___ ♦ 2CD1AX23CSD, 23 Station Power Transformer Infeed
___ ♦ 2CD1AX6D, 2C Diesel Generator
___ ♦ 2CD1AX24CSD, 24 Station Power Transformer Infeed

ATTACHMENT 6
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#1 NEO

___ 124.0 **NOTIFY** the CRS and EDG Operator (RO) that 2A, 2B, and 2C 4Kv Vital Bus switchgear is de-energized by the removal the Off-Site and On-Site power supplies IAW Step 123 of Attachment 6.

___ 125.0 **GO TO** Step 128.0

_____
Time

___ 126.0 **PROCEED** to the Relay Room.

NOTE

Deenergizing the circuitry at the BBDC Distribution Cabinet ensures the 2CV2 and 2CV277 - Letdown Isolation valves fail closed.

[UFSAR 9.5.1.4.3]

___ 127.0 At 2BDC2AX, 2BBDC 125V DC DISTRIBUTION CABINET, **OPEN** 2BDC2AX5, VCT LVL & DEGAS VLVS & RCS LTDWN VLVS 2CV2, 35, 243, & 277.

___ 128.0 **PROCEED** to the Hot Shutdown Panel.

ATTACHMENT 7
(Page 1 of 12)

#2 NEO

___ 1.0 **OBTAIN** the following materials:

___ ♦ One copy of this attachment
___ ♦ One radio
___ ♦ One portable emergency light unit
___ ♦ Key ring set (JA Master, Breaker Key H661, Panels 1016 & 1017 Key T178)
___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**
___ ♦ Tools (screwdriver, fuse puller, and adjustable wrench)
___ ♦ Rope (for blocking open Outer Piping Penetration Area Door in Step 32.0)

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

___ 3.0 **PROCEED** to the Inner Mechanical Penetration Area, Elev 78'.

4.0 Is either elev. 64' or 84' Vital Bus Switchgear Room the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 20.0

V

_____
Time

___ 5.0 **NOTIFY** the CRS of the following valve positions:

♦ 21SW22, 21 Nuc Hdr Inlet (SW Valve Room)
♦ 22SW22, 22 Nuc Hdr Isolation Valve (SW Valve Room)

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 6.0 **ENSURE** communications established with the CRS and TSC/OSC.

ATTACHMENT 7
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#2 NEO

___ 7.0 **OPEN** 2CV73, CHG HDR PCV BYP VALVE (Between BIT Room & Stairwell).

___ 8.0 **CLOSE** 2CC131, RCP THERMAL BARRIER VALVE (SG B/D HX Area).
(Breaker 2CY2EP5I located in 78' Electrical Penetration Area)

___ 9.0 **REPORT** RCP Thermal Barrier Return (2CC131) is isolated to the CRS.

___ 10.0 **CLOSE** 2CV116, SEAL WATER TO VCT VALVE (SG B/D HX Area).
(Breaker 2CY2EP5A located in 78' Electrical Penetration Area)

NOTE

- The pathway to the Electrical Penetration Area is through the door on Elev. 78' from the Mechanical Penetration Area. Dress out is not required.
- The following steps are performed at the 2A, 2B, and 2C East Valves & Misc. 230V Vital Control Centers.

___ 11.0 **PROCEED** to Elev. 78' Electrical Penetration Area.

___ 12.0 At breaker 2BY2EP4E, 2PR7 - PORV Stop Valve:

___ 12.1 **DEFEAT** 2BY2EP4E door interlock AND **OPEN** breaker door.

___ 12.2 **PLACE** key operated NORMAL/EMER switch, 2BY2EP4E-T1, in EMER position.

___ 12.3 **VERIFY** 2BY2EP4E breaker is CLOSED.

___ 12.4 **VERIFY** thermal overloads are reset.

___ 12.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2EP4E-T2, in EMER CLOSE position.

___ 12.6 **CLOSE** breaker door.

ATTACHMENT 7
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#2 NEO

___ 13.0 At breaker 2AY2EP1I, 2PR6 - Pressurizer PORV Stop Valve:

___ 13.1 **DEFEAT** 2AY2EP1I door interlock AND **OPEN** breaker door.

___ 13.2 **PLACE** key operated NORMAL/EMER switch, 2AY2EP1I-T1, in EMER position.

___ 13.3 **VERIFY** 2AY2EP1I breaker is CLOSED.

___ 13.4 **VERIFY** thermal overloads are reset.

___ 13.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2EP1I-T2, in EMER CLOSE position.

___ 13.6 **CLOSE** breaker door.

___ 14.0 At 2AY2EP6A, 21SW22 - Nuclear Header Isolation Valve:

___ 14.1 **OPEN** 2AY2EP6A breaker AND **OPEN** breaker door.

___ 14.2 **PLACE** key operated NORMAL/EMER switch, 2AY2EP6A-T1, to EMER position.

___ 14.3 IF 21SW22 is CLOSED,
THEN manually **THROTTLE OPEN** 21SW22, Nuc Hdr Inlet Valve, until flow is established.

___ 14.4 **DEFEAT** 2AY2EP6A door interlock AND **CLOSE** breaker.

___ 14.5 **VERIFY** thermal overloads are reset.

___ 14.6 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2EP6A-T2, in EMER OPEN.

___ 14.7 **CLOSE** breaker door.

___ 15.0 **NOTIFY** the CRS that 21SW22 is aligned to OPEN.

ATTACHMENT 7
(Page 4 of 12)

#2 NEO

___ 16.0 At breaker 2CY2EP1I, 2SJ13 - Boron Injection Tank Outlet Valve:

___ 16.1 **DEFEAT** 2CY2EP1I door interlock AND **OPEN** breaker door.

___ 16.2 **PLACE** key operated NORMAL/EMER switch, 2CY2EP1I-T1, in EMER position.

___ 16.3 **VERIFY** 2CY2EP1I breaker is CLOSED.

___ 16.4 **VERIFY** thermal overloads are reset.

___ 16.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2EP1I-T2, in EMER CLOSE position.

___ 16.6 **CLOSE** breaker door.

___ 17.0 At breaker 2CY2EP4A, 2CV69 - Charging Header Stop Valve:

___ 17.1 **DEFEAT** 2CY2EP4A door interlock AND **OPEN** breaker door.

___ 17.2 **PLACE** key operated NORMAL/EMER switch, 2CY2EP4A-T1, in EMER position.

___ 17.3 **VERIFY** 2CY2EP4A breaker is CLOSED.

___ 17.4 **VERIFY** thermal overloads are reset.

___ 17.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2EP4A-T2, in EMER OPEN position.

___ 17.6 **CLOSE** breaker door.

___ 18.0 **NOTIFY** CRS that Steps 1 through 17 of Attachment 7 are completed.

___ 19.0 **GO TO** Step 28.0.

___ 20.0 **CONTINUE.** ____ Time

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 21.0 **ESTABLISH** communication with the CRS and TSC/OSC.

___ 22.0 **CLOSE** 2CV70, Chg Hdr PCV Inlet Valve (2CV71 Inlet).

___ 23.0 **VERIFY** 2CV73, Chg Hdr PCV BYP Valve (2CV71 Bypass) is CLOSED.

ATTACHMENT 7
(Page 5 of 12)

#2 NEO

NOTE

The pathway to the Electrical Penetration Area is through the door on Elev. 78' from the Mechanical Penetration Area. Dress out is not required.

___ 24.0 **PROCEED** to Elev. 78' Electrical Penetration Area.

25.0 Is elev. 84' Vital Bus Switchgear Room the fire impacted area?

___ YES ___ NO ——> **GO TO** Step 28.0

V

_____
Time

___ 26.0 At breaker 2CY2EP1I, 2SJ13 - Boron Injection Tank Outlet Valve:

___ 26.1 **DEFEAT** 2CY2EP1I door interlock AND **OPEN** breaker door.

___ 26.2 **PLACE** key operated NORMAL/EMER switch, 2CY2EP1I-T1, in EMER position.

___ 26.3 **VERIFY** 2CY2EP1I breaker is CLOSED.

___ 26.4 **VERIFY** thermal overloads are reset.

___ 26.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2EP1I-T2, in EMER CLOSE position.

___ 26.6 **CLOSE** breaker door.

___ 27.0 **NOTIFY** CRS that Steps 20 through 26 of Attachment 7 are completed.

___ 28.0 At Panel 1016,
PLACE SW1 22 RCS Loop Power key switch in ASDS ALT SHUTDOWN position to energize TA-14941 and TA-14942 (22 Loop Wide Range Th and Tc).

___ 29.0 At Panel 1017,
PLACE SW2 23 RCS Loop Power key switch in ASDS ALT SHUTDOWN position to energize TA-14943 and TA-14944 (23 Loop Wide Range Th and Tc).

ATTACHMENT 7
(Page 6 of 12)

#2 NEO

___ 30.0 **PROCEED** to the Elev. 100' Inner Piping Penetration Area.

CAUTION

- **The following steps to perform MSIV Isolation, should be coordinated with the CRS.**
- **IF elevated temperatures in the Inner Penetration Area do NOT allow access, THEN Step 30.2 of this attachment directs closure of valves 21CA348 and 22CA348 which results in isolation of control air to 21MS10, 21MS18, 21MS167, 23MS10, 23MS18 and 23MS167 resulting in the respective valves to fail to the closed position.**

___ 30.1 IF ambient conditions in the Inner Penetration Area permit personnel access, THEN:

___ A. At No. 21 Steam Generator Outlet Steam Valve Control Panel 683-2A, **CLOSE** 21MS18-A/S, Manual Air Supply Isolation Valve.

___ B. At 21 Steam Generator Press. Control Panel 684-2A, **COMPLETE** the following for 21MS10 Atmospheric Relief Valve:

___ 1. **PLACE** hand sender to minimum.

___ 2. **PLACE** the selector valve in E/P bypass line to LOCAL position.

___ 3. **OPERATE** hand sender in E/P line to ensure PL-8907 indicates zero.

___ C. At No. 23 Steam Generator Outlet Steam Valve Control Panel 683-2C, **CLOSE** 23MS18-A/S, Manual Air Supply Isolation Valve.

___ D. At 23 Steam Generator Press. Control Panel 684-2C, **COMPLETE** the following for 23MS10 Atmospheric Relief Valve:

___ 1. **PLACE** hand sender to minimum.

___ 2. **PLACE** the selector valve in E/P bypass line to LOCAL position.

___ 3. **OPERATE** hand sender in E/P line to ensure PL-8909 indicates zero.

(step continued on next page)

30.1 (continued)

NOTE

Each MS18 is equipped with two parallel pressure regulators for valve control. Opening either drain cock on the parallel pressure regulators will ensure the respective MS18 valve is failed to the CLOSED position.

___ E. At 23MS18, **OPEN** at least one drain cock on the pressure regulators.

___ F. At 21MS18, **OPEN** at least one drain cock on the pressure regulators.

___ G. **COMPLETE** the following to Main Steam Isolate 21MS167, MS ISOL VLV:

NOTE

It may only be necessary to fail either 21MS169 OR 21MS171 to CLOSE 21MS167.

CAUTION

Steam hazard when opening 21MS169 or 21MS171 because of telltale leakoff drain pinholes downstream of valves.

___ 1. At No. 2 Unit Main Stm Vent Vlv Control Panel 688-2A, **OPEN** 21MS171, MS ISO V STEAM ASSIST, as follows:

___ a. **CLOSE** 2CA1318, SUP TO PNL 688-2A.

___ b. **CLOSE** 2CA1319, SUP TO PNL 688-2A.

___ c. **OPEN** drain cock of pressure regulator for SV-275 (located inside No. 2 Unit Main Stm Vent Vlv Control Panel 688-2A).

___ 2. At No. 2 Unit Main Stm Vent Vlv Control Panel 689-2A, **OPEN** 21MS169, MS ISOL V STEAM ASSIST, as follows:

___ a. **CLOSE** 2CA1320, SUP TO PNL 689-2A.

___ b. **CLOSE** 2CA1321, SUP TO PNL 689-2A.

___ c. **OPEN** drain cock of pressure regulator for SV-274 (located inside No. 2 Unit Main Stm Vent Vlv Control Panel 689-2A).

ATTACHMENT 7
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#2 NEO

___ H. **COMPLETE** the following to Main Steam Isolate 23MS167, MS ISOL VLV:

NOTE

It may only be necessary to fail either 23MS169 OR 23MS171 to CLOSE 23MS167.

CAUTION

Steam hazard when opening 23MS169 or 23MS171 because of telltale leakoff drain pinholes downstream of valves.

___ 1. At No. 2 Unit Main Stm Vent Vlv Control Panel 688-2C, **OPEN** 23MS171, MS ISO V STEAM ASSIST, as follows:

___ a. **CLOSE** 2CA1322, SUP TO PNL 688-2C.

___ b. **CLOSE** 2CA1323, SUP TO PNL 688-2C.

___ c. **OPEN** drain cock of pressure regulator for SV-271 (located inside No. 2 Unit Main Stm Vent Vlv Control Panel 688-2C).

___ 2. At No. 2 Unit Main Stm Vent Vlv Control Panel 689-2C, **OPEN** 23MS169, MS ISOL V STEAM ASSIST, as follows:

___ a. **CLOSE** 2CA1324, SUP TO PNL 689-2C.

___ b. **CLOSE** 2CA1325, SUP TO PNL 689-2C.

___ c. **OPEN** drain cock of pressure regulator for SV-270 (located inside No. 2 Unit Main Stm Vent Vlv Control Panel 689-2C).

ATTACHMENT 7
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#2 NEO

NOTE

- Closure of 21CA348 and 22CA348 results in isolation of control air to 21MS10, 21MS18, 21MS167, 23MS10, 23MS18 and 23MS167 resulting in the respective valves to fail to the closed position.
- In addition to isolating control air to the above indicated components, closure of 21CA348 and 22CA348 also isolates control air to other components in the Inner Penetration Piping Area, Upper Electrical Penetration Area, and Mechanical Penetration Area. For additional clarification of isolated components, refer to Attachment 4 of S-C-CA-MEE-1531, Evaluation of Loss of Control Air Due to an Appendix R Fire.

___ 30.2 IF ambient conditions in the Inner Penetration Area do NOT permit personnel access, THEN:

___ A. **PROCEED** to the Elev. 100' Mechanical Penetration Area near the 21 Steam Generator Blowdown Tank (approx 3' above the floor).

___ B. **CLOSE** 21CA348, 2A HEADER ISOL VA.

___ C. **CLOSE** 22CA348, 2B HEADER ISOL VA.

ATTACHMENT 7
(Page 10 of 12)

#2 NEO

___ 31.0 **PROCEED** to the Outer Piping Penetration Area.

NOTE

- Blocking the Outer Piping Penetration Door open ensures ambient conditions in the Outer Penetration Area will continue to allow personnel access during the event.
- The Outer Piping Penetration Area Door may be blocked open utilizing the rope provided (tied between a watertight door hinge and electrical conduit to hold the door open), or by any other available means (e.g., wood, section of scaffolding, etc.).

___ 32.0 **BLOCK OPEN** the Outer Piping Penetration Area Door.

CAUTION

The following steps should be coordinated with the CRS to perform MSIV Isolation.

___ 33.0 At No. 2 Unit Steam Generator Press Control Panel 684-2B **COMPLETE** the following for 22MS10 Atmospheric Relief Valve:

___ 33.1 **PLACE** hand sender to minimum.

___ 33.2 **PLACE** the selector valve in E/P bypass line to LOCAL position.

___ 33.3 **OPERATE** hand sender in E/P line to ensure PL-8908 indicates zero.

___ 34.0 At 22 Steam Generator Outlet Steam Valve Control Panel 683-2B, **CLOSE** 22MS18-A/S, Manual Air Supply Isolation Valve.

___ 35.0 At 24 Steam Generator Outlet Steam Valve Control Panel 683-2D, **CLOSE** 24MS18-A/S, Manual Air Supply Isolation Valve.

___ 36.0 At No. 2 Unit Steam Generator Press. Control Panel 684-2D, **COMPLETE** the following for 24MS10 Atmospheric Relief Valve:

___ 36.1 **PLACE** hand sender to minimum.

___ 36.2 **PLACE** the selector valve in E/P bypass line to LOCAL position.

___ 36.3 **OPERATE** hand sender in E/P line to ensure PL-8910 indicates zero.

ATTACHMENT 7
(Page 11 of 12)

#2 NEO

NOTE

Each MS18 is equipped with two parallel pressure regulators for valve control. Opening either drain cock on the parallel pressure regulators will ensure the respective MS18 valve is failed to the CLOSED position.

___ 37.0 At 22MS18, **OPEN** at least one drain cock on the pressure regulators.

___ 38.0 At 24MS18, **OPEN** at least one drain cock on the pressure regulators.

___ 39.0 **COMPLETE** the following to Main Steam Isolate 22MS167, MS ISOL VLV:

NOTE

It may only be necessary to fail either 22MS169 OR 22MS171 to CLOSE 22MS167.

CAUTION

Steam hazard when opening 22MS169 or 22MS171 because of telltale leakoff drain pinholes downstream of valves.

___ 39.1 Inside No. 2 Unit Main Stm Vent Vlv Control Panel 688-2B, **OPEN** 22MS171, MS ISO V STEAM ASSIST, as follows:

___ A. **CLOSE** 22MS171-A/S, 22MS171 AIR SUPPLY.

___ B. **OPEN** draincock of pressure regulator for SV-281.

___ 39.2 Inside No. 2 Unit Main Stm Vent Vlv Control Panel 689-2B, **OPEN** 22MS169, MS ISO V STEAM ASSIST, as follows:

___ A. **CLOSE** 22MS169-A/S, 22MS169 AIR SUPPLY.

___ B. **OPEN** draincock of pressure regulator for SV-280.

ATTACHMENT 7
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#2 NEO

___ 40.0 **COMPLETE** the following to Main Steam Isolate 24MS167, MS ISOL VLV:

NOTE

It may only be necessary to fail either 24MS169 OR 24MS171 to CLOSE 24MS167.

CAUTION

Steam hazard when opening 24MS169 or 24MS171 because of telltale leakoff drain pinholes downstream of valves.

___ 40.1 Inside No. 2 Unit Main Stm Vent Vlv Control Panel 688-2D, **OPEN** 24MS171, MS ISO V STEAM ASSIST, as follows:

___ A. **CLOSE** 24MS171-A/S, 24MS171 AIR SUPPLY.

___ B. **OPEN** draincock of pressure regulator for SV-285.

___ 40.2 Inside No. 2 Unit Main Stm Vent Vlv Control Panel 689-2D, **OPEN** 24MS169, MS ISO V STEAM ASSIST, as follows:

___ A. **CLOSE** 24MS169-A/S, 24MS169 AIR SUPPLY.

___ B. **OPEN** draincock of pressure regulator for SV-284.

___ 41.0 **NOTIFY** the CRS that Steps 28 through 40 of Attachment 7 are completed.

CAUTION

When operating hand sender in E/P bypass line, DO NOT exceed a maximum of 20 psig indicated pressure on PL-8908 & PL-8910.

___ 42.0 WHEN directed by the CRS, slowly **THROTTLE OPEN** 22 & 24MS10 valves AND **MAINTAIN** Steam Generator Pressures @ 1005 psig (Tave = 547°F), by operating the hand sender in E/P bypass line at No. 2 Unit 22 & 24 Steam Generator Press Control Panels 684-2B and 684-2D respectively.

___ 43.0 **CHECK** opening of the MS10s by observing pressure indication on PL-8908 and PL-8910, respectively.

ATTACHMENT 8
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#3 NEO

___ 1.0 **OBTAIN** the following materials:

___ ♦ One Copy of this attachment

___ ♦ One radio

___ ♦ One portable emergency light unit

___ ♦ Key Ring set (JA Master, Breaker Key H661)

___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**

___ ♦ Tools (screwdriver and adjustable wrench)

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

___ 3.0 **PROCEED** to the Main Turbine Front Standard.

___ 4.0 **PLACE** the Reset-Normal-Trip lever in the TRIP position.

___ 5.0 **PROCEED** to the 4Kv Group Buses, Elev. 100' Turbine Building.

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 6.0 **ESTABLISH** communication with the CRS via radio.

ATTACHMENT 8
(Page 2 of 7)

#3 NEO

NOTE

- The only reliable breaker indication is the OPEN - CLOSED indicator inside the cubicle door on the front of each breaker.
- All breaker operations are accomplished utilizing the Manual Trip or Close button inside each breaker cubicle.

___ 7.0 At the 4Kv Group Buses, Elev. 100' Turbine Building:

___ 7.1 At Cubicle 2GD1TB2BGGD, 2A Aux Power Transformer Infeed breaker:

___ A. **PLACE** 2GD1TB2BGGD#, CONTROL POWER, to the OFF position.

___ B. **VERIFY** the 2GD1TB2BGGD 4Kv breaker is in the OPEN position.

___ 7.2 At Cubicle 2FD1TB2BFGD, 2A Aux Power Transformer Infeed:

___ A. **PLACE** 2FD1TB2BFGD#, CONTROL POWER, to the OFF position.

___ B. **VERIFY** the 2FD1TB2BFGD 4Kv breaker is in the OPEN position.

___ 7.3 At Cubicle 2GD1TB22GSD, 22 Station Power Transformer Infeed:

___ A. **PLACE** 2GD1TB22GSD#, CONTROL POWER, to the OFF position.

___ B. **OPEN** the 2GD1TB22GSD 4Kv breaker.

___ 7.4 At Cubicle 2FD1TB22FSD, 22 Station Power Transformer Infeed:

___ A. **PLACE** 2FD1TB22FSD#, CONTROL POWER, to the OFF position.

___ B. **OPEN** the 2FD1TB22FSD 4Kv breaker.

___ 7.5 At Cubicle 2HD1TB21HSD, 21 Station Power Transformer Infeed:

___ A. **PLACE** 2HD1TB21HSD#, CONTROL POWER, to the OFF position.

___ B. **OPEN** the 2HD1TB21HSD 4Kv breaker.

ATTACHMENT 8
(Page 3 of 7)

#3 NEO

___ 7.6 At Cubicle 2ED1TB21ESD, 21 Station Power Transformer Infeed:

___ A. **PLACE** 2ED1TB21ESD#, CONTROL POWER, to the OFF position.

___ B. **OPEN** the 2ED1TB21ESD 4Kv breaker.

___ 7.7 At Cubicle 2ED1TB2AEGD, 2B Aux Power Transformer Infeed:

___ A. **PLACE** 2ED1TB2AEGD#, CONTROL POWER, to the OFF position.

___ B. **VERIFY** the 2ED1TB2AEGD 4Kv breaker is in the OPEN position.

___ 7.8 At Cubicle 2HD1TB2AHGD, 2B Aux Power Transformer Infeed:

___ A. **PLACE** 2HD1TB2AHGD#, CONTROL POWER, to the OFF position.

___ B. **VERIFY** the 2HD1TB2AHGD 4Kv breaker is in the OPEN position.

___ 8.0 **NOTIFY** the CRS that Steps 1 through 7 of Attachment 8 are completed.

9.0 Is either elev. 64' or 84' Vital Bus Switchgear Room the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 23.0 _____ Time

V

___ 10.0 **PROCEED** to the Circ Water Battery Rooms.

___ 11.0 At the CIRC WATER SWITCHGEAR BLDG 125V DC DISTRIBUTION PANELS, **OPEN** the following 125V DC Control Power breakers:

___ ♦ 2CW1DC-20, CONTROL VOLTAGE TO RACK 2R1002.

___ ♦ 1CW1DC-5, CONTROL VOLTAGE TO RACK 2R1005.

ATTACHMENT 8
(Page 4 of 7)

#3 NEO

___ 12.0 **PROCEED** to the Service Water Structure.

___ 13.0 At breaker 2CY1SW2H, 24SW20 - Nuclear Header Supply Valve, on 2C Service Water Vital Control Center, Control House Area 4:

___ 13.1 **OPEN** breaker AND **OPEN** breaker door.

___ 13.2 **PLACE** key operated NORMAL/EMER switch, 2CY1SW2H-T1, to EMER position.

13.3 Does 24SW20 indicate OPEN?

___ NO ___ YES ——> **GO TO** Step 13.7

V

_____ Time

___ 13.4 Manually **THROTTLE OPEN** 24SW20, Nuc Hdr Sup Valve, Bay 4, Elev 94' until flow is established.

___ 13.5 **DEFEAT** door interlock AND **CLOSE** breaker.

___ 13.6 **NOTIFY** the CRS that 24SW20 is aligned for opening.

___ 13.7 WHEN directed by the CRS, **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY1SW2H-T2, in EMER OPEN.

___ 13.8 **CLOSE** breaker door.

ATTACHMENT 8
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#3 NEO

___ 14.0 **PROCEED** to Control House Area 2 of SW Intake, El 112'.

___ 15.0 At 2AY1SW2H, 22SW20 - Nuclear Header Supply Valve, breaker:

___ 15.1 **OPEN** breaker AND **OPEN** breaker door.

___ 15.2 **PLACE** key operated NORMAL/EMER switch, 2AY1SW2H-T1, to EMER position.

15.3 Does 22SW20 indicate OPEN?
(SW Bay 2, Elev 94')

___ NO ___ YES ——> **GO TO** Step 15.7 _____ Time

V

___ 15.4 Manually **THROTTLE OPEN** 22SW20, Nuc Hdr Sup Valve until flow is established.

___ 15.5 **DEFEAT** door interlock AND **CLOSE** breaker.

___ 15.6 **NOTIFY** the CRS that 22SW20 is aligned for opening.

___ 15.7 WHEN directed by CRS,
PLACE key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY1SW2H-T2, in EMER OPEN.

___ 15.8 **CLOSE** breaker door.

ATTACHMENT 8
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#3 NEO

___ 16.0 **PROCEED** to 2B2 Service Water 230V Vital Control Center.

___ 17.0 At Panel 361-2B,
PLACE NORMAL/EMER key switch in EMER position
(located inside left panel, upper right corner)

___ 18.0 At 2BY1SW2F, 2SW26 - TGA Header Inlet Valve, breaker:

___ 18.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 18.2 **PLACE** key operated NORMAL/EMER switch,
2BY1SW2F-T1, in EMER position.

___ 18.3 **VERIFY** breaker is CLOSED.

___ 18.4 **VERIFY** thermal overloads are reset.

___ 18.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch,
2BY1SW2F-T2, in EMER CLOSE position.

___ 18.6 **CLOSE** breaker door.

___ 19.0 **NOTIFY** the CRS that Steps 10 through 18 of Attachment 8 are completed AND of the following valve positions:

- 2SW26 is CLOSED
- 24SW20 is OPEN
- 22SW20 is OPEN

ATTACHMENT 8
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#3 NEO

___ 20.0 **PROCEED** to the Station Blackout (SBO) Air Compressor Building.

___ 21.0 **START** the SBO Air Compressor as follows:

___ 21.1 **OPEN** both Engine Intake Louvers (located outside bldg on west wall).

___ 21.2 At Panel 126-1, SBO Dryer Pneumatic Control Panel, **PLACE** SBO Control Air Dryer switch in ON position.

___ 21.3 **PLACE** Unloader Valve selector switch in START position.

___ 21.4 **DEPRESS** AND **HOLD** By-pass valve pushbutton.

___ 21.5 **PLACE** Engine Ignition switch in START position until engine starts, THEN **RELEASE** to RUN position.

___ 21.6 WHEN engine oil pressure is >15 psig, **RELEASE** Bypass Valve pushbutton.

___ 21.7 **PLACE** Unloader Valve selector switch in RUN position.

___ 21.8 **OPEN** 1CA1913, SBO Compressor Disch Vlv.

NOTE

The following valves are located outside at the North West corner of the Service Building and Unit 2 Reactor Building.

___ 21.9 **OPEN** 1CA1886, Blackout Air Comp Isolation.

___ 21.10 **OPEN** 2CA584, Yard Control Air Supply Valve.

___ 22.0 **NOTIFY** the CRS that Step 21 of Attachment 8 is completed.

___ 23.0 **PROCEED** to the Hot Shutdown Panel for other assignments.

ATTACHMENT 9
(Page 1 of 13)

SHIFT MAINTENANCE TECHNICIAN

___ 1.0 **OBTAIN** the following materials:

___ ♦ One copy of this attachment

___ ♦ One radio

___ ♦ One portable emergency light unit

___ ♦ Key Ring set (Breaker key H661)

___ ♦ A Security Master Key from the Unit 2 CRS (located on the Unit 2 Security Key Ring) **[C0363]**

___ ♦ Tools (screwdriver)

___ 2.0 **OBTAIN** information from the CRS on plant status AND **RECORD** the fire impacted area.

FIRE IMPACTED AREA			
	Control Room		Elev. 84' 460/230V Vital Bus Switchgear Room
	Relay Room		Elev. 64' 4kV Vital Bus Switchgear Room

3.0 Is the 4kv Vital Bus Switchgear Room (el. 64') the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 43.0 _____ Time

V

4.0 Is the 460/230V Vital Bus Switchgear Room (el. 84') the fire impacted area?

___ NO ___ YES ——> **GO TO** Step 34.0 _____ Time

V

___ 5.0 **PROCEED** to 2C West Valves & Misc 230V Control Center (located on elev. 84' Auxiliary Bldg).

ATTACHMENT 9
(Page 2 of 13)

SHIFT MAINTENANCE TECHNICIAN

NOTE

Communication with the TSC/OSC may not be established at first due to the time needed to staff the facility. This is not a hold point.

___ 6.0 **ESTABLISH** communication with the CRS and EDG Operator (RO).

___ 7.0 At 2CY2AX7A, 22SW21 Diesel Cooling Service Water Isolation Valve breaker:

___ 7.1 **OPEN** 2CY2AX7A breaker AND **OPEN** breaker door.

___ 7.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX7A-T1, to EMER position.

___ 7.3 IF 22SW21 is CLOSED (located inside 21 DFOST room), THEN Manually **THROTTLE OPEN** 22SW21, Diesel Clg SW Inlet Valve, until flow is established.

___ 7.4 **DEFEAT** door interlock AND **CLOSE** 2CY2AX7A breaker.

___ 7.5 **VERIFY** thermal overloads are reset.

___ 7.6 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX7A-T2, in EMER OPEN.

___ 7.7 **CLOSE** breaker door.

___ 8.0 **NOTIFY** the CRS and EDG Operator (RO) of 22SW21, Diesel Generator Cooling Water, breaker and valve status.

ATTACHMENT 9
(Page 3 of 13)

SHIFT MAINTENANCE TECHNICIAN

___ 9.0 At 2CY2AX7E, 22SW22 Nuclear Header Isolation Valve breaker:

___ 9.1 **OPEN** 2CY2AX7E breaker AND **OPEN** breaker door.

___ 9.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX7E-T1, to EMER position.

___ 9.3 IF 22SW22 is CLOSED,
THEN **NOTIFY** the CRS that 22SW22, Nuc Hdr Isolation Valve, be manually throttled OPEN until flow is established.

___ 9.4 WHEN flow is reported by the CRS as being established via 22SW22 OR the 22SW22 is reported by the CRS as being OPEN,
DEFEAT the door interlock AND **CLOSE** the 2CY2AX7E breaker.

___ 9.5 **VERIFY** the thermal overloads are reset.

___ 9.6 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX7E-T2, in EMER OPEN.

___ 9.7 **CLOSE** breaker door.

___ 10.0 **NOTIFY** the CRS of 22SW22, 22 Nuc Hdr Isolation Valve, breaker status.

___ 11.0 At 2CY2AX5I, 2CC31 - Component Cooling Isolation Valve breaker:

___ 11.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 11.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX5I-T1, to EMER position.

___ 11.3 **VERIFY** 2CY2AX5I breaker is CLOSED.

___ 11.4 **VERIFY** thermal overloads are reset.

___ 11.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX5I-T2, in EMER CLOSED.

___ 11.6 **CLOSE** breaker door.

___ 12.0 **NOTIFY** the CRS of 2CC31, 22 Hx To Aux CC Hdr Stop V, breaker status.

ATTACHMENT 9
(Page 4 of 13)

SHIFT MAINTENANCE TECHNICIAN

___ 13.0 At 2CY2AX5E, 22 Charging Pump Auxiliary Lube Oil Pump, breaker:

___ 13.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 13.2 **VERIFY** 2CY2AX5E breaker is CLOSED.

___ 13.3 **VERIFY** thermal overloads are reset.

___ 13.4 **PLACE** key operated NORMAL/EMER START switch, 2CY2AX5E-T1, in EMER START position.

___ 13.5 **CLOSE** breaker door.

___ 14.0 At 2CY2AX2A, 2SJ1 - RWST To Charging Pumps Stop Vlv, breaker:

___ 14.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 14.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX2A-T1, to EMER position.

___ 14.3 **VERIFY** 2CY2AX2A breaker is CLOSED.

___ 14.4 **VERIFY** thermal overloads are reset.

___ 14.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX2A-T2, to EMER OPEN position.

___ 14.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 15.0 At 2CY2AX4A, 2CV40 - Volume Control Tank Outlet Isolation Valve, breaker:

___ 15.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 15.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX4A-T1, to EMER position.

___ 15.3 **VERIFY** 2CY2AX4A breaker is CLOSED.

___ 15.4 **VERIFY** thermal overloads are reset.

___ 15.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX4A-T2, to EMER CLOSE position.

___ 15.6 **CLOSE** breaker door.

___ 16.0 At 2CY2AX3A, 2CV140 - Charging Pump Recirc Stop Valve, breaker:

___ 16.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 16.2 **PLACE** key operated NORMAL/EMER switch, 2CY2AX3A-T1, to EMER position.

___ 16.3 **VERIFY** 2CY2AX3A breaker is CLOSED.

___ 16.4 **VERIFY** thermal overloads are reset.

___ 16.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2CY2AX3A-T2, to EMER OPEN position.

___ 16.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 17.0 **PROCEED** to 2A West Valves & Misc 230V Control Center.

___ 18.0 At 2AY2AX6A, 21SW21 - Diesel Cooling Service Water Isolation Valve, breaker:

___ 18.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 18.2 **PLACE** key operated NORMAL/EMER switch, 2AY2AX6A-T1, to EMER position.

___ 18.3 **VERIFY** 2AY2AX6A breaker is CLOSED.

___ 18.4 **VERIFY** thermal overloads are reset.

___ 18.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2AX6A-T2, in EMER OPEN.

___ 18.6 **CLOSE** breaker door.

___ 19.0 **NOTIFY** the CRS of 21SW21, Diesel Generator Cooling Water, breaker status.

___ 20.0 At 2AY2AX4E, 2CC30 - Component Cooling Isolation Valve, breaker:

___ 20.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 20.2 **PLACE** key operated NORMAL/EMER switch, 2AY2AX4E-T1, to EMER position.

___ 20.3 **VERIFY** 2AY2AX4E breaker is CLOSED.

___ 20.4 **VERIFY** thermal overloads are reset.

___ 20.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2AX4E-T2, in EMER CLOSED.

___ 20.6 **CLOSE** breaker door.

___ 21.0 **NOTIFY** the CRS of 2CC30 Component Cooling Isolation Valve, breaker status.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 22.0 At 2AY2AX2A, 21CC16 - RHR HX Component Cooling Water Outlet Valve, breaker:

___ 22.1 **DEFEAT** the door interlock AND **OPEN** breaker door.

___ 22.2 **PLACE** key operated NORMAL/EMER, 2AY2AX2A-T1, switch to EMER position.

___ 22.3 **VERIFY** 2AY2AX2A breaker is CLOSED.

___ 22.4 **VERIFY** thermal overloads are reset.

___ 22.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2AX2A-T2, to EMER CLOSE position.

___ 22.6 **CLOSE** breaker door.

___ 23.0 At 2AY2AX2E, 21SJ44 - Containment Sump to RHR Suction Valve, breaker:

___ 23.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 23.2 **PLACE** key operated NORMAL/EMER switch, 2AY2AX2E-T1, to EMER position.

___ 23.3 **VERIFY** 2AY2AX2E breaker is CLOSED.

___ 23.4 **VERIFY** thermal overloads are reset.

___ 23.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2AX2E-T2, to EMER CLOSE position.

___ 23.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 24.0 **PROCEED** to 2B West Valves & Misc 230V Control Center.

___ 25.0 At 2BY2AX3E, 2SJ12 - Boron Injection Tank Outlet Valve, breaker:

___ 25.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 25.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX3E-T1, to EMER position.

___ 25.3 **VERIFY** 2BY2AX3E breaker is CLOSED.

___ 25.4 **VERIFY** thermal overloads are reset.

___ 25.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX3E-T2, to EMER CLOSE position.

___ 25.6 **CLOSE** breaker door.

___ 26.0 At 2BY2AX3I, 22SJ44 - Containment Sump to RHR Pump Suction Valve, breaker:

___ 26.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 26.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX3I-T1, to EMER position.

___ 26.3 **VERIFY** 2BY2AX3I breaker is CLOSED.

___ 26.4 **VERIFY** thermal overloads are reset.

___ 26.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX3I-T2, to EMER CLOSE position.

___ 26.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 27.0 At 2BY2AX4I, 22CC16 - RHR Hx Component Cooling Water Outlet Valve, breaker:

___ 27.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 27.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX4I-T1, to EMER position.

___ 27.3 **VERIFY** 2BY2AX4I breaker is CLOSED.

___ 27.4 **VERIFY** thermal overloads are reset.

___ 27.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX4I-T2, to EMER CLOSE position.

___ 27.6 **CLOSE** breaker door.

___ 28.0 At 2BY2AX5E, 2CV68 - Charging Header Isolation Valve, breaker:

___ 28.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 28.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX5E-T1, to EMER position.

___ 28.3 **VERIFY** 2BY2AX5E breaker is CLOSED.

___ 28.4 **VERIFY** thermal overloads are reset.

___ 28.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX5E-T2, to EMER OPEN position.

___ 28.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 29.0 At 2BY2AX5I, 2CV139 - Charging Pump Recirc Stop Valve, breaker:

___ 29.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 29.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX5I-T1, to EMER position.

___ 29.3 **VERIFY** 2BY2AX5I breaker is CLOSED.

___ 29.4 **VERIFY** thermal overloads are reset.

___ 29.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX5I-T2, to EMER OPEN position.

___ 29.6 **CLOSE** breaker door.

___ 30.0 At 2BY2AX9A, 21SW23 - NUC Header Crossover MOV, breaker:

___ 30.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 30.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX9A-T1, to EMER position.

___ 30.3 **VERIFY** 2BY2AX9A breaker is CLOSED.

___ 30.4 **VERIFY** thermal overloads are reset.

___ 30.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX9A-T2, to EMER OPEN position.

___ 30.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 31.0 At 2BY2AX9E, 22SW23 - NUC Header Crossover MOV, breaker:

___ 31.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 31.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX9E-T1, to EMER position.

___ 31.3 **VERIFY** 2BY2AX9E breaker is CLOSED.

___ 31.4 **VERIFY** thermal overloads are reset.

___ 31.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX9E-T2, to EMER OPEN position.

___ 31.6 **CLOSE** breaker door.

___ 32.0 **NOTIFY** CRS that Steps 7 through 31 of Attachment 9 are completed.

___ 33.0 **GO TO** Step 43.0.

_____
Time

___ 34.0 **OPEN** 2CY2AX3I, 2SJ69 RWST TO RHR PUMPS STOP VALVE.

___ 35.0 **PROCEED** to 2B West Valves & Misc 230V Control Center.

___ 36.0 At 2BY2AX3I, 22SJ44 - Containment Sump to RHR Pump Suction Valve, breaker:

___ 36.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 36.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX3I-T1, to EMER position.

___ 36.3 **VERIFY** 2BY2AX3I breaker is CLOSED.

___ 36.4 **VERIFY** thermal overloads are reset.

___ 36.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX3I-T2, to EMER CLOSE position.

___ 36.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 37.0 IF the 460/230V Vital Switchgear Room (el. 84') is the fire impacted area, THEN at 2BY2AX3E, 2SJ12 - Boron Injection Tank Outlet Valve, breaker:

___ 37.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 37.2 **PLACE** key operated NORMAL/EMER switch, 2BY2AX3E-T1, to EMER position.

___ 37.3 **VERIFY** 2BY2AX3E breaker is CLOSED.

___ 37.4 **VERIFY** thermal overloads are reset.

___ 37.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2BY2AX3E-T2, to EMER CLOSE position.

___ 37.6 **CLOSE** breaker door.

___ 38.0 **PROCEED** to 2A West Valves & Misc 230V Control Center.

___ 39.0 At 2AY2AX2E, 21SJ44 - Containment Sump to RHR Suction Valve, breaker:

___ 39.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 39.2 **PLACE** key operated NORMAL/EMER switch, 2AY2AX2E-T1, to EMER position.

___ 39.3 **VERIFY** 2AY2AX2E breaker is CLOSED.

___ 39.4 **VERIFY** thermal overloads are reset.

___ 39.5 **PLACE** key operated EMER OPEN/NORM/EMER CLOSE switch, 2AY2AX2E-T2, to EMER CLOSE position.

___ 39.6 **CLOSE** breaker door.

ATTACHMENT 9
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SHIFT MAINTENANCE TECHNICIAN

___ 40.0 IF the 460/230V Vital Switchgear Room (el. 84') is the fire impacted area, THEN **PROCEED** to the Elev. 78' Mechanical Penetration Area.

___ 40.1 **DETERMINE** the position of 2SJ4 AND 2SJ5, BIT INLET VALVES.

___ 40.2 IF either 2SJ4 OR 2SJ5, BIT INLET VALVE, is OPEN, THEN:

___ A. IF 2SJ12, BIT OUTLET VALVE, is OPEN, THEN **ALIGN** the handwheel AND **CLOSE** 2SJ12.

___ B. IF 2SJ13, BIT OUTLET VALVE, is OPEN, THEN **ALIGN** the handwheel AND **CLOSE** 2SJ13.

___ 41.0 **PROCEED** to the Elev. 55' RHR Valve Area.

___ 42.0 At 2SJ69, RHR SUCTION FROM RWST, **ALIGN** the handwheel AND **CLOSE** 2SJ69.

___ 43.0 **PROCEED** to the Hot Shutdown Panel for other assignments.

ATTACHMENT 10
(Page 1 of 6)

TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 1.0 **ALIGN** No. 2 Emergency Control Air Compressor as follows:

NOTE

- The same key (H661, Unit 2 Hot Shutdown Key) operates both key switches. Keys may be obtained from the Work Control Center Key Box (Key #10) or the Alternate Shutdown Equipment Storage Cabinet Key Box Inventory.
- The removable maintenance handle that may be required to reset a 460V breaker charging spring at Step 1.11, 1.12, 1.13, or 1.14 is available at the Operations Department Glove Box No. 10 located on the wall opposite the 2AY1AX Vital Bus or from the Alternate Shutdown Equipment Storage Cabinet Inventory.

___ 1.1 **PROCEED** to 2A A/C 230V Vital Control Center on Elev. 122'.

___ 1.2 At 2AY3AX2H, 21 Chilled Water Pump, breaker:

___ A. **DEFEAT** the door interlock AND **OPEN** breaker door.

___ B. **VERIFY** breaker is CLOSED.

___ C. **VERIFY** thermal overloads are reset.

___ D. **PLACE** key operated NORMAL/EMER START switch, 2AY3AX2H-T1, in EMER START position.

___ E. **CLOSE** breaker door.

___ 1.3 **PROCEED** to 2B A/C 230V Vital Control Center on Elev. 122'.

___ 1.4 At 2BY3AX2H, 22 Chilled Water Pump, breaker:

___ A. **DEFEAT** the door interlock AND **OPEN** breaker door.

___ B. **VERIFY** breaker is CLOSED.

___ C. **VERIFY** thermal overloads are reset.

___ D. **PLACE** key operated NORMAL/EMER START switch, 2BY3AX2H-T1, in EMER START position.

___ E. **CLOSE** breaker door.

ATTACHMENT 10
(Page 2 of 6)

TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 1.5 **PROCEED** to the El. 100' Electrical Penetration Area (Chiller Room).

___ 1.6 At 21 Chiller Control Panel:

___ A. **PLACE** the key operated NORMAL/EMER START switch, 2AX1AX13X-T1, inside control panel, to the EMER START position.

___ B. **VERIFY** thermal overloads are reset.

___ C. **PLACE** the normal operating switch to RUN.

___ 1.7 At 22 Chiller Control Panel:

___ A. **PLACE** the key operated NORMAL/EMER START switch, 2BX1AX13X-T1, inside control panel, to the EMER START position.

___ B. **VERIFY** thermal overloads are reset.

___ C. **PLACE** the normal operating switch to RUN.

___ 1.8 At 23 Chiller Control Panel:

___ A. **PLACE** the key operated NORMAL/EMER START switch, 2CX1AX13X-T1, inside control panel, to the EMER START position.

___ B. **VERIFY** thermal overloads are reset.

___ C. **PLACE** the normal operating switch to RUN.

___ 1.9 At No. 2 Unit Emergency Control Air Compressor Control Panel 342-2:

___ A. **CLOSE** 2CH216-A/S, Air Supply to SV-615 in Panel 342-2 (located in left side in the rear of panel towards lower center).

___ B. **OPEN** drain cock on pressure regulator to SV-615.

___ 1.10 **PROCEED** to 460/230V Switchgear Room.

ATTACHMENT 10
(Page 3 of 6)

TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 1.11 At 2AX1AX13X, 21 Chiller, breaker:

___ A. **OPEN** 2AX1AX13X#, 21 Chiller Breaker Control Power Deion.

B. Does 21 Chiller breaker charging spring indicate CHARGED?

___ NO ___ YES——> **GO TO** Step 1.11D _____ Time

V

___ C. **RESET** the spring as follows:

___ 1. **INSERT** the maintenance handle on the pawl carrier.

___ 2. **OPERATE** the maintenance handle by pumping until the pawl carrier stops moving.

___ 3. **CHECK** spring indicates CHARGED.

___ D. **CLOSE** breaker with the Manual Close Lever.

___ 1.12 At 2BX1AX13X, 22 Chiller, breaker:

___ A. **OPEN** 2BX1AX13X#, 22 Chiller Breaker Control Power Deion.

B. Does 22 Chiller breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 1.12D _____ Time

V

___ C. **RESET** the spring as follows:

___ 1. **INSERT** the maintenance handle on the pawl carrier.

___ 2. **OPERATE** the maintenance handle by pumping until the pawl carrier stops moving.

___ 3. **CHECK** spring indicates CHARGED.

___ D. **CLOSE** breaker with the Manual Close Lever.

ATTACHMENT 10
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TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 1.13 At 2CX1AX13X, 23 Chiller, breaker:

___ A. **OPEN** 2CX1AX13X#, Chiller Breaker Control Power Deion.

B. Does 23 Chiller breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 1.13D _____ Time

V

___ C. **RESET** the spring as follows:

___ 1. **INSERT** the maintenance handle on the pawl carrier.

___ 2. **OPERATE** the maintenance handle by pumping until the pawl carrier stops moving.

___ 3. **CHECK** the charging spring indicates CHARGED.

___ D. **CLOSE** breaker with the Manual Close Lever.

ATTACHMENT 10
(Page 5 of 6)

TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 1.14 At 2CX1AX14X, No. 2 Emergency Control Air Compressor, breaker:

___ A. **OPEN** 2CX1AX14X#, No. 2 Emergency Control Air Compressor Breaker Control Power Deion.

B. Does No. 2 Emergency Control Air Compressor breaker charging spring indicate CHARGED?

___ NO ___ YES ——> **GO TO** Step 1.14D _____ Time

|

V

___ C. **RESET** the spring as follows:

___ 1. **INSERT** the maintenance handle on the pawl carrier.

___ 2. **OPERATE** the maintenance handle by pumping until the pawl carrier stops moving.

___ 3. **CHECK** the charging spring indicates CHARGED.

___ D. **CLOSE** breaker with the Manual Close Lever.

___ 1.15 IF 21 and 22 Emergency Control Air Dryers are NOT alternating approximately every four minutes,
THEN **OPEN** 2CX1AX14X, No. 2 Emergency Control Air Compressor, breaker.

ATTACHMENT 10
(Page 6 of 6)

TERMINATION OF SBO AIR COMPRESSOR OPERATION

___ 2.0 IF No. 2 Emergency Control Air Compressor (ECAC) is aligned IAW Section 1.0 of this Attachment,
OR No.1 ECAC is providing the CA System support function,
THEN **PERFORM** the following to shutdown the Station Blackout Air Compressor:

NOTE

Valves 2CA584 and 1CA1886 are located outside the corner of the Service Building and Unit 2 Reactor Building.

___ 2.1 **CLOSE** 2CA584, Yard Control Air Supply Valve.

___ 2.2 **CLOSE** 1CA1886, Blackout Air Comp Isolation.

___ 2.3 **PLACE** Unloader Valve selector switch in START position.

___ 2.4 **CLOSE** 1CA1913, SBO Compressor Disch Vlv.

___ 2.5 **ALLOW** engine to run for 5 minutes to cool down.

___ 2.6 **PLACE** Engine Ignition Switch in OFF position.

___ 2.7 **PLACE** SBO Control Air Dryer switch in OFF position.

___ 2.8 **OPEN** 1CA1920, Backup Air Comp Drain Valve, to drain any water accumulation,

___ 2.9 **CLOSE** 1CA1920.

___ 2.10 **CLOSE** both Engine Intake Louvers.

___ 3.0 **NOTIFY** the CRS of the ECAC and SBO Compressor status.

ATTACHMENT 11
(Page 1 of 5)

ABV & SWV SYSTEMS - VENTILATION LINEUP

NOTE

The same key (H661, Unit 2 Hot Shutdown Key) operates both key switches. Keys may be obtained from the WCC Key Box (Key #10) or the Hot Shutdown Panel.

___ 1.0 **PROCEED** to 2A Ventilation 230V Vital Control Center, Electrical Pen Area, El 100'.

___ 2.0 At breaker 2AY1EP2D, 2 Auxiliary Feedwater Pump Room Cooler:

___ 2.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 2.2 **VERIFY** breaker is CLOSED.

___ 2.3 **VERIFY** thermal overloads are reset.

___ 2.4 **PLACE** key operated NORMAL/EMER START switch, 2AY1EP2D-T1, to EMER START position.

___ 2.5 **CLOSE** breaker door.

___ 3.0 At breaker 2AY1EP2J, 21 RHR Room Cooler:

___ 3.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 3.2 **VERIFY** breaker is CLOSED.

___ 3.3 **VERIFY** thermal overloads are reset.

___ 3.4 **PLACE** key operated NORMAL/EMER START switch, 2AY1EP2J-T1, to EMER START position.

___ 3.5 **CLOSE** breaker door.

ATTACHMENT 11
(Page 2 of 5)

ABV & SWV SYSTEMS - VENTILATION LINEUP

___ 4.0 **PROCEED** to 2B Ventilation 230V Vital Control Center, Electrical Pen Area, El 100'.

___ 5.0 At breaker 2BY1EP1G, 21 Charging Pump Room Cooler:

___ 5.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 5.2 **VERIFY** breaker is CLOSED.

___ 5.3 **VERIFY** thermal overloads are reset.

___ 5.4 **PLACE** key operated NORMAL/EMER START switch, 2BY1EP1G-T1, to EMER START position.

___ 5.5 **CLOSE** breaker door.

___ 6.0 At breaker 2BY1EP2D, 22 Component Cooling Pump Room Cooler:

___ 6.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 6.2 **VERIFY** breaker is CLOSED.

___ 6.3 **VERIFY** thermal overloads are reset.

___ 6.4 **PLACE** key operated NORMAL/EMER START switch, 2BY1EP2D-T1, to EMER START position.

___ 6.5 **CLOSE** breaker door.

___ 7.0 At breaker 2BY1EP2J, 22 RHR Room Cooler:

___ 7.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 7.2 **VERIFY** breaker is CLOSED.

___ 7.3 **VERIFY** thermal overloads are reset.

___ 7.4 **PLACE** key operated NORMAL/EMER START switch, 2BY1EP2J-T1, to EMER START position.

___ 7.5 **CLOSE** breaker door.

ATTACHMENT 11
(Page 3 of 5)

ABV & SWV SYSTEMS - VENTILATION LINEUP

___ 8.0 **PROCEED** to 2C Ventilation 230V Vital Control Center, Electrical Pen Area, El 100'.

___ 9.0 At breaker 2CY1EP1G, 22 Charging Pump Room Cooler:

___ 9.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 9.2 **VERIFY** breaker is CLOSED.

___ 9.3 **VERIFY** thermal overloads are reset.

___ 9.4 **PLACE** key operated NORMAL/EMER START switch, 2CY1EP1G-T1, to EMER START position.

___ 9.5 **CLOSE** breaker door.

___ 10.0 At breaker 2CY1EP2D, 21 Component Cooling Pump Room Cooler:

___ 10.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 10.2 **VERIFY** breaker is CLOSED.

___ 10.3 **VERIFY** thermal overloads are reset.

___ 10.4 **PLACE** key operated NORMAL/EMER START switch, 2CY1EP2D-T1, to EMER START position.

___ 10.5 **CLOSE** breaker door.

___ 11.0 **PROCEED** to 2A Service Water Intake 230V Vital Control Center.

___ 12.0 At breaker 2AY1SW3J, 21 Service Water Vent Fan:

___ 12.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 12.2 **VERIFY** breaker is CLOSED.

___ 12.3 **VERIFY** thermal overloads are reset.

___ 12.4 **PLACE** key operated NORMAL/EMER START switch, 2AY1SW3J-T1, to EMER START position.

___ 12.5 **CLOSE** breaker door.

ATTACHMENT 11
(Page 4 of 5)

ABV & SWV SYSTEMS - VENTILATION LINEUP

___ 13.0 **PROCEED** to 2B1 Service Water Intake 230V Vital Control Center.

___ 14.0 At breaker 2BY2SW2J, 22 Service Water Vent Fan:

___ 14.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 14.2 **VERIFY** breaker is CLOSED.

___ 14.3 **VERIFY** thermal overloads are reset.

___ 14.4 **PLACE** key operated NORMAL/EMER START switch, 2BY2SW2J-T1, to EMER START position.

___ 14.5 **CLOSE** breaker door.

___ 15.0 **PROCEED** to 2C Service Water Intake 230V Vital Control Center.

___ 16.0 At breaker 2CY1SW3J, 23 Service Water Vent Fan:

___ 16.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 16.2 **VERIFY** breaker is CLOSED.

___ 16.3 **VERIFY** thermal overloads are reset.

___ 16.4 **PLACE** key operated NORMAL/EMER START switch, 2CY1SW3J-T1, to EMER START position.

___ 16.5 **CLOSE** breaker door.

___ 17.0 **PROCEED** to 2B2 Service Water Intake 230V Vital Control Center.

ATTACHMENT 11
(Page 5 of 5)

ABV & SWV SYSTEMS - VENTILATION LINEUP

___ 18.0 At breaker 2BY1SW2J, 24 Service Water Vent Fan:

___ 18.1 **DEFEAT** door interlock AND **OPEN** breaker door.

___ 18.2 **VERIFY** breaker is CLOSED.

___ 18.3 **VERIFY** thermal overloads are reset.

___ 18.4 **PLACE** key operated NORMAL/EMER START switch, 2BY1SW2J-T1, to EMER START position.

___ 18.5 **CLOSE** breaker door.

___ 19.0 **DIRECT** the OSCC to ensure the following Auxiliary Building Ventilation System alignment IAW S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment:

___ 19.1 One Supply Fan AND two Exhaust Fans are in-service.

NOTE

S2.OP-SO.ABV-0001(Q), Auxiliary Building Ventilation System Operation, may be referred to for additional clarification regarding the Auxiliary Building Ventilation System fan and filter unit required damper alignments.

___ 19.2 Fan and Filter Unit flow path dampers are properly aligned

___ 19.3 The AFW Pump Room Cooler Dampers are positioned as follows:

- ♦ 2ABS2, Room Cooler Supply to TDAFW Pump Enclosure, is OPEN
- ♦ 2ABS4, Turbine Driven AFW Pump Room Supply, is CLOSED
- ♦ 2ABS20, TDAFW Pump Enclosure Exhaust, is OPEN

___ 20.0 **NOTIFY** the CRS that Steps 1 through 19 of Attachment 11 are completed.

ATTACHMENT 12
(Page 1 of 3)

TURBINE-DRIVEN AFW PUMP RESTORATION

1.0 **RESETTING 2MS52** **[C0356]**

___ 1.1 **SEAT** tappet nut by slightly pulling Head Lever away from trip linkage AND **CHECK** that the Emergency Trip Lever is in its RESET position (horizontal).

NOTE

The next three steps are interrelated and should occur at about the same time.

___ 1.2 **ROTATE** 2MS52 handwheel in the closed direction (clockwise). This will cause the Latch-Up Lever to move up toward the Trip Hook.

___ 1.3 **CHECK** that as the Latch-Up Lever moves up into position, that it moves to and engages the Trip Hook.

___ 1.4 **PULL UP** on the Hand Trip Lever to ensure full engagement of the Trip Hook and Latch-up Lever.

CAUTION

- **Extra caution is advised while in the Turbine Driven AFW Pump Room when resetting the AFW Pump with AUTO Start signals locked in. In this condition, the pump will start.**
- **Leaving 2MS52 backseated may impose more reaction loading on the Trip Hook than the Trip Linkage can overcome, thus rendering the 2MS52 trip function INOPERABLE.**

___ 1.5 Slowly **ROTATE** 2MS52 handwheel in the open direction (counter-clockwise) until the Split Coupling raises and makes contact with the bottom of the Sliding Nut OR the valve comes to rest on the backseat.

___ 1.6 **ROTATE** 2MS52 handwheel clockwise approximately one turn until handwheel moves freely AND Latch-up lever is in full contact with Trip Hook. **[C0315]**

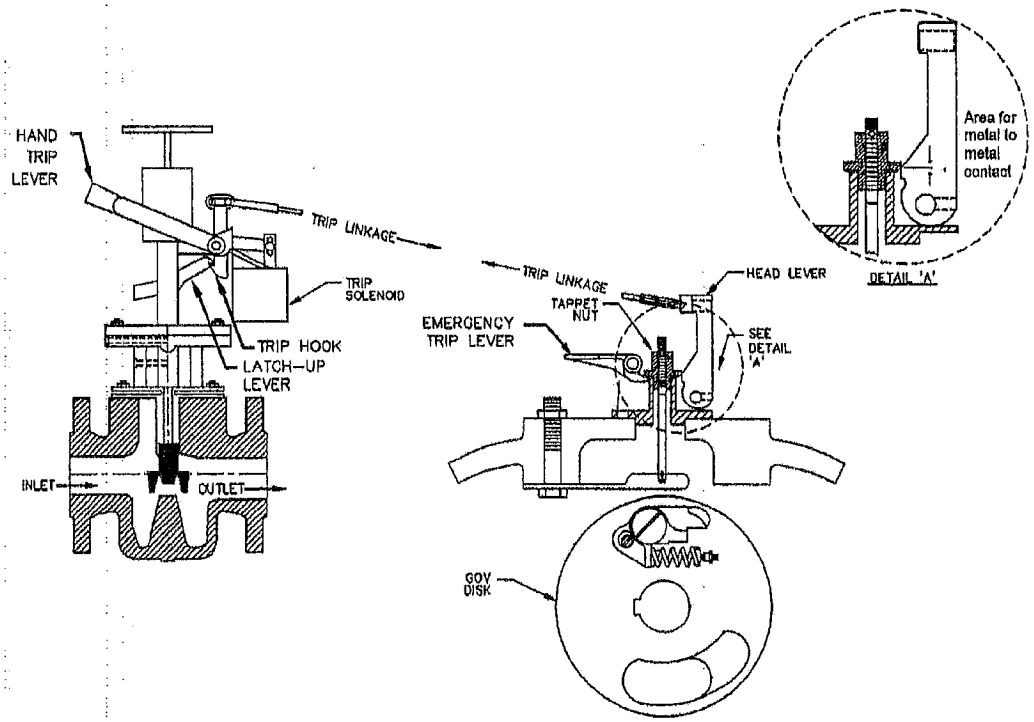
___ 1.7 **ENSURE** turbine stops spinning (indicates 2MS132 is seated).

___ 1.8 **ENSURE** proper engagement of tappet nut and head lever IAW Attachment 12 Page 2, 23 AF Pump Trip/Throttle Valve & Overspeed Trip Mechanism, Overspeed Trip Mechanism/Valve Reset.

ATTACHMENT 12
(Page 2 of 3)

TURBINE-DRIVEN AFW PUMP RESTORATION

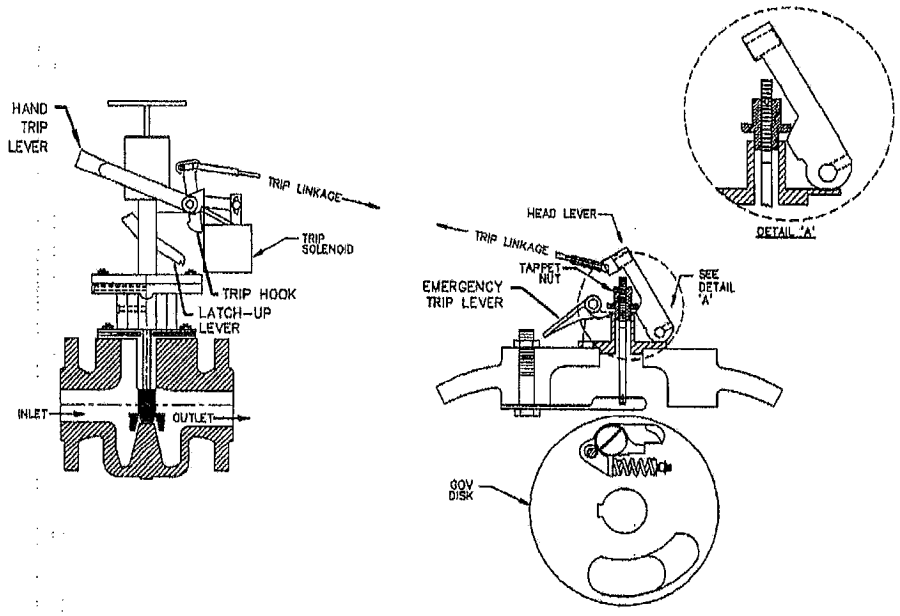
23 AF PUMP TRIP/THROTTLE VALVE & OVERSPEED TRIP MECHANISM
OVERSPEED TRIP MECHANISM/VALVE RESET



ATTACHMENT 12
(Page 3 of 3)

TURBINE-DRIVEN AFW PUMP RESTORATION

23 AF PUMP TRIP/THROTTLE VALVE & OVERSPEED TRIP MECHANISM
OVERSPEED TRIP MECHANISM/VALVE TRIPPED



ATTACHMENT 13
(Page 1 of 4)

CRS/STA TRACKING & OVERVIEW STATUS

___ 1.0 **RECORD** the following valve positions when reported from the various Operators:

	VALVE #	POSITION	
♦	22SW21	_____	(RO: Attachment 4, Step 10)
		_____	(SMT: Attachment 9, Step 8)
♦	21SW21	_____	(RO: Attachment 4, Step 10)
		_____	(SMT: Attachment 9, Step 19)
♦	21SW22	_____	(#2 NEO: Attachment 7, Step 5)
♦	22SW22	_____	(#2 NEO: Attachment 7, Step 5)
		_____	(SMT: Attachment 9, Step 10)
♦	24SW20	_____	(#3 NEO: Attachment 8, Steps 13.7 and/or 19)
♦	22SW20	_____	(#3 NEO: Attachment 8, Steps 15.7 and/or 19)
♦	2SW26	_____	(#3 NEO: Attachment 8, Step 19)
♦	2CC31	_____	(SMT: Attachment 9, Step 12)
♦	2CC30	_____	(SMT: Attachment 9, Step 21)

___ 2.0 **RECORD** Emergency Diesel Generator Status:

NOTE

♦ Service Water Aligned: indicated flow on 2DP9632I, 23 Service Water Diesel Gen Lube Oil Cooler & Jkt Wtr Ht Exch DP Ind, on Panel 704-2BB.
♦ Diesel Generator Operating: Fire Emergency By-pass Switch in by-pass, DC Control Power transferred to alternate supply, diesel generator is at rated speed and voltage.

♦	Service Water Aligned	(YES/NO)
♦	2C Diesel Generator Operating	(YES/NO)
♦	2A Diesel Generator Operating	(YES/NO)
♦	2B Diesel Generator Operating	(YES/NO)

ATTACHMENT 13
(Page 2 of 4)

CRS/STA TRACKING & OVERVIEW STATUS

___ 3.0 **RECORD** 4Kv Vital Bus Status (✓)

- ♦ 2A 4Kv Vital Bus: (Off-Site Power)____ (EDG)____ (O/S)____
- ♦ 2B 4Kv Vital Bus: (Off-Site Power)____ (EDG)____ (O/S)____
- ♦ 2C 4Kv Vital Bus: (Off-Site Power)____ (EDG)____ (O/S)____

___ 4.0 **RECORD** progress to achieving and maintaining Hot Standby conditions:

___ 4.1 **Attachment 4** (Reactor Operator)

___ A. IF Steps 1 through 66 are completed (Relay Rm OR Control Rm Fire), THEN the diesel generators are either operating or setup in standby.

___ B. IF Step 75 is completed (Switchgear Room Fire), THEN the diesel generators are tripped to ensure that the 4Kv Vital Switchgear remains de-energized in order to preclude inadvertent component operation due to fire induced hot shorts.

___ 4.2 **Attachment 5** (Plant Operator)

___ A. WHEN Steps 1 through 33 are completed,

- 23 AFW Pump is in manual-local control
- 21-24AF11 valves are in manual-local control
- Maintaining HSB conditions

___ B. IF the Control Room OR the Relay Room is the fire impacted area, THEN:

- Charging Pump LO Cooler valves 2SW185 and 2SW199 are failed OPEN
- 2CV55 is in manual, setup to control normal charging flow for RCS inventory control
- 21SW122 is failed OPEN

___ C. IF either Switchgear Room is the fire impacted area, THEN the Hot Shutdown Panel is aligned from Unit 1 ASDS Inverter Power Supply.

ATTACHMENT 13
(Page 3 of 4)

CRS/STA TRACKING & OVERVIEW STATUS

___ 4.3 **Attachment 6** (#1 NEO)

___ A. IF Steps 1 through 119 are completed (Relay Rm OR Control Rm Fire), THEN:
- DC power to 4Kv Vital Buses is isolated
- 4Kv Vital Buses and Essential loads are from either off-site power or the EDGs:
  - 2C 4Kv: 26 or 25 Service Water Pump
    22 Charging Pump
    23 Component Cooling Pump
    460/230V Vital Buses
  - 2A 4Kv: 21 or 22 Service Water Pump
    21 Component Cooling Pump
    460/230V Vital Buses
  - 2B 4Kv: 23 or 24 Service Water Pump
    22 Component Cooling Pump
    460/230V Vital Buses

___ B. IF Step 123 is completed (460/230V Switchgear Room Fire), THEN 2A, 2B, and 2C 4Kv Vital Buses are de-energized and isolated from the EDGs and Off-Site Power by the 4Kv infeed breakers.

___ 4.4 **Attachment 7** (#2 NEO)

___ A. IF Steps 1 through 17 are completed (Relay Rm OR Control Rm Fire), THEN:
- 21/22SW22 valve position checked
- 2CV73 is opened allowing normal charging flow
- 2CC131 is closed to isolate RCP thermal barrier return
- 2CV116 is closed to isolate RCP seal return
- Following valves are setup for EMERGENCY operation
  - 2PR6
  - 21SW22
  - 2PR7
  - 2SJ13
  - 2CV69

___ B. IF Steps 20 through 26 are completed (Switchgear Room Fire), THEN:
- Charging Header is isolated
- 2SJ13 valves is setup for EMERGENCY/CLOSED operation

___ C. WHEN Steps 28 through 40 are completed,
- Th and Tc Wide range instrumentation is energized
- 21-24MS10s, 18s, and 167s are CLOSED
- Maintaining plant in HSB via SG Safety Valves

ATTACHMENT 13
(Page 4 of 4)

CRS/STA TRACKING & OVERVIEW STATUS

___ 4.5 **Attachment 8** (#3 NEO)

___ A. WHEN Steps 1 through 7 are completed,

- Turbine is tripped
- 4Kv Group Buses are isolated

___ B. IF Steps 10 through 22 are completed (Relay Rm OR Control Rm Fire), THEN:

- DC power to 23 and 24 SPT 13KV infeed breakers is tripped
- SW valves/breakers in Service Water Intake are aligned
- SBO Air Compressor is started.

___ 4.6 **Attachment 9** (Shift Maintenance Technician)

___ ♦ IF Steps 7 through 31 are completed (Relay Rm OR Control Rm Fire), THEN the following valves are setup for EMERGENCY operation:

- 22SW21
- 21SJ44
- 2CV40
- 22CC16
- 21SW21
- 21SW23
- 21CC16
- 2CC31
- 22SJ44
- 2CV140
- 2CV139
- 22SW23
- 22SW22
- 2SJ12
- 2SJ1
- 2CV68
- 2CC30

___ 4.7 **Attachment 10** (SBO Compressor Shutdown)

___ A. IF No. 2 ECAC is available, THEN:

- Chillers & Chilled Water Pumps are in EMERGENCY
- Startup of No. 2 ECAC is completed

___ B. IF No. 1 ECAC OR No. 2 ECAC is available, THEN the SBO Compressor is secured.

___ 4.8 **Attachment 11** (ABV & SWI Systems - Ventilation Lineup)

- ♦ Auxiliary Building Vital Pump Room Coolers are in EMER START
- ♦ Service Water Vent Fans are in EMER START
- ♦ OSCC notified to verify ABV is established

ATTACHMENT 14
(Page 1 of 5)

OPERATIONS SUPPORT CENTER ACTIVITY

NOTE

- This attachment provides multiple steps to be performed in coordination with the CRS IAW S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment, and provides guidance to support the transition from Hot Standby to Cold Shutdown.
- Use of other procedures will be necessary to accomplish various lineups and evolutions throughout the remainder of the procedure. Due to plant conditions many prerequisites, precautions and limitations required by these procedures may not apply.
- The following activities may be applicable as determined by the affected fire area and the extent of the fire damage. Field inspections of component status and system alignment is required to be coordinated with the CRS.

1.0 OSC Coordinator (OSCC) **EVALUATE** the following:

___ 1.1 **DIRECT** Emergency Services to monitor the Battery Rooms for adequate ventilation and hydrogen buildup AND to ESTABLISH the appropriate contingency actions, as required.

___ 1.2 **ESTABLISH** RCS wide range pressure monitoring as follows:

___ 1.2.1 **ESTABLISH** a flowpath to PL9876, Heise Gauge at the Primary Sample Area IAW SC.CH-SA.RC-0222(Q).

___ 1.2.2 **DIRECT** personnel to monitor and report the RCS pressure to the CRS as indicated on 2PI908 at Panel 307-2 (located in Unit 1 Sampling Room, el. 110').

ATTACHMENT 14
(Page 2 of 5)

OPERATIONS SUPPORT CENTER ACTIVITY

___ 1.3 **ESTABLISH** AFWST level monitoring and control as follows:

___ 1.3.1 **MONITOR** local level at 2LL2669 on Panel 802-2 and/or 2LL3443 on Panel 379-2 (located in the AFWST area).

___ 1.3.2 **MAINTAIN** AFWST level greater than 43.1% as follows:

___ A. **OPERATE** 2DR6, DEMIN MAKEUP TO AFWST, as required IAW S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment.

OR

___ B. **ALIGN** the alternate suction path to the AFW Pump suction IAW S2.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation.

___ 1.4 **ESTABLISH** RCS Sampling as follows:

___ 1.4.1 **OPEN** the following Sampling System valves:

___ ♦ 21SS32, 21 Hot Leg Sample

___ ♦ 23SS32, 23 Hot Leg Sample

___ ♦ 2SS33, Hot Leg Sample

___ ♦ 2SS104, Hot Leg Sample

___ ♦ 2SS48, Pressurizer Liquid Sample

___ ♦ 2SS49, Pressurizer Liquid Sample

___ ♦ 2SS107, Pressurizer Liquid Sample

___ 1.4.2 **DIRECT** Chemistry Department to initiate hourly RCS and Pressurizer Boron Concentrations sampling in preparation for Cold Shutdown.

ATTACHMENT 14
(Page 3 of 5)

OPERATIONS SUPPORT CENTER ACTIVITY

___ 1.5 IF either the Relay Room or Control Room is the fire impacted area, THEN:

___ 1.5.1 **ESTABLISH** a Charging and Letdown flow path as follows,

NOTE

The position of valves listed in Step 1.5.1 will need to be determined and aligned based on plant conditions and system requirements.

___ A. **ESTABLISH** Control Air to the containment:

- **OPEN** 21CA330, 2A Control Air Header Containment IV
- **OPEN** 22CA330, 2B Control Air Header Containment IV

___ B. **VERIFY** 2CV75, Aux Spray Isolation Valve, is CLOSED.

___ C. **OPEN** 2CV77, Charging to No. 23 Cold Leg

___ D. **ESTABLISH** the CCW to supply LTDN HX flow path:

- **OPEN** 2CC30, 21 CCHX to Aux CC Hdr Stop Valve
- **OPEN** 2CC31, 22 CCHX to Aux CC Hdr Stop Valve
- **OPEN** 2CC71, Letdown Hx CCW Return Flow Control Valve

ATTACHMENT 14
(Page 4 of 5)

OPERATIONS SUPPORT CENTER ACTIVITY

1.5.1 (continued)

___ E. **ESTABLISH** a letdown flow path:

- ♦ **POSITION** 2CV21, FLOW TO VCT
- ♦ **POSITION** 2CV35, FLOW TO VCT
- ♦ **OPEN** 2CV7, Letdown HX Isolation Valve
- ♦ **THROTTLE** 2CV18, Letdown Pressure Control Valve
- ♦ **CLOSE** 2CV3, 45 GPM Orifice Isolation Valve
- ♦ **OPEN** 2CV4, 75 GPM Orifice Isolation Valve
- ♦ **CLOSE** 2CV5, 75 GPM Orifice Isolation Valve
- ♦ **OPEN** 2CV277, RCS Letdown Isolation Valve
- ♦ **OPEN** 2CV2, RCS Letdown Isolation Valve

___ F. **ALIGN** the BAST System IAW S2.OP-SO.CVC-0006(Q), Boron Concentration Control.

___ 1.5.2 **ALIGN** Auxiliary Building Ventilation and Service Water Intake Ventilation Systems IAW Attachment 11.

___ 1.5.3 **ESTABLISH** Switchgear & Penetration Area Ventilation as required.

___ 1.5.4 **ESTABLISH** CFCUs as required.

___ 1.5.5 **ALIGN** the Control Air System IAW Attachment 10.

___ 1.5.6 **DETERMINE** that adequate RWST inventory is available to support reactivity and RCS inventory control during RCS cooldown.

ATTACHMENT 14
(Page 5 of 5)

OPERATIONS SUPPORT CENTER ACTIVITY

___ 1.6 IF either Elev. 84' or 64' Switchgear Room is the fire impacted area, THEN:

NOTE

The following activities are required to be completed to support the initiation of RHR, in compliance with 10CFR Part 50 of Appendix R, such that Cold Shutdown conditions are achieved and maintained within 72 hours of the fire event.

___ 1.6.1 **ALIGN** the Service Water Test Line to Supply a Unit 2 Nuclear Header from the Unit 1 Service Water System IAW SC.OP-SO.SW-0008(Q), Service Water Test Line Cross-Connect Alignment.

CAUTION

For fires in the 64' Switchgear, 84' Switchgear, and 78' Electrical Penetration Areas, flooding of the 21 Residual Heat Removal (RHR) Pump Room may occur due to actuation of the associated Fire Protection Sprinkler System.

___ 1.6.2 **ESTABLISH** portable ventilation and an electrical power supply to the following IAW SC.MD-AB.ZZ-0001(Q), Installation of Temporary 4Kv Power Cables to CCW and RHR Pump Motors:

- 22 OR 23 CCW Pump motor
- 21 OR 22 RHR Pump motor

ATTACHMENT 15
(Page 1 of 3)

COMPLETION SIGN-OFF SHEET

1.0 **COMMENTS:**

(Include procedure deficiencies and corrective actions. Attach additional pages as necessary.)

ATTACHMENT 15
(Page 2 of 3)

COMPLETION SIGN-OFF SHEET

1.0 **COMMENTS:** (continued)

(Include procedure deficiencies and corrective actions. Attach additional pages as necessary.)

ATTACHMENT 15
(Page 3 of 3)

COMPLETION SIGN-OFF SHEET

2.0 **SIGNATURES:**

Print	Initials	Signature	Date

3.0 **SM/CRS FINAL REVIEW AND APPROVAL:**

This procedure with Attachments 1-15 is reviewed for completeness and accuracy. Entry conditions and all deficiencies, including corrective actions, are clearly recorded in the COMMENTS section.

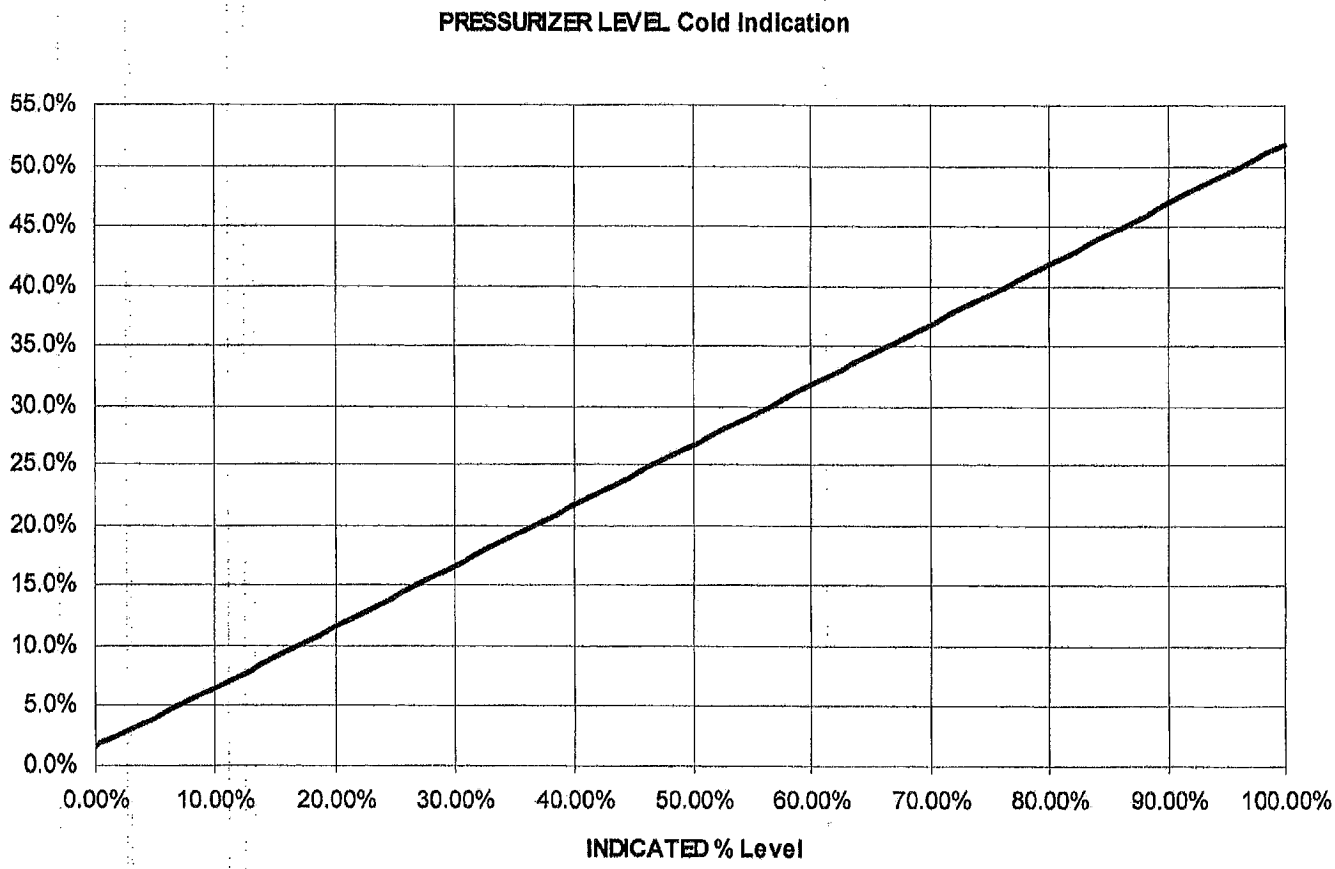
Signature: _____ Date: _____
SM/CRS

EXHIBIT 1
(Page 1 of 1)

COLD SHUTDOWN LEVEL INSTRUMENTATION INDICATION

NOTE

- Pressurizer Level Indicator LI-1649 is calibrated to accurately indicate pressurizer level at NOP/NOT conditions. The following conversion table provides an approximate correlation between ACTUAL and INDICATED pressurizer level for LI-1649 at 68 °F and 14.7 psia versus 547 °F and 2250 psia (NOP/NOT).
- When determining ACTUAL pressurizer level at a temperature of 200 °F versus 68 °F, a value of approximately 4% should be added to the ACTUAL level to compensate for less dense pressurizer fluid.



CONTROL ROOM EVACUATION DUE TO FIRE IN CONTROL ROOM, RELAY ROOM, 460/230V SWITCHGEAR ROOM, OR 4KV SWITCHGEAR ROOM

TECHNICAL BASES DOCUMENT

1.0 REFERENCES

1.1 Technical Documents

A. Salem Generating Station Updated Final Safety Analysis Report:

1. Appendix 3A, Reg Guide 1.68.2, Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water Cooled Nuclear Power Plants
2. Section 7.3.2.3, Manual Control of Engineered Safety Features
3. Section 7.4.1, Hot Shutdown Outside the Control Room
4. Section 7.4.2, Cold Shutdown Outside the Control Room
5. Section 7.7.1.2, Operating Control Stations
6. Section 7.7.3.7.1, Control Room Availability
7. Section 9.5.1.4, Safe Shutdown Capability
8. Section 9.5.1.4.4, Alternate Shutdown Capability

B. Salem Generating Station Technical Specifications Unit 2:

1. 3.3.3.5, Remote Shutdown Instrumentation
2. 3.4.4, Pressurizer
3. 6.2.2, Facility Staff
4. 6.9, Reporting Requirements

C. Configuration Baseline Documentation:

1. DE-CB.HSD-0029(Q), Hot Shutdown Panel

D. Engineering Documents:

1. Salem Generating Station Fire Protection Program Safe Shutdown and Interaction Analyses, Volumes 1 and 2, September 1981
2. DE-PS.ZZ-0001(Q)-A3-SSAR(022), Salem Fire Protection Report-Safe Shutdown Analysis, 2FA-AB-64A
3. DE-PS.ZZ-0001(Q)-A3-SSAR(024), Salem Fire Protection Report-Safe Shutdown Analysis, 2FA-AB-84A
4. DE-PS.ZZ-0001(Q)-A3-SSAR(060), Salem Fire Protection Report-Safe Shutdown Analysis, 2FA-AB-100A and 12FA-AB-122A
5. NRC Inspection Report 50-272/83-37, Remote Shutdown Capability
6. NLR-N88060, Salem Response to Notice of Violation, Remote Shutdown Capability

1.1D Engineering Documents (continued)

7. NLR-N87196, 10CFR50 Appendix R Safety Evaluation
8. Salem Generating Station Units 1 and 2 Fire Protection Program Safe Shutdown and Interaction Analysis, Supplemental Information
9. NC.DE-PS.ZZ-0001(Q), Programmatic Standard for Fire Protection
10. NRC OPEN 272/83-37-10, Appendix R Fire Protection, Diesel Generator Control Circuits
11. S-C-ABV-MEE-0508, Effect of Loss of Ventilation on Operation of Safe Shutdown Equipment as Postulated by a 10CFR50 Appendix R Fire
12. S-C-VAR-CEE-0057, Isolation Transfer Switches and Post-Fire Shutdown Capability
13. BURL-3824, Westinghouse Letter, ESF Pump Operation Without CCW, May 14,1980
14. S-C-ZZ-NEE-0839, Time Analysis of Alternate Shutdown Capability for an Appendix R Fire Scenario
15. S-C-ZZ-NDC-1315, Reactor Cooldown Time for a Postulated Appendix R Fire
16. S-C-A361-CDS-0125-00, Design Requirements for Safe Shutdown Outside the Control Room
17. S-C-X500-CDM-0416-00, Cold Shutdown from Outside the Control Room
18. S-C-A900-CFD-0401-01, Cold Shutdown from Outside the Control Room
19. Fire Related Alternate Shutdown Equipment Operating Instructions Unit No. 1, Volume 1 and 2
20. S-C-FP-FEE-1738, FP Regulatory Review of Safe Shutdown Re-Analysis
21. S-C-CBV-MEE-1979, Containment Pressure/Temperature Response with RCP Seal Leakage During Control Room Fire

E. Artificial Island Emergency Plan:

1. Section 2, Assignment of Responsibility
2. Section 3, Organization
3. Section 4, Emergency Response Support and Resources

F. Event Classification Guide:

1. Section 11, Control Room Evacuation
2. Section 14, Fire
3. Section 18, Technical Specification / Plant Status Changes

1.2 **Procedures**

- S2.OP-ST.HSD-0001(Q), Instrumentation - Remote Shutdown Panel
- S2.OP-SO.AF-0001(Q), Auxiliary Feedwater System Operation
- S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment

1.2 **Procedures** (continued)

- S2.OP-SO.RHR-0001(Q), Initiating RHR
- S2.OP-SO.RHR-0002(Q), Terminating RHR
- S2.OP-PT.AF-0001(Q), Service Water to Auxiliary Feedwater Spool Piece Installation
- S2.OP-ST.AF-0011(Q), Auxiliary Feedwater
- 2-EOP-TRIP-1, Reactor Trip or Safety Injection
- NC.EP-EP.ZZ-0202(Q), Operations Support Center (OSC) Activation and Operations
- ECG, Emergency Classification Guide
- 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
- Fire and Emergency Medical Response Manual
- S2.OP-PT.CM-0002(Q), Sound Power Phone Storage and Alternate Shutdown Equipment
- S2.RE-RA.ZZ-0012(Q), Reactor Engineering Manual
- NC.NA-AP.ZZ-0005(Q), Station Operating Practices
- S2.OP-SO.CVC-0006(Q), Boron Concentration Control
- S1.OP-SO.CVC-0023(Q), CVCS Cross-Connect Alignment to Unit 2
- SC.OP-SO.13-0001(Z), 13KV Breaker Operation
- SC.OP-SO.13-0013(Q), 3, 13, and 23 Station Power Transformers Operations
- SC.OP-SO.13-0014(Q), 4, 14, and 24 Station Power Transformers Operations
- SH.OP-DD.ZZ-0065(Z), Key Control
- SH.OP-AP.ZZ-0109(Q), Control of Revisions and Field Books
- SC.OP-SO.SW-0008(Q), Service Water Test Line Cross-Connect Alignment
- SC.MD-AB.ZZ-0001(Q), Installation of Temporary 4KV Power Cables to CCW and RHR Pump Motors
- SH.OP-AS.ZZ-0001(Z), Operations Standards
- SH.OP-AS.ZZ-0002(Z), Shift Technical Advisor Program

1.3 **Drawings**

- 204803, No. 1 & 2 Units Auxiliary Buildings El. 122' Reactor Cont. & Fuel Handling Area El 130'.
- 204804, No. 1 & 2 Units Auxiliary Buildings Reactor Cont. & Fuel Handling Area El 100'.
- 204805, No. 1 & 2 Units Auxiliary Buildings El. 84' Reactor Cont.78' & 81" Fuel Handling Area El 85' & 89'-6".
- 204806, No. 1 &2 Units Aux Bldg. & Reactor Cont. El. 64'.
- 205216, No. 1 & 2 Units Chilled Water
- 205241, No. 1 & 2 Units Diesel Engine Auxiliaries
- 205301, No. 2 Unit Reactor Coolant
- 205303, No. 2 Unit Main, Reheat & Turbine By-Pass Steam
- 205328, No. 2 Unit Chemical & Volume Control Operation

1.3 **Drawings** (continued)

- 205331, No. 2 Unit Component Cooling
- 205332, No. 2 Unit Residual Heat Removal
- 205334, No. 2 Unit Safety Injection
- 205336, No. 2 Unit Auxiliary Feedwater
- 205342, No. 2 Unit Service Water Nuclear Area
- 205343, No. 2 Unit Auxiliary Building Control Air
- 205347, No. 2 Unit React. Cont. & Penet. Area Control Air
- 205685, No. 1&2 Units - Panel 216 Controls
- 203061, No. 2 Unit 4160V Vital Buses One Line
- 203063, No. 2 Unit 460V & 230V Vital & Non Vital Bus One Line Control
- 221417, No. 2 Unit - AADC 125V DC Distribution Cabinet
- 221418, No. 2 Unit - BBDC 125V DC Distribution Cabinet
- 222475, No. 2 Unit-2A Service Water Intake 230V Vital CC One-Line
- 222476, 2B1 Service Water Intake 230V Vital Control Center One-Line
- 222477, 2B2 Service Water Intake 230V Vital Control Center One-Line
- 222478, 2C Service Water Intake 230V Vital Control Center One-Line
- 222483, 2A West Valves & Misc 230V Vital Contr. Ctr. One-Line
- 222484, 2B West Valves & Misc 230V Vital Contr. Ctr. One-Line
- 222485, 2C West Valves & Misc 230V Vital Contr. Ctr. One-Line
- 222505, 2A East Valves & Misc. 230V Vital Contr. Ctr. One-Line
- 222506, 2B East Valves & Misc. 230V Vital Contr. Ctr. One-Line
- 222507, 2C East Valves & Misc. 230V Vital Contr. Ctr. One-Line
- 223720, No. 2 Unit 125V DC One Line
- 265025, No. 1 & 2 Units 13KV Substation South One Line Control
- 265083, 13KV Substation (South) Bus Section D-E Breaker Control 125V DC
- 265088, 13KV Substation (South) Bus Section A-B Breaker Control 125V DC
- 601390, 2A-460V Vital Bus One Line
- 601391, 2B-460V Vital Bus One Line
- 601392, 2C-460V Vital Bus One Line
- 602560, Circ Water Switchgear Building 125V DC Cabinet 1CW1DC
- 602564, Circ Water Switchgear Building 125V DC Cabinet 2CW1DC
- 219456, No. 1 & 2 Units - Auxiliary Building El. 84' Hot Shutdown Station-Arrangement - Panel 213 - Controls
- 211505, No. 2 Unit-Residual Heat Removal Sys. No. 21SJ44, 21RH4 & 2RH2 Suction Isolation Valves
- 211507, No. 2 Unit-Residual Heat Removal Sys. No. 22SJ44, 22RH4 & 2RH1 Suction Isolation Valves
- 211529, No. 21 RHX CW Disch. Isol. Valve No. 21CC16
- 211530, No. 22 RHX CW Disch. Isol. Valve No. 22CC16
- 211564, 2CV140, 2CV69 Chg Dish & No. 2CV79 RCS Chg Isol VAS.
- 211566, 2CV139 Disch to SW HX & No 2CV68 Disch to RHX Isol VAS
- 211578, 2SJ1 CHG PMP Suct From RWST & 2CV116 Seal Wtr to VCT IVs
- 211580, 2SJ2 CHG PMP Suct From RWST & 2CV284 Seal Wtr to VCT IVs
- 211582, 2CV40 Volume Control Tank First Discharge Stop Valve

1.3 **Drawings** (continued)

- 211583, 2CV41 Volume Control Tank Second Discharge Stop Valve
- 211648, Boron Injection Tk Inlet & Outlet VAS 2SJ4, 2SJ12
- 211650, Boron Injection Tk Inlet & Outlet VAS 2SJ5, 2SJ13
- 218659, No. 2 Unit-Aux Building Ventilation RHR Pump Room Coolers
- 218660, No. 2 Unit-Aux Building Ventilation Charging Pump Room Coolers
- 218663, No. 2 Unit-Aux Building Ventilation Component Cooling Pump Room Coolers
- 218664, No. 2 Unit-Aux Building Ventilation Aux Feedwater Pump Room Coolers
- 218860, No. 21 Charging Pump & No. 21 Chg. Pmp. Aux. Lube Oil Pump
- 218862, No. 22 Charging Pump & No. 22 Chg. Pmp. Aux. Lube Oil Pump
- 219462, No. 2 Unit-Service Water Screen Wash Control Panel 361-2B
- 220903, 2B 230V Vital Bus Isolation Valve No. 2SW26
- 220947, 21 & 22 Service Water Vent Fan & Miscellaneous Damper Controls
- 220948, 23 & 24 Service Water Vent Fan & Miscellaneous Damper Controls
- 224375, No. 2 Unit Reactor Containment Penetration Area & Aux Bldg-RHRS & CCS Motor Operated Valves & Misc Equipment
- 228030, No. 2 Unit-Control Area A.C. Chiller Motors
- 228031, No. 2 Unit-Control Area A.C. Chilled Water Pumps
- 233650, No. 2 Unit Control Room Air Conditioning Chilled Water Panel 356
- 244083, No. 2 Unit-Pressurizer PZR Power Relief & Stop VAS & Overpress Prot. Sys. Ch I
- 244085, No. 2 Unit-Pressurizer PZR Power Relief & Stop VAS & Overpress Prot. Sys. Ch II

1.4 **Conformance Documents**

A. C0315, INCI 90-823 Prevents Backseating of MS52
B. C0356, AR M04-90-0015 Verification of MS132 Position During Surveillance
C. C0363, Ability to Access Locked Safety Related Areas
D. C0381, NRC GL 81-21, Low Cooldown Rates, Soak Requirements, and Pressurizer Level Anomalies during Natural Circulation Cooldown.

1.5 **Industry Concerns**

A. 10CFR50, Appendix R, Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979
B. NRC INFO 86-55, Delayed Access To Safety Related Areas and Equipment During Plant Emergencies
C. NRC Generic Letter 86-10, Implementation of Fire Protection Requirements
D. NRC Generic Letter 81-12, Alternative Shutdown Capability
E. NRC I&E INFO 85-09, Isolation Transfer Switches and Post Fire Shutdown Capability

1.5 **Industry Concerns** (continued)

F. NUREG 0050, Recommendations Related to Browns Ferry Fire
G. 10CFR50, Appendix A Criterion 19, Control Room
H. 10CFR50, Appendix R, Control Room Fire
I. OEP-38898, Ability to Meet 10CFR50 Appendix R III.G.3 Not Analyzed

1.6 **Other**

A. SCI-88-0092, DCR 2EC-2284, Modifications to the Diesel Fuel Oil Transfer Pump Control Circuits
B. SCI-91-0261, Alternate Shutdown Operating Instructions Emergency Equipment
C. Letter from Director of Nuclear Reactor Regulation to Salem Nuclear Generating Station, "Salem Nuclear Generating Station No. 1 and 2 Units, Compliance With 10CFR50 Appendix R", March 19, 1981
D. SCI-91-0286, 10CFR50 Appendix R Procedure Revisions - Loss of Ventilation
E. NRC Inspection Report 50-311/87-29, Inspection Conducted to Assess the Salem Unit 2 Ability for Safe Shutdown in the Event of a Fire
F. NRC Inspection Report 50-272/83-37, Inspection for 10CFR50 Appendix R Compliance
G. DCP 2EC-3396, 10CFR50 Appendix R Alternate Shutdown Methodology-Installation of Transfer Switches
H. DCP 2EC-3401/2/3, Unit 2 2A/2B/2C Fuel Oil Day Tank Setpoint Change
I. LER 84-014-00, Unit 1 Vital Bus Blackout Actuation.
J. LER 86-09-00, 2B Diesel Generator Trip on High Jacket Water Temperature.
K. DCP 2EE-0147, 2CV55 Control Valve Assembly Replacement
L. DCP 2EC-3546, 10CFR50 Appendix R Alternate Shutdown Methodology - Installation of Transfer Switched and Valve Torque Switch Re-Wiring
M. LER 272/99-009-00, Pressurizer PORV and Block Valves Do Not Meet the Requirements of 10CFR50 Appendix R
N. OEP Plant Event #37358, Plant Outside 10CFR Part 50 Appendix R Design Basis Due to Procedural Issues-1
O. DCP 80030170, Hot Shutdown Panel Cross-tie.
P. DCPs 80029150 and 80029155, CVCS Cross-tie
Q. S&L Conceptual Design, Appendix R Cold Shutdown Contingency - Electrical, S&L Project No. 1150-093, Rev. 2, Dated 3/5/02
R. DCP 80029403, Appendix R - Cold Shutdown Contingencies
S. DCP 80065299, Restoration of PDP to Normal Operation
T. Westinghouse Technical Bulletin TB-04-22, Reactor Coolant Pump Seal Performance - Appendix R Compliance and Loss of All Seal Cooling
U. NRC Information Notice 2005-14, Fire Protection Findings on Loss of Seal Cooling to Westinghouse Reactor Coolant Pumps

2.0 DISCUSSION

This procedure provides the direction necessary to achieve and maintain Hot Standby and cooldown to Cold Shutdown from outside the Control Room within 72 hours. 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.

NOTE

Changes to this procedure must be reviewed IAW NC.DE-PS.ZZ-0001(Q), Programmatic Standards for Fire Protection, by the Design Engineering Group having programmatic responsibility for "Appendix R".

The scenario specifically addressed by this procedure is the "Appendix R Fire". This scenario imposes certain restrictions on the Operator, including the following:

- Safe Shutdown equipment circuitry may be exposed to grounds, opens and/or hot shorts, making complete isolation from the Control Room mandatory.
- Non-Safety related associated circuits can sustain fire damage that can affect safe shutdown circuits.
- One train of systems and components used to achieve and maintain Hot Standby and Cold Shutdown conditions must be free of fire damage and capable to maintain such conditions for the duration of the Hot Standby condition.
- The credited Operator action before Control Room evacuation due to the fire event in the Control Room, Relay Room, or 460/230V Switchgear Room is the Reactor Trip.
- The credited Operator actions before Control Room evacuation due to the fire event in the 4Kv Switchgear Room are the Reactor Trip and isolation of the 4Kv Vital Buses from Off-Site Power.
- The above conditions must be satisfied with the normal minimum shift manning.
- The Licensee must have the capability to initiate actions to place the unit in Cold Shutdown conditions within 72 hours and maintain Cold Shutdown thereafter.

Salem Generating Station performed a detailed Safe Shutdown and Interaction Analysis in accordance with NRC Guidelines. The identification of safe shutdown systems was accomplished using the following assumptions and conditions:

- The postulated fire, with a possible loss of off-site power, is a single event. No other accidents or failures (e.g., struck rods, etc.) other than those induced by the fire shall be considered.

2.0 **DISCUSSION** (continued)

- Safe shutdown shall only be examined for the Reactor portion of the plant and associated functions. Equipment needed only for the power production portion of the plant are considered lost.
- The capability to safely shutdown the Reactor is required for a fire event.
- The following systems were identified as those required to achieve safe shutdown:
  - Component Cooling (CC)
  - Service Water (SW)
  - Chilled Water (CH)
  - Auxiliary Feedwater (AF)
  - Safety Injection (SI)
  - Chemical and Volume Control (CV)
  - Containment Ventilation (Fan Coolers)
  - Diesel Generators - Electrical Power Distribution
  - Control Air (Emergency and Station Blackout Air Compressors)
  - Residual Heat Removal (RHR)
  - Reactor Coolant
  - Pressurizer
  - Main Steam
  - Steam Generators
  - Reactor Coolant Sampling
  - Instrumentation:
    - Steam Generator Level and Pressure
    - Pressurizer Level and Pressure
    - Reactor Coolant System Temperature
    - Various local indicators.

Engineering Analysis S-C-ZZ-NEE-0839, Time Analysis of Alternate Shutdown Capability for an Appendix R Fire Scenario, has determined that Hot Standby is achieved and maintained within two hours.

PROCEDURE PHILOSOPHY

This procedure is developed by a three-fold method. First; complete the immediate actions IAW section 2.0 of the procedure and assemble at the Appendix R Locker, Unit 2 Turbine Building, 120' Elevation (the quickest access point within the immediate vicinity of the Control Area and outside the Control Area fire zone). Second; achieve and maintain Hot Standby from the Alternate Shutdown Stations. Third; achieve and maintain Cold Shutdown.

In accordance with the guidance provided in the response to Question 3.8.4 of NRC Generic Letter 86-10, A reactor trip is the only manual action usually credited in the control room, prior to evacuation. However, for a fire event in the elev. 64' 4Kv Switchgear Room, an additional control room action is deemed necessary prior to evacuation. A demonstration of the capability of performing such actions and assurance that such actions could not be negated by subsequent spurious actuation signals resulting from the postulated fire is provided in the Salem Fire Protection Report - Safe Shutdown Manual Action Feasibility Assessment. No other actions can be relied upon even though every attempt should be made. The philosophy is that every cable which passes through the fire zone, and equipment or any component that is located within the fire zone, is considered lost or unreliable. Unreliable can be exemplified in that a logic circuit could initiate and a spurious operation or hot short could reverse the logic initiation and thus invalidate it. Therefore, even though attempts are made from the Control Room prior to evacuation, all actions must be validated with manual actions to place equipment in a position that cannot be reversed (with exception as previously discussed).

The plan or method of achieving and maintaining Hot Standby is also three-fold. First; When the fire impacted area is the 64' or 84' Switchgear Room, establish RCP seal flow to eliminate the possibility of a LOCA as a result of a loss of Component Cooling and Charging. When the Relay Room or Control Room is the fire impacted area, RCP seal injection and CCW thermal barrier flows are isolated to prevent thermal shock of the seals which could potentially result in elevated seal leakages as indicated in Westinghouse Technical Bulletin TB-04-22. Isolating seal injection and thermal barrier flows limits seal leakages. This RCP seal isolation strategy addresses concerns identified in NRC Information Notice 2005-14, and is consistent with the RCP seal isolation strategy delineated in EOP-LOPA-1. Second; isolate the RCS for positive RCS inventory control. Third; isolate the Steam Generators and initiate AFW for positive decay heat removal. This methodology is accomplished through the distribution of attachments to each Supervisor/Operator to proceed and perform these actions. There are stop points in the attachments for coordination purposes.

AC power may be provided by either off-site power being available or emergency diesel generators when the fire impacted area is either the relay room or main control room. However, when the fire impacted area is either the 460/230V switchgear room or the 4Kv switchgear room, significant electrical equipment damage is postulated. Therefore, both off-site and on-site emergency diesel power cannot be relied upon due to the potential fire damage to the switchgear and cabling. The Steam Driven AFW Pump, CVCS/BAST System cross-connection, and Hot Shutdown Panel electrical cross-connection are relied upon to achieve and maintain HSB conditions. To achieve and maintain CSD conditions:

- The Service Water System Test Line cross-connect capability is provided from Unit 1 SWI Bay #1 or #3.
- AC power cross-connect capability is provided from Unit 1 4Kv switchgear to a CCW Pump and an RHR Pump.

Gaining control of the RCS involves closing PORV Block valves, tripping RCPs for natural circulation, and establish charging and letdown to achieve and maintain Hot Standby.

In order to isolate the Steam Generators, all steam piping must be addressed. Therefore not only are the MSIVs addressed, but also MS10s and MS18s. Even though MS10s will be utilized at a later time frame, the procedure provides directions to obtain initial control and then later utilizes MS10s in a controllable manner. Also, part of the Steam Generators control is obviously establishing the AFW System.

The Immediate Actions are: Trip the reactor for a fire event in any of the designated areas, provide notification to field personnel for their response, and evacuation of Unit 2 Control Room personnel.

The Subsequent Actions include the isolation of all the 4Kv Vital Buses from Off-Site power only for a fire event in the 4Kv Switchgear Room. The following provides the reasoning of the action steps in each of the Attachments:

ATTACHMENT 1 (Shift Manager)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 ensures the Unit 2 Security Key Ring (containing seven Security Keys) is distributed to the Unit 2 CRS.

Step 3 provides for establishing a briefing with the CRS and STA on plant status and location of the fire. This information is, in turn, communicated to the safe shutdown personnel while the SM makes notifications.

Step 4 directs Security to provide access to the TSC for on-coming support personnel. Notification of the situation and that security doors could be breached by operations personnel is also provided.

Step 5 provides direction to proceed to the Operations Support Center (OSC) within the Control Room Area, where only Unit 2 safe shutdown from the control room console is impacted due to fire damage. In the postulated fire events where the fire damage is external to the control room envelope, Unit 1 and the area within the Control Room Envelope is available.

Step 6 provides direction to proceed to the Technical Support Center (TSC), should both Units be in a simultaneous Alternate Shutdown due to Control Room habitability or fire damage.

Steps 7 and 8 notifies:

- Radiation Protection of the situation and that operations personnel may be ingress\regressing contaminated areas without monitoring since power may not be available for the respective monitoring equipment.
- Electric System Operator (ESO) of the plant conditions.

Step 9 identifies that the SM is required to assume the duties of Emergency Coordinator (EC), as required by the Emergency Plan during a fire event. The prompt implementation of the Event Classification Guide (ECG) provides the means to activate support personnel that are necessary for achieving and maintaining cold shutdown conditions.

Step 10 identifies that the SM resumes the overall command and control function upon relief by the Emergency Duty Officer (EDO), who assumes the EC duties.

ATTACHMENT 2 (Shift Technical Advisor)

Step 1 provides for obtaining the necessary materials to oversee safe shutdown functions from outside the control room area.

Step 2 provides direction to ensure the shift personnel are briefed on plant status and fire location.

Step 3 provides direction to ensure that each crew member is available and has the correct section of the procedure.

Step 4 provides direction to assign any available personnel that are not part of the safe shutdown crew to report to the TSC/OSC for ECG implementation.

Step 5 provides direction to proceed to the Technical Support Center (TSC), should both Units be in a simultaneous Alternate Shutdown due to Control Room habitability or fire damage.

Step 6 provides direction to proceed to the Operations Support Center (OSC) within the Control Room Area, where only Unit 2 safe shutdown from the control room console is impacted due to fire damage. In the postulated fire events where the fire damage is external to the control room envelope, Unit 1 and the area within the Control Room Envelope is available.

Step 7 is to ensure that communications are established with the CRS as the focal point for communications and coordination of plant activities. This also ensures communication continuity with each responder.

ATTACHMENT 2 (STA) (continued)

Step 8 directs the implementation of Attachment 13 for tracking the progress and status of the actions being simultaneously performed by the various personnel dispatched into the remote shutdown locations of the unit. Upon completion of certain steps by each field Operator, control of hot standby conditions is achieved and maintained.

Step 9 informs the SM when Shutdown System control is established, (when he has control of the systems required to shutdown the plant) and provides information for the Emergency Coordinator in classification of the event.

Step 10 identifies that the STA resumes safe shutdown oversight responsibilities with the SM.

ATTACHMENT 3 (Control Room Supervisor)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 ensures the Security Keys on the Unit 2 Security Key Ring (containing the remaining six Security Keys) are distributed to the RO, PO, #1 NEO, #2 NEO, #3 NEO and SMT.

Step 3 provides direction to record the location of the fire impacted area.

Step 4 provides for briefing the shift personnel on plant status and location of the fire.

Step 5 directs the Control Room Supervisor to proceed to the Hot Shutdown Panel area.

Note prior to Step 6 is provided to (1) ensure continuity between the EDG Operator (RO), #3 NEO, and the Shift Maintenance Technician. The diesels may be running without cooling water due to fire induced spurious valve actuation, obstructing flow to the diesels that would warrant the EDG Operator (RO) to trip the diesels. Once the Shift Maintenance Technician and #3 NEO have completed the breaker/switch alignments, the valves are in the required positions for the diesels to be started. (2) Identify where guidance is available for manual component operation.

Step 6 directs the implementation of Attachment 13 for tracking the progress and status of the actions being simultaneously performed by the various personnel dispatched into the remote shutdown locations of the unit. Upon completion of certain steps by each field Operator, control of hot standby conditions is achieved and maintained.

Step 7 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve and maintain Hot Standby.

ATTACHMENT 3 (CRS) (continued)

Step 8 provides specific direction for a fire event in either of the Electrical Switchgear Rooms (Elevation 84' or 64').

- Steps 8.1 and 8.2 ensure that RCP seal cooling flow and RCS inventory control are maintained, and RCS boration capability is established by notifying the Unit 1 Control Room to align the CVCS/BAST Cross-Connect Systems. Fire damage in either of these areas potentially impacts on-site and off-site power sources and could cause multiple spurious component operations. Off-Site electrical sources are being de-energized by #1 NEO whereby positive control of the plant to achieve and maintain Hot Standby conditions is being established.

- Step 8.3 provides guidance to direct the EDG Operator (RO) to trip all the EDGs and the 4Kv Vital Bus Switchgear Operator (#1 NEO) to open the three infeed breakers on each vital bus upon completion of the CVCS Cross-Connect alignment and notification that the ASTP-2 is aligned to the Unit 1 ASDS Inverter Power Supply.

- At this point, Unit 2 Switchgear is not reliable due to the potential for fire damage. These actions are not applicable to fire events in the Relay Room or Control Room because the fire damage is limited whereby the Unit 2 components are capable of being powered from the switchgear by the Unit 2 Emergency Diesel Generators or Off-site power supplies.

Step 9 provides direction when the Relay Room or Control Room is the fire impacted area. This step starts ALL available CFCUs in SLOW SPEED to provide containment heat removal capability for postulated RCP seal leakages as delineated in S-C-CBV-MEE-1979. Available CFCUs should be started in SLOW SPEED IAW S2.OP-SO.HSD-0001(Q). When the Relay Room or Control Room is the fire impacted area, RCP seal injection and CCW thermal barrier flows are isolated to prevent thermal shock of the seals which potentially result in elevated seal leakages as indicated in Westinghouse Technical Bulletin TB-04-22. Isolating seal injection and thermal barrier flows limits seal leakages. The RCP seal isolation strategy addresses concerns identified in NRC Information Notice 2005-14, and is consistent with the RCP seal isolation strategy delineated in EOP-LOPA-1.

Step 10 provides guidance on the available parameters that are required to be established for achieving and maintaining Hot Standby conditions. This step can be accomplished with specific Operators that are at various positions in the plant, as identified in the Safe Shutdown Overview Matrix provided at the end of this Technical Bases section.

ATTACHMENT 3 (CRS) (continued)

Step 11 establishes that Hot Standby conditions should be achieved at this point.

NOTE prior to Step 12 is informational in that additional resources of manpower and expertise are available in the performance of the remaining steps of this procedure. S2.OP-SO.HSD-0001(Q), Fire Related Alternate Shutdown Equipment, provides the necessary details for operation of various equipment that may be necessary for Cold Shutdown.

Steps 12 and 13 are preparatory for going to cold shutdown. They provide the guidance for:

- Establishing sampling to ensure shutdown margin; establishes RCS pressure indication and monitoring in preparation for commencing cooldown to cold shutdown conditions by installing a local Heise gauge in the sampling room, since Pressurizer Pressure indicator PI-1648 low range is 1700 psig;

- Establishing AFWST level monitoring for makeup requirements and provide the contingency for alignment to an alternate water source should adequate makeup capacity be unavailable;

- Establishing contingency actions upon the loss of Battery Room ventilation.

If either Switchgear Room is the fire impacted area, the following activities are required to be completed to support the initiation of RHR, in compliance with Appendix R to 10CFR Part 50 Section III.G.3, such that Cold Shutdown conditions are achieved and maintained within 72 hours of the fire event:

- Establish the Service Water Test Line Cross-Connect Alignment from Unit 1.
- Establish portable ventilation components from a Salem Unit 1 power source to circulate an air supply prior to energizing a CCW Pump or RHR Pump motor.
- Establish an electrical power alignment from a selected Unit 1 4Kv switchgear to a CCW Pump motor and/or an RHR Pump motor.
- Evaluate containment elevation 78' for flooding due to the potential for spurious opening of 21 and/or 22SJ44 (as discussed in Attachment 9, Steps 34 through 42).

ATTACHMENT 3 (CRS) (continued)

If either the Relay Room or the Main Control Room is the fire impacted area, the following activities are addressed:

- Maintaining the Control Air System support function.
- Establishing ventilation system electrical alignments for the vital pump room coolers and service water bays to support the potential return of electrical power and service water cooling.
- Establishing letdown and charging and the pneumatics that may be lost due to the spurious closure of the 21/22CA330 valves (Control Air Header Containment Isolation Valves).
- Option to transfer from the RWST to the BAST for a boration source.
- Alignment of the SPAV System components and CFCU components.

Steps 14 through 26 parallel existing procedures to achieve and maintain cold shutdown.

ATTACHMENT 4 (Reactor Operator)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

Step 3 determines whether the fire impacted area is either of the electrical switchgear rooms, or the main control room and relay room areas.

Step 4 directs the Reactor Operator to proceed to the Charging Pump area within the elevation 84' Auxiliary Building when the fire impacted area is either the Main Control Room or the Relay Room.

Step 5 directs the Reactor Operator to close the PDP Cross Tie Valve, to prevent flow since a hot short could open the motor operated isolation valve, diverting RCS inventory to Unit 1.

Step 6 directs the Reactor Operator to proceed to the Seal Water Injection Filter Area in the 84' Auxiliary Building.

Step 7 directs the Reactor Operator to ensure the Seal Water Injection Inlet and Bypass Valves closed. For fires in the Relay Room or Control Room RCP Seal Injection and RCP Thermal Barrier flow is isolated following evacuation of the Control Room. In lieu of providing RCP Seal Injection, the normal charging header via CV55 and CV73 is aligned for RCS inventory control. RCP Seal Injection and RCP Thermal Barrier flows are isolated to ensure thermal shock of the RCP seals is prevented in the event seal injection and CCW flow to the thermal barrier cannot be restored within the prescribed time interval. Isolating seal injection and RCP thermal barrier flow addresses concerns identified in NRC Information Notice 2005-14, and is consistent with the RCP seal isolation strategy delineated in EOP-LOPA-1.

ATTACHMENT 4 (RO) (continued)

Step 8 directs the Reactor Operator to proceed to the EDG Fuel Oil Storage Tank area within the elevation 84' Auxiliary Building when the fire impacted area is either the Main Control Room or the Relay Room.

Step 9 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby conditions.

Step 10 reports the position of EDG lube oil and jacket water cooler isolation valves (21&22SW21) to the CRS. This information will aid the CRS and EDG Operator (RO) in determining if **one** of these valves needs to be throttled open prior to the 230V breaker soon to be placed into the EMERG position by the Shift Maintenance Technician. Only one valve is necessary to supply all three diesels with adequate service water cooling.

Step 11 directs the Reactor Operator to proceed to the 2C EDG area where control of the EDGs and vital switchgear will be established by coordination with the 4Kv Vital Switchgear Operator (#1 NEO) and the CRS. The 2C EDG is selected first because of a Centrifugal Charging Pump, a CCW Pump, and 24SW20 valve availability. Additionally, 2C Vital Bus is the dedicated power supply for Alternate Shutdown components.

The note prior to Step 12 provides information that positioning of the FIRE EMERGENCY BY-PASS switches removes the SEC associated trip lockouts and thus all normal trip functions are restored. In particular, the 2C EDG could trip without service water flow available.

Step 12 positions the FIRE EMERGENCY BY-PASS switches in order to bypass all control room functions and thus defeat any spurious or erroneous signals.

Step 13 determines whether off-site power or the 2C EDG is providing power to the 2C 4Kv switchgear.

Steps 14 and 15 are applicable where the 2C EDG is providing power to the 2C 4Kv bus. This step removes all loads, with the exception of the 460/230V Transformers, and opens the 2C EDG output breaker in preparation for stopping 2C EDG and establishing positive control of the EDG control circuitry. Step 16 determines whether the 2C EDG is actually running.

Step 17 is applicable where the 2C EDG is determined to be running and directs that 2C EDG is to be stopped in preparation for aligning the 125V DC control circuitry.

Steps 18 and 19 align 2C EDG control circuitry for establishing positive control of the EDG. DC control power for 2C EDG is transferred from the "Normal" source to the "Alternate" source. Even though the source of the DC control power is the same (2C 125V DC Bus), there is some "Normal" controls cabling which is routed through the fire zone that must be isolated because it is subject to fire damage.

ATTACHMENT 4 (RO) (continued)

Steps 20 and 21 verify control circuitry availability by local indication. Indications ensure that any trip(s) that may have occurred as a result of the fire or transfer of control power are reset.

Step 22 determines whether off-site power is providing power or if the 2C EDG is required to provide power to the 2C 4Kv vital switchgear.

Steps 23 through 34 are applicable where 2C EDG is required to provide power to the 2C 4Kv vital switchgear. [The Caution prior to Step 23 is an explanation of incident (LER 84-014-00, Unit 1 Vital Bus Blackout Actuation) where the 1C Diesel was run, unloaded for thirty minutes with out service water and no damage was detected. Also explanation of incident (LER 86-09-00) when 2B Diesel tripped on high jacket temperature in some semi-loaded condition, after 5 minutes of operation with no SW.] The 2C EDG is started and loading is coordinated with the 4Kv Vital Bus Switchgear Operator (#1 NEO) and the CRS. The EDG output breaker is manually closed and the 460/230V transformers are energized. The 4Kv Vital Bus Switchgear Operator (#1 NEO) immediately manually closes the 26 Service Water Pump breaker to provide cooling for the 2C EDG. Additionally, the switching is aligned at the SW Intake structure. After the diesel is started and the EDG output breaker closed (the 460/230V breaker on 2C 4Kv Vital Bus is already closed), the 24SW20 valve is positioned to EMERG OPEN. Once the 2C EDG is stable, the 4Kv Vital Bus Switchgear Operator (#1 NEO) is instructed to manually close the breakers for 22 Charging Pump and 23 Component Cooling Pump. Otherwise, the Operator is directed to proceed to 2A EDG.

Step 35 directs the Reactor Operator to proceed to the 2A EDG area where control of the EDGs and vital switchgear will be established by coordination with the 4Kv Vital Switchgear Operator (#1 NEO) and the CRS. The 2A EDG is selected as second to establish flow to both SW headers and open 22SW20 via the 2A 230V Transformer.

The note prior to Step 36 provides information that positioning of the FIRE EMERGENCY BY-PASS switches removes the SEC associated trip lockouts and thus all normal trip functions are restored.

Step 36 positions the FIRE EMERGENCY BY-PASS switches in order to bypass all control room functions and thus defeat any spurious or erroneous signals.

Steps 37 determines whether off-site power or the 2A EDG is providing power to the 2A 4Kv switchgear.

Steps 38 and 39 are applicable where the 2A EDG is providing power to the 2A 4Kv bus. This step removes all loads, with the exception of the 460/230V Transformers, and opens the 2A EDG output breaker in preparation for stopping 2A EDG and establishing positive control of the EDG control circuitry.

ATTACHMENT 4 (RO) (continued)

Step 40 determines whether the 2A EDG is actually running.

Step 41 is applicable where the 2A EDG is determined to be running and directs that 2A EDG is to be stopped in preparation for aligning the 125V DC control circuitry.

Steps 42 and 43 align 2A EDG control circuitry for establishing positive control of the EDG. DC control power for 2A EDG is transferred from the "Normal" source to the "Alternate" source. The "Normal" controls cabling is routed through the fire zone and must be isolated because it is subject to fire damage.

Steps 44 and 45 verify control circuitry availability by local indication. Indications ensure that any trip(s) that may have occurred as a result of the fire or transfer of control power are reset.

Step 46 determines whether off-site power is providing power or the 2A EDG is required to provide power to the 2A 4Kv vital switchgear.

Steps 47 through 50 are applicable where 2A EDG is required to provide power to the 2A 4Kv vital switchgear. The 2A EDG is started and loading is coordinated with the 4Kv Vital Bus Switchgear Operator (#1 NEO) and the CRS. The EDG output breaker is manually closed and the 460/230V transformers are energized. The 4Kv Vital Bus Switchgear Operator (#1 NEO) immediately manually closes the 21 Service Water Pump breaker to provide cooling for the 2A EDG and manually closes the breaker for 21 Component Cooling Pump. Additionally, the switching is aligned at the SW Intake structure. The 22SW20 valve is positioned to EMERG OPEN. Otherwise, the Operator is directed to proceed to 2B EDG.

Step 51 directs the Reactor Operator to proceed to the 2B EDG area where control of the EDGs and vital switchgear will be established by coordination with the 4Kv Vital Switchgear Operator (#1 NEO) and the CRS.

The note prior to Step 52 provides information that positioning of the FIRE EMERGENCY BY-PASS switches removes the SEC associated trip lockouts and thus all normal trip functions are restored.

Step 52 positions the FIRE EMERGENCY BY-PASS switches in order to bypass all control room functions and thus defeat any spurious or erroneous signals.

Steps 53 determines whether off-site power or the 2B EDG is providing power to the 2B 4Kv switchgear.

Steps 54 and 55 are applicable where the 2B EDG is providing power to the 2B 4Kv bus. These steps remove all loads, with the exception of the 460/230V Transformers, and opens the 2B EDG output breaker in preparation for stopping 2B EDG and establishing positive control of the EDG control circuitry.

ATTACHMENT 4 (RO) (continued)

Step 56 determines whether the 2B EDG is actually running.

Step 57 is applicable where the 2B EDG is determined to be running and directs that 2B EDG is to be stopped in preparation for aligning the 125V DC control circuitry.

Steps 58 and 59 align 2B EDG control circuitry for establishing positive control of the EDG. DC control power for 2B EDG is transferred from the "Normal" source to the "Alternate" source. The "Normal" controls cabling is routed through the fire zone and must be isolated because it is subject to fire damage.

Steps 60 and 61 verify control circuitry availability by local indication. Indications ensure that any trip(s) that may have occurred as a result of the fire or transfer of control power are reset.

Step 62 determines whether off-site power is providing power or the 2B EDG is required to provide power to the 2B 4Kv vital switchgear.

Steps 63 through 66 are applicable where 2B EDG is required to provide power to the 2B 4Kv vital switchgear. The 2B EDG is started and loading is coordinated with the 4Kv Vital Bus Switchgear Operator (#1 NEO) and the CRS. The EDG output breaker is manually closed and the 460/230V transformers are energized. The 4Kv Vital Bus Switchgear Operator (#1 NEO) immediately manually closes the 24 Service Water Pump breaker to provide cooling for the 2B EDG and manually closes the breaker for 22 Component Cooling Pump. Additionally, the switching is already aligned at the SW Intake structure to EMERG CLOSE the 2SW26 valve.

Step 67 establishes that Hot Standby conditions should be achieved at this point and provides for notification to the CRS to coordinate plant configuration.

Step 68 determines if continued Operator coverage is required for any running EDGs.

Step 69 is applicable where any EDG is determined to be running. Any operating EDG requires implementation of the associated EDG operating procedure so that vital parameters are monitored and detailed directions are provided for continued EDG availability. Controlled copies of these procedures are maintained locally for implementation.

Step 70 provides direction to monitor the EDG Fuel Oil Day Tanks for adequate level and guidance is provided on EMERGENCY operation of a Fuel Oil Transfer Pump.

Step 71 provides direction to proceed to the Hot Shutdown Panel when properly relieved.

Step 72 directs the Reactor Operator to proceed to the Charging Pump area within the elevation 84' Auxiliary Building when the fire impacted area is 84' Switchgear to close the PDP Cross Tie Valve closed, to prevent flow since the hot short could open the motor operated isolation valve, diverting RCS inventory from Unit 1.

ATTACHMENT 4 (RO) (continued)

Steps 73 through 76 are applicable only when either elev. 64' or 84' Vital Bus Switchgear Room is the fire impacted area. Instead of proceeding to the DFOST area first, the RO is directed to proceed to the EDG area and mechanically TRIP all three EDGs upon direction from the CRS. These actions ensure positive control of the electrical distribution system for achieving and maintaining hot standby conditions. Postulated switchgear room fires potentially create complex scenarios where components fail to actuate or spuriously actuate. The post-fire safe shutdown strategy for switchgear room fires is to stabilize and maintain the plant in Hot Standby without reliance on electrical power from the fire affected unit. This strategy is achieved by utilizing the Turbine Driven AFW Pump, CVCS Cross-Connect System, Hot Shutdown Panel Electrical Cross-Connect (ASTP), and manual valve operations. The SW System "Test Line" can be aligned from Unit 1 to provide SW System support for the CCW System and electrical jumper repairs from Unit 1 can restore power to a CCW Pump and RHR Pump for achieving and maintaining Cold Shutdown conditions.

Step 77 provides direction to proceed to the Hot Shutdown Panel when all EDGs are either not required to be running or are tripped.

ATTACHMENT 5 (Plant Operator)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

Step 3 directs the Plant Operator to proceed to the Hot Shutdown Panel area.

Step 4 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby.

Step 5 determines whether the fire impacted area is either of the electrical switchgear rooms, or the main control room and relay room areas.

Steps 6 through 10 provide specific direction for a fire event in either the main control room or the relay room areas that ensures service water is aligned to the centrifugal charging pump lube oil coolers, the charging pump discharge flow control valve (2CV55) is aligned to maintain at least 40 gpm of normal charging flow for RCS inventory control, and power for the UHF/VHF Repeater is transferred to ensure that communications are available. The Note section provides information of equipment that is available at the charging station.

Step 11 recognizes that the following steps are not applicable and provides direction to the next applicable step.

ATTACHMENT 5 (PO) (continued)

Step 12 provides specific direction for a fire event in either of the Electrical Switchgear Rooms (Elevation 84' or 64') to align the HSD Panel 213-2 to the Unit 1 ASDS Inverter power supply via the No. 2 UNIT AUX SHUTDOWN TRANSF PNL, ASTP-2 and to notify the CRS upon completion so that any EDGs that are aligned to the energized switchgear may be tripped.

Step 13 determines whether actions are required for low AFW flow or high AFW flow.

Step 14 is entered for high AFW flow rate where the Turbine-driven AFW Pump is set to minimum speed until control of the 21-24AF11 valves is obtained. The Steam-driven AFW Pump is selected to maintain decay heat removal. The electric driven pumps are running and will eventually be stopped by the 4Kv Switchgear Operator (#1 NEO).

Steps 15 through 18 remove the control air supply to operate the 21-24AF11 valves and provide manual local operation of the valves. (Removing the air supply eliminates any possible erroneous signals to the AF11s.) Then, the handwheels are unlocked to place the valves in closed position; thus eliminating feedwater excursion upon starting 23 AFW Pump.

Step 19 removes the air supplies to the 23 AFW Pump inlet steam supply valve (2MS132) and the governor control valve (2MS53) that fails these valves to the open position to supply steam to the 23 AFW Pump Turbine.

Step 20 adjusts the speed of the 23 AFW Pump turbine to maintain discharge pressure.

Step 21 establishes manual control of the steam generator levels.

Step 22 recognizes that the following steps are not applicable and provides direction to the next applicable step.

Step 23 is entered from Step 13 for low AFW flow rate where the Turbine-driven AFW Pump is set to maximum speed until control of the 21-24AF11 valves is obtained. The Steam-driven AFW Pump is selected to maintain decay heat removal since the electric driven pumps either did not start due to fire damaged cabling or the 4Kv Switchgear Operator (#1 NEO) has stopped the pumps. The air supplies are isolated to the 23 AFW Pump inlet steam supply valve (2MS132) and the governor control valve (2MS53) that fails these valves to the open position to supply steam to the 23 AFW Pump Turbine.

Step 24 adjusts the speed of the 23 AFW Pump turbine to maintain discharge pressure.

Steps 25 through 28 remove the control air supply to operate the 21-24AF11 valves and provide manual local operation of the valves. (Removing the air supply eliminates any possible erroneous signals to the AF11s.) Then, the handwheels are unlocked to place the valves in closed position; thus eliminating feedwater excursion upon starting 23 AFW Pump.

ATTACHMENT 5 (PO) (continued)

Step 29 establishes manual control of the steam generator levels.

Step 30 transfers power for Neutron Monitoring Indication to validate the reactor trip and maintain reactivity monitoring capability.

Step 31 establishes confirmation of the Reactor Trip and neutron flux monitoring capability.

Step 32 provides direction to align Service Water to 21 CCHX when the fire impacted area is either the control room or relay room. This ensures the component cooling system support function is available for the centrifugal charging pumps.

Step 33 provides guidance on the available parameters that are required to be established for achieving and maintaining Hot Standby conditions. This step can be accomplished with specific Operators that are at various positions in the plant, within limitations.

Step 34 establishes that Hot Standby conditions should be achieved at this point and provides for notification to the CRS to coordinate plant configuration.

ATTACHMENT 6 (#1 Nuclear Equipment Operator)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

Step 3 determines whether the fire impacted area is either of the electrical switchgear rooms, or the main control room and relay room areas. (Main control room and relay room area fires require Step 8 to be implemented.)

Step 4 determines whether the fire impacted area is the 460/230V Electrical Switchgear Room or the 4Kv Switchgear Room. (A 4Kv Electrical Switchgear Room fire requires Step 126 to be implemented.)

Steps 5, 6, and 7 direct the Operator to proceed to the Relay Room (when the fire impacted area is the 460/230V Switchgear Room) and de-energize specific circuitry at the 2AADC, 2BBDC, and 2CCDC 125V DC Distribution Cabinets. De-energizing this circuitry eliminates the potential for fire induced hot shorts to cause spurious component operation (i.e.: 2MS52) and ensures that high-low pressure interface valves are closed (i.e.: 2CV2, 2CV131, 2CV277, 2CV278, and 2RC40-43). The 21-24GB4 valve cabling is also susceptible to fire induced short and therefore are required to be maintained closed for achieving and maintaining hot standby. Additionally; test line valves 2SJ123, 2SJ60, 21-24SJ58, and 21-22SJ50 are susceptible to fire induced short that could result in an RCS inventory loss path when the RHR System is aligned to the RCS, and therefore are required to be maintained closed for achieving and maintaining cold shutdown.

ATTACHMENT 6 (#1 NEO) (continued)

Steps 8 and 10 direct the Operator to proceed to the 460/230V Vital Bus Switchgear Room (when the fire impacted area is either the Control Room or Relay Room) and de-energize the 2AADC, 2BBDC, and 2CCDC 125V DC Distribution Cabinets from the respective 2A, 2B, and 2C 125V DC Buses. Step 9 trips 23 Charging Pump, if it was running, and prevents any possible spurious starts, by tripping dc control power. The PDP pump is not the pump of choice since there is no local speed control (Circuitry may have been compromised) and thus loss of flow control.
Step 10, de-energizing these cabinets eliminates the potential for fire induced hot shorts to cause spurious component operation (i.e.: 2MS52) and ensures that high-low pressure interface valves are closed (i.e.: 2CV2, 2CV131, 2CV277, 2CV278, and 2RC40-43).
The 21-24GB4 valve cabling is also susceptible to fire induced short and therefore are required to be maintained closed for achieving and maintaining hot standby. Additionally; test line valves 2SJ123, 2SJ60, 21-24SJ58, and 21-22SJ50 are susceptible to fire induced short that could result in an RCS inventory loss path when the RHR System is aligned to the RCS, and therefore are required to be maintained closed for achieving and maintaining cold shutdown.

Step 11 directs the Operator to proceed to the 4Kv Vital Bus Switchgear Room when the fire impacted area is either the Main Control Room, Relay Room, or 460/230V Vital Bus Switchgear Room.

Step 12 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby conditions.

Steps 13, 14, and 15 remove the regular and emergency DC control power sources to all 4Kv vital buses, and thus places breakers in an established position and eliminates any future spurious breaker operations. With the breakers in a set position, the Operator can trip/close breakers as necessary for equipment operation.

Step 16 determines whether the fire impacted area is the 460/230V Electrical Switchgear Room, or the main control room and relay room areas. (A 460/230V Electrical Switchgear Room fire requires Step 123 to be implemented.)

Steps 17 and 18 are applicable when the main control room or the relay room is the fire impacted area. These steps determine if 2C 4Kv Vital Bus is energized from 23 or 24 Station Power Transformer.

ATTACHMENT 6 (#1 NEO) (continued)

Steps 19 through 40 are applicable when off-site power is not supplying the 2C 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is not supplying the 2C 4Kv Vital Bus; the 460/230V feeder breaker is verified closed and all other 2C 4Kv breakers are manually tripped open. While the EDG Operator (RO) transfers 125V DC control power circuits for 2C EDG, the essential components (26 SW Pump, 22 CV Pump, 23 CCW Pump, 2C EDG) 2C Vital Bus 4Kv breaker charging springs are verified charged or are manually charged in preparation for closure when the 2C EDG reported available for loading. Upon notification from the EDG Operator (RO) that the EDG is in service and ready to accept load, the 2C EDG output breaker is closed to energize the 2C 4Kv Vital Bus and 26 Service Water Pump 4Kv breaker is immediately closed to provide cooling for the EDG lube oil and jacket water coolers. Once it is verified that RCP Seal Injection is isolated, the 22 Charging Pump 4Kv breaker is closed to provide the support function for RCS inventory control via the normal charging header. Once it is verified the CCW return from the RCP Thermal Barrier is isolated, the 23 Component Cooling Water Pump 4Kv breaker is closed to provide 22 Charging Pump mechanical seal cooling.

Steps 41 through 49 are applicable when off-site power is supplying the 2C 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is supplying the 2C 4Kv Vital Bus so that the EDG Operator (RO) can stop the EDG (if running) and transfer 125V DC control power circuits for 2C EDG. The essential components (25 or 26 SW Pump, 22 CV Pump, 23 CCW Pump, and 460/230V Transformers) 4Kv breakers are verified closed.

Step 50 establishes that 2C 4Kv Vital Bus and essential loads are established at this point and provides for notification to the CRS to coordinate plant configuration.

Step 51 directs the Operator to proceed to the 2A 4Kv Vital Bus Switchgear.

Steps 52 and 53 determine if 2A 4Kv Vital Bus is energized from 23 or 24 Station Power Transformer.

Steps 54 through 71 are applicable when off-site power is not supplying the 2A 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is not supplying the 2A 4Kv Vital Bus; the 460/230V feeder breaker is verified closed and all other 2A 4Kv breakers are manually tripped open. While the EDG Operator (RO) transfers 125V DC control power circuits for 2A EDG, the essential components (21 SW Pump, 21 CCW Pump, and 2A EDG) 4Kv breaker charging springs are verified charged or are manually charged in preparation for closure when the 2A EDG reported available for loading. Upon notification from the EDG Operator (RO) that the EDG is in service and ready to accept load, the 2A EDG output breaker is closed to energize the 2A 4Kv Vital Bus and 21 Service Water Pump 4Kv breaker is immediately closed to provide cooling for the EDG lube oil and jacket water coolers. Once it is verified the CCW return from the RCP Thermal Barrier is isolated, the 21 Component Cooling Water Pump 4Kv breaker is closed to provide Charging Pump mechanical seal cooling.

ATTACHMENT 6 (#1 NEO) (continued)

Steps 72 through 80 are applicable when off-site power is supplying the 2A 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is supplying the 2A 4Kv Vital Bus so that the EDG Operator (RO) can stop the EDG (if running) and transfer 125V DC control power circuits for 2A EDG. The essential components (21 or 22 SW Pump, 21 CCW Pump, and 460/230V Transformers) 4Kv breakers are verified closed.

Step 81 establishes that 2A 4Kv Vital Bus and essential loads are established at this point and provides for notification to the CRS to coordinate plant configuration. The 22SW20 will be aligned as soon as the bus is energized and the #3 NEO completes the respective steps in Attachment 8.

Step 82 directs the Operator to proceed to the 2B 4Kv Vital Bus Switchgear.

Steps 83 and 84 determine if 2B 4Kv Vital Bus is energized from 23 or 24 Station Power Transformer.

Steps 85 through 107 are applicable when off-site power is not supplying the 2B 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is not supplying the 2B 4Kv Vital Bus; the 460/230V feeder breaker is verified closed and all other 2B 4Kv breakers are manually tripped open. While the EDG Operator (RO) transfers 125V DC control power circuits for 2B EDG, the essential components (24 SW Pump, 22 CCW Pump, and 2B EDG) 4Kv breaker charging springs are verified charged or are manually charged in preparation for closure when the 2B EDG reported available for loading. Upon notification from the EDG Operator (RO) that the EDG is in service and ready to accept load, the 2B EDG output breaker is closed to energize the 2B 4Kv Vital Bus and 24 Service Water Pump 4Kv breaker is immediately closed to provide cooling for the EDG lube oil and jacket water coolers. Once it is verified the CCW return from the RCP Thermal Barrier is isolated, the 22 Component Cooling Water Pump 4Kv breaker is closed to provide Charging Pump mechanical seal cooling.

Steps 108 through 118 are applicable when off-site power is supplying the 2B 4Kv Vital Bus. Notification is made to the EDG Operator (RO) that off-site power is supplying the 2B 4Kv Vital Bus so that the EDG Operator (RO) can stop the EDG (if running) and transfer 125V DC control power circuits for 2B EDG. The essential components (23 or 24 SW Pump, 22 CCW Pump, and 460/230V Transformers) 4Kv breakers are verified closed.

Step 119 establishes that 2B 4Kv Vital Bus and essential loads are established at this point and provides for notification to the CRS to coordinate plant configuration. The 2SW26 will be aligned as soon as the bus is energized and the Shift Maintenance Technician completes the respective step in Attachment 9.

Step 120 establishes that Hot Standby alignment is achieved at this point and provides for notification to the CRS to coordinate plant configuration.

Step 122 directs the Operator to report to the Hot Shutdown Panel for further assignments.

ATTACHMENT 6 (#1 NEO) (continued)

Step 123 is applicable only when the fire impacted area is the 460/230V Switchgear Room. The Operator is directed to de-energize the 125V DC control power circuitry and open each infeed from the 23 and 24 SPT to the 2A, 2B, 2C 4Kv Vital Buses. This step de-energizes all the 4Kv Vital Buses and eliminates the potential for spurious component operation due to fire induced hot shorts. Once control of the plant is achieved and maintained, the fire damage can be assessed and each vital bus may be returned to service in a controlled manner or the Salem Cold Shutdown Contingency for electrical cross-connection from Unit 1 may be applied.

Step 124 establishes that Hot Standby alignment is achieved at this point when the 460/230V Electrical Switchgear Room is the fire impacted area and provides for notification to the CRS to coordinate plant configuration.

Step 125 directs the Operator to report to the Hot Shutdown Panel for further assignments.

Steps 126 and 127 direct the Operator to proceed to the Relay Room (when the fire impacted area is the 4Kv Switchgear Room) and de-energize specific circuitry at the 2BBDC 125V DC Distribution Cabinet. De-energizing this circuitry isolates the normal letdown flow path due to the potential for fire induced hot shorts to cause spurious component operation of the 2CV3, 2CV4, and/or 2CV5 letdown orifice isolation valves and ensures that high-low pressure system interface valves are closed (i.e.: 2CV2 and 2CV277).

Step 128 directs the Operator to report to the Hot Shutdown Panel for further assignments.

All breakers on the 4Kv Vital Buses will remain in position until physically repositioned. With the removal of the DC control power, all tripping or closing mechanisms are removed with exception of the manual pushbutton controls on the breakers.

ATTACHMENT 7 (#2 Nuclear Equipment Operator)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

Step 3 directs the Operator to proceed to the Inner Mechanical Penetration Area.

Step 4 determines whether the fire impacted area is either of the electrical switchgear rooms, or the main control room and relay room areas.

ATTACHMENT 7 (#2 NEO) (continued)

Steps 5 through 19 are completed when the fire impacted area is either the Main Control Room or Relay Room.

- Step 5 provides information to the CRS who will later forward this information. If the valves are opened and the control power transferred to local, the valves will remain in the required open position and spurious operation of the MOV is not feasible. If the valves are closed, manual throttling will be required to prevent water hammer.

- Step 6 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby conditions.

- Step 7 aligns the normal charging header to allow flow to the RCS for inventory control as the injection path to the RCP seals is isolated. With CV73 (CV71 Bypass) in the open position, the Operator stationed at the 2CV55 can adjust flow to maintain PZR and VCT levels within the prescribed bands. RCP seal injection is isolated to ensure thermal shock of the RCP seals is prevented in the event seal injection and CCW flow to the thermal barrier cannot be restored within the prescribed time interval. Isolation of RCP seal injection addresses concerns identified in NRC Information Notice 2005-14.

- Step 8 isolates the RCP Thermal Barrier Valve 2CC131 to ensure thermal shock of the RCP seals is prevented in the event seal injection and CCW to the thermal barrier cannot be restored within the prescribed time interval. Isolation of CCW from the RCP Thermal Barrier addresses concerns identified in NRC Information Notice 2005-14, and is consistent with the RCP seal isolation strategy delineated in EOP-LOPA-1.

- Step 9 reports RCP Thermal Barrier Return (2CC131) is isolated to the CRS. This information is required when starting CCW pumps in Attachment 6 (#1 NEO)

- Step 10 isolates RCP Seal Water Return Valve 2CV116. Isolation of 2CV116 is consistent with the assumptions made in Calculation S-C-CBV-MEE-1979, and the RCP seal isolation strategy delineated in EOP-LOPA-1.

- Note prior to Step 11 provides the directional path for the Operator to follow. Time is a restraint in this situation and it is assumed that deconning is done after the plant is stabilized.

- Steps 11 through 19 are performed in the elevation 78' Electrical Penetration Area at the 2A, 2B, and 2C East 230V Vital Control Centers. Control power circuits are transferred such that cabling which is routed through the affected fire areas is bypassed and the valves are positioned in the required position. (NOTE: Steps 12 and 13 ensure that the pressurizer PORV Block Valves are maintained CLOSED by operation of the transfer switches which separate the block valve controls for alternate shutdown from the control room controls. Since spurious operation of the PORVs (due to a fire induced short) and failure of the PORV Block Valve circuit (due to fire damage) could result in 2PR1/2PR6 or 2PR2/2PR7 providing a pathway for a loss of RCS inventory and RCS pressure control, these actions are **prioritized** in order to maintain the plant within 10CFR Part 50 Appendix R performance goals for operation within plant design basis.) **(70001776)**

ATTACHMENT 7 (#2 NEO) (continued)

Steps 20 through 24 are completed when the fire impacted area is either of the switchgear rooms.

- Step 21 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby conditions.

- Steps 22 and 23 isolate the charging system, to ensure that the flow is directed to the RCP seals. With these valves closed, the 13 Charging Pump flow is directed to the RCP seals. This step ensures that charging flow is not misdirected. Later the 2CV73 valve may be opened to establish charging to RCS, but at this time the only concern is for the RCP seals.

- Step 24, and the note immediately preceding it, provides the directional path for the Operator to follow. Time is a restraint in this situation and it is assumed that deconning is done after the plant is stabilized.

Step 25 determines if the 460/230V Electrical Switchgear Room is the fire impacted area.

Step 26 is only completed when the fire impacted area is the elevation 84' 460/230V Vital Bus Switchgear Room and are performed in the elevation 78' Electrical Penetration Area at the 2C East 230V Vital Control Center. The Operator transfers the control for the 2SJ13 valve such that the circuitry that is susceptible to fire damage is bypassed and, if power is still available to the MCC, the valve can be electrically secured in the closed position. However, if power is not available at this point, then the circuitry is aligned such that the valve can be manually positioned and should a power supply eventually be restored, the valve will remain in the closed position. Actual position verification will be performed in accordance with Attachment 9 at Step 40. The Appendix R Fire Area Compliance Assessment, DE-PS.ZZ-0001(Q)-A3-SSAR(024) for Fire Area 2FA-AB-84A, identifies that the BIT Isolation Valves (2SJ4, 2SJ5, 2SJ12, and 2SJ13) have control power cabling in this fire area that is susceptible to fire induced hot shorts which could cause spurious component operation. The inadvertent opening of any one BIT inlet valve and any one BIT outlet valve would challenge the RCP seal cooling flow path and RCS inventory control function.

Step 27 provides for notification to the CRS to coordinate plant configuration.

Steps 28 through 40 are completed for any of the four fire impacted areas (main control room, relay room, 4Kv switchgear room, or 460/230V switchgear room).

- Steps 28 and 29 are performed in the elevation 78' Electrical Penetration Area. Inside Panel 1016, the key switch is positioned to transfer power for 22 RCS loop wide range T_h and T_c indication at the Hot Shutdown Panel. Inside Panel 1017, the key switch is positioned to transfer power for 23 RCS loop wide range T_h and T_c indication at the Hot Shutdown Panel.

ATTACHMENT 7 (#2 NEO) (continued)

- Step 30 is completed in the elevation 100' Inner Piping Penetration Area where the Main Steam Isolation of 21 and 23 Steam Generators is accomplished by closure of the 21&23MS167, 21&23MS18, and 21&23MS10 valves. In certain fire scenarios, temperatures in the Inner Penetration Area are expected to rise significantly (>160 °F) such that personnel access to the area will NOT be permitted. In this situation, Step 30.2 of Attachment 7 directs closure of valves 21CA348 and 22CA348 which results in isolation of control air to 21&23MS167, 21&23MS18, and 21&23MS10 resulting in the respective valves to fail to the closed position.

- Steps 31 through 40 are completed in the Outer Piping Penetration Area where the Main Steam Isolation of 22 and 24 Steam Generators is accomplished by closure of the 22&24MS167, 22&24MS18, and 22&24MS10 valves. Blocking the Outer Piping Penetration Door open in Step 32 ensures ambient conditions in the Outer Penetration Area will continue to allow personnel access during the event.

Step 41 establishes that Hot Standby alignment is achieved at this point and provides for notification to the CRS to coordinate plant configuration.

Steps 42 and 43 provide guidance to establish a decay heat removal path via 22&24MS10 valves, under the direction of the CRS. If temperature conditions in the Inner Penetration Area allow personnel access AND once another Operator is available, the inner penetration is manned and communication established with the Hot Shutdown Panel for coordination to establish a controlled cooldown with all four steam generators.

ATTACHMENT 8 (#3 Nuclear Equipment Operator)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

Steps 3 and 4 direct the Operator to proceed to the Main Turbine Front Standard and initiate a local-manual main turbine trip as a required backup action to Step 3.2A of the Immediate Actions.

Steps 5 through 7 direct the Operator to proceed to the Turbine Building 4Kv Group Bus area; establish communication with the CRS, and trip open the infeed breakers for each of the four group buses. This will result in loss of RCPs and place the unit in natural circulation. This also removes other equipment which, if left operating, would cause operational interference.

Step 8 provides for notification to the CRS that the Main Turbine Trip is confirmed and the 4Kv Group Buses are deenergized.

Step 9 determines whether the fire impacted area is either of the electrical switchgear rooms, or the main control room and relay room areas.

ATTACHMENT 8 (#3 NEO) (continued)

Steps 10 through 19 are applicable when the main control room or the relay room is the fire impacted area.

- Steps 10 and 11 direct the Operator to proceed to the Circulating Water Battery Rooms and remove DC control power to 23 and 24 SPT 4Kv infeed breakers (A-B and D-E); thus failing the breakers to as-is conditions. If off-site power is supplying the 4Kv vital buses, a hot short cannot cause a breaker trip or a breaker closure.

- Step 12 directs the Operator to proceed to the Service Water Intake Structure to establish control of both nuclear header isolation (22&24SW20) valves and the TGA isolation (2SW26) valve.

- Steps 13, 14, and 15 address the possibility that the control power fuses have blown for the 22 and 24 Nuclear Header Supply valves 22&24SW20. These steps also eliminate any potential future spurious operation of the 22&24SW20 valves. If either valve is already open, and with the removal of remote control power, no other actions are required since there isn't any motive force. If either valve is closed, then it may be necessary to manually throttle the MOV to the open position to prevent water hammer. The substeps coordinate with the CRS to open 22&24SW20.

- Steps 16, 17, and 18 address the possibility that the control power fuses have blown for the TGA Header Supply valve 2SW26. These steps also eliminate any potential future spurious operation of the 2SW26 valve. If the valve is already open, and with the removal of remote control power, no other actions are required since there isn't any motive force. When the MCC is energized, the valve will close. If the valve is closed, then no further actions are required and the valve will remain closed when the MCC is energized.

- Step 19 provides notification to the CRS that DC power to the 13KV infeed breakers for 23 SPT and 24 SPT is tripped, and the SW valves and breakers in the SWI are aligned.

Steps 20 and 21 direct the Operator to proceed to the Station Blackout Control Air Compressor and place the unit into service as a proactive action to preclude the loss of control air due to the failure of either the #2 Emergency Air Compressor and/or the 2C Emergency Diesel Generator during a station blackout event.

Step 22 establishes that Hot Standby alignment is achieved at this point and provides for notification to the CRS to coordinate plant configuration.

Step 23 directs the Operator to proceed to the Hot Shutdown Panel for other assignments.

ATTACHMENT 9 (Shift Maintenance Technician)

Step 1 provides for obtaining the necessary materials to perform safe shutdown functions from outside the control room area.

Step 2 provides for a briefing from the CRS on plant status and location of the fire.

ATTACHMENT 9 (SMT) (continued)

Step 3 determines when the fire impacted area is the el. 64' 4Kv Electrical Switchgear Room that the technician is to proceed to the Hot Shutdown Panel for other assignments, otherwise Step 5 is applicable. (Steps 5 through 42 are not applicable for a fire impacting the 4Kv Switchgear Room because the 4Kv Vital Buses are potentially de-energized by fire damage. Therefore, the components that are addressed in these steps would not be capable of repositioning electrically as required. Physical visual verification and/or manual operation for each valve is required when aligning a system for service during this post-fire event.)

Step 5 directs the Operator to proceed to the 2C West Valves & Misc 230V Control Center where 230V breakers are positioned to obtain positive control of safe shutdown valves.

Step 6 is to ensure that communications are established. The CRS is the focal point for communications and coordination of plant activities to achieve Hot Standby conditions.

Step 4 determines whether the fire impacted area is the 460/230V Electric Switchgear Room, or the main Control Room and Relay Room areas. If the 460/230V Electric Switchgear Room is the fire impacted area, the Technician is directed to bypass Steps 7 through 33, and proceed to Step 34. (Steps 7 through 33 are not applicable for a fire impacting the 460/230V Switchgear Room because the 460/230V Vital Buses are potentially de-energized by fire damage. Therefore, the components that are addressed in these steps would not be capable of repositioning electrically as required. Physical visual verification and/or manual operation for each valve is required when aligning a system for service during a post-fire event in either Switchgear Room.)

Steps 7 through 31 are performed at each of the 2A, 2B, and 2C West Valves & Misc 230V Control Centers when the Relay Room or Control Room is the fire impacted area. Control power circuits are transferred such that cabling which is routed through the affected fire areas is bypassed and the components are positioned in the required configuration. These actions are performed to prevent any spurious operations of these components. The 21&22SW21, 21&22SW23, 2SJ1, 2CV139, 2CV140, and 2CV68 valves are positioned in EMER OPEN at the respective 230V breakers; the 2CV40, 2SJ12, 2CC30, 2CC31, 21&22SJ44, and 21&22CC16 are positioned in EMER CLOSED position at the respective 230V breakers. Additionally, if the Centrifugal Charging Pump Lube Oil Pump control circuits are failed, these circuits are bypassed such that the lube oil pumps are started manually.

Step 32 establishes that Hot Standby alignment of safe shutdown components required to provide a support function is achieved at this point when the Control Room or Relay Room is the fire impacted area and provides for notification to the CRS to coordinate plant configuration.

Step 33 recognizes that the following steps are not applicable and provides direction to the next applicable Step 43.

ATTACHMENT 9 (SMT) (continued)

Steps 34 through 42 are applicable when the 460/230V Switchgear Room is the fire impacted area. The Appendix R Fire Area Compliance Assessment, DE-PS.ZZ-0001(Q)-A3-SSAR(024) determines that control power cabling in this fire area is susceptible to fire induced hot shorts that could cause spurious component operation for the RHR to Containment Sump Isolation Valves (21SJ44 and 22SJ44). Although the RWST inventory does not provide a safe-shutdown support function for these fire areas, this event would cause substantial flooding of the containment (elevation 78') and challenge the potential subsequent local manual operation from inside the containment of the Accumulator Outlet Valves (21-24SJ54), RCS Depressurization valves (2CV77, 2CV79, and 2CV75), and the RHR to RCS Isolation valves (2RH1 and 2RH2) when aligning the RHR System for the decay heat removal function to achieve Cold Shutdown conditions within 72 hours. Additionally, the BIT Isolation Valves (2SJ4, 2SJ5, 2SJ12, and 2SJ13) have control power cabling in this fire area that is susceptible to fire induced hot shorts which could cause spurious component operation. The inadvertent opening of any one BIT inlet valve and any one BIT outlet valve would challenge the RCP seal cooling flow path and RCS inventory control function.

- Step 34 directs the technician to open the 230V breaker for 2SJ69, RWST TO RHR PUMPS STOP VALVE, at the 2C West MCC. This preliminary action is required in preparation for manually closing the 2SJ69 valve at Step 42, in the event that either SJ44 valve spuriously opened as previously discussed.

- Steps 35 through 39 directs the technician proceed to the 2B and 2A West MCCs to transfer the control for the 21SJ44, 22SJ44, and 2SJ12 valves such that the circuitry that is susceptible to fire damage is bypassed and (if power is still available to the MCC) each valve can be electrically secured in the closed position.

- Step 40 directs the technician to proceed to the Inner Mechanical Penetration Area to close BIT Outlet Isolation Valves in the event that any BIT Isolation valve spuriously opened and 2SJ12 was not successfully closed at Step 36 in this Attachment and 2SJ13 was not successfully closed by #2 NEO at Step 26 in Attachment 7.

- Steps 41 and 42 direct the technician to elevation 55' where the 2SJ69 is manually closed to isolate the RWST from the RHR System as previously discussed above.

Step 43 provides direction to report to the Hot Shutdown Panel for other assignments.

ATTACHMENT 10 (SBO Compressor Shutdown)

This attachment is implemented by the TSC/OSC at the direction of the Control Room Supervisor upon achieving and maintaining Hot Standby condition.

Section 1 is only applicable when either the main control room or the relay room is the impacted fire area. In order to start the Emergency Air Compressor, the Chilled Water System is required to be available and in service for #2 ECAC. Therefore, the Chilled Water System is established by bypassing the control circuitry and manually placing the Chilled Water System components into service in the EMERGENCY mode.

Section 2 is applicable when either the #2 ECAC is aligned IAW section 1 of this attachment OR the #1 ECAC is providing the CA System function. When either of these conditions is satisfied, then the SBO Air Compressor is shutdown IAW this section.

ATTACHMENT 11 (ABV & SWI Ventilation 230V Systems)

This attachment is implemented by the TSC/OSC at the discretion of the CRS as determined by the affected fire area and component/system availability. It provides the necessary instructions for maintaining the Auxiliary Building Ventilation System Room Cooler Fans at various areas of the unit, and Service Water Intake Structure Ventilation System Fans energized when power is available. Bypassing circuitry from the affected fire area results in breaker closure for room cooler/fan start.

ATTACHMENT 12 (Turbine-Driven AFW Pump Restoration)

This attachment is provided as supplemental information to the Plant Operator should resetting the Turbine-Driven AFW Pump Overspeed Trip Mechanism be required. This attachment provides the required instructions and figures as found in the normal operating procedures.

ATTACHMENT 13 (CRS/STA Tracking & Overview Status)

This attachment is implemented by the CRS and STA. It provides a check-off sheet to aid in tracking the status of this procedure for establishing Hot Standby conditions.

ATTACHMENT 14 (Operations Support Center Activity)

This attachment is implemented by the OSC Coordinator (OSCC) upon activation of the OSC. It provides a list of potentially applicable support functions that may be required for establishing Cold Shutdown conditions within 72 hours. These activities are delegated to the OSCC for evaluation in order to allow the CRS to maintain the command and control function requirements for achieving and maintaining Hot Standby conditions.

- The following steps are applicable to all fire areas addressed by this procedure:
  - Step 1.1 establishes Battery Room monitoring for adequate ventilation and hydrogen buildup when the ventilation system is adversely impacted by fire damage.
  - Step 1.2 establishes RCS wide range pressure monitoring at the primary sample area because the Hot Shutdown Panel instrumentation is narrow range (1700-2500 psig) for achieving and maintaining Hot Standby conditions.
  - Step 1.3 establishes AFWST level monitoring and contingency actions for maintaining adequate inventory to support maintaining HSB conditions and subsequent RCS cooldown to CSD conditions. Establishing prompt level monitoring ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for at least 8 hours, as described in Technical Specification Bases 3/4.7.1.3.
  - Step 1.4 establishes an RCS sampling flow path and Chemistry Department sampling for boron concentration in preparation for Cold Shutdown.
- Step 1.5 is applicable to a Control Room or Relay Room fire in support of achieving and maintaining Cold Shutdown conditions within 72 hours:
  - Provides direction for maintaining a control air supply IAW Attachment 10.
  - Provides direction for transferring the control circuitry of the Auxiliary Building Ventilation System and Service Water Building Ventilation System IAW Attachment 11 to ensure that the support function is available to support safe shutdown.
  - Establishes charging and letdown flowpaths, and align the CVCS makeup system from the Boric Acid Storage Tank System to support reactivity and RCS inventory control during cooldown.
  - The Switchgear & Penetration Area Ventilation System is inspected for adequate ventilation system operation and guidance is provided for the manual operation of components, as applicable.
  - The Containment Fan Coil Units are inspected for adequate ventilation system operation and guidance is provided for the manual operation of components, as applicable.
  - Adequate RWST inventory monitoring is established to support reactivity and RCS inventory control during RCS cooldown.

ATTACHMENT 14 (continued)

- Step 1.6 is applicable to a Switchgear Room fire in the event that a Unit 2 4Kv and 460/230V Vital Power supply cannot be restored for establishing the CCW and RHR Systems to achieve and maintain Cold Shutdown conditions within 72 hours:

  - The Service Water System Test-Line can be established as a cross-connection from Unit 1 to supply a selected Unit 2 Service Water Nuclear Header in preparation for establishing the CCW System to support the RHR System.

  - Portable ventilation and an electrical power supply to a selected CCW and/or RHR Pump(s) can be provided from Unit 1C 4Kv Vital Power Supply to support establishing the CCW and RHR Systems.

EXHIBIT 1 (Cold Shutdown Level Instrumentation Indication)

This exhibit is utilized by the Control Room Supervisor (CRS) to determine ACTUAL versus INDICATED level at PZR temperatures less than or equal to 200 °F.

Step 26 of Attachment 3 directs the CRS to maintain RCS temperature <200 °F. Pressurizer Level Indicator LI-1649 is calibrated to accurately indicate pressurizer level at NOP/NOT conditions, and NOT at low temperature conditions. The conversion table provides a correlation between ACTUAL and INDICATED pressurizer level for LI-1649 at 68 °F and 14.7 psia versus 547 °F and 2250 psia (NOP/NOT) .

Additional guidance is then provided when determining ACTUAL pressurizer level at a temperature of 200 °F versus 68 °F, When this condition exists, a value of approximately 4% should be added to the ACTUAL level to compensate for less dense pressurizer fluid.

SAFE SHUTDOWN OVERVIEW MATRIX
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ACHIEVING AND MAINTAINING HOT STANDBY (HSB)							
ATT 1 (SM)	**ATT 3 (CRS)**	**ATT 4 (RO)**	**ATT 5 (PO)**	**ATT 6 (#1 NEO)**	**ATT 7 (#2 NEO)**	**ATT 8 (#3 NEO)**	**ATT 9 (SMT)**
* Get Mat'l * Brief STA & CRS * Notify: -Security -Rad Pro -ESO -LP Group * Go to TSC/OSC * Initiate ECG * Coordinate Shutdown **ATT 2 (STA)** * Get Mat'l * Brief Crew * Account-ability * Go to TSC/OSC * Monitor Plant Condition Remain in TSC/OSC	* Get Mat'l * Brief Crew * Go to HSD Panel * IF Swgr Rm Fire, Align CV/BAST Cross-Tie * Coordinate: -RCS Inventory -RCS Heat Sink via Natural Circulation -HSB conditions Remain in Area of HSD Panel	* Get Mat'l * Go to El 84' Aux Bldg * IF CR or RR Fire: - Close 2CV464 - Close 2CV83 - Close 2CV89 - Close 2CV95 -Check 21/22SW21 positions -Align 2C EDG -Align 2A EDG -Align 2B EDG -Monitor EDGs * IF Swgr Rm Fire, TRIP ALL EDGs Remain in Area if EDGs I/S or Go to HSD Panel	* Get Mat'l * Go to El 84' Aux Bldg * IF CR or RR Fire, Align: -CVCS -21SW122 to CCHX * IF Swgr Rm Fire, Align ASTP * Align: -UHF/VHF -NI * Establish Decay Heat Removal via Natural Circulation * Maintain S/G Inventory * Maintain RCS Inventory * Maintain HSB Remain in Area of HSD Panel	* Get Mat'l * IF CR or RR Fire, - Open Infeed -2AADC -2BBDC -2CCDC - Align 4Kv Swgr: - 2C 4Kv: -23 CC Pp -22 Chg Pp -26 SW Pp -460/230V - 2A 4Kv: -21 CC Pp -21 SW Pp -460/230V - 2B 4Kv: -22 CC Pp -24 SW Pp -460/230V * IF 460/230V Swgr Fire, - Open DC Bkrs in RR - Align 4Kv Swgr: -All EDG Infeeds Open -All SPT Infeeds Open * IF 4Kv Swgr Fire, - Open BBDC Bkr in RR Go to HSD Panel	* Get Mat'l * IF CR or RR Fire, -Report position of: -21SW22 -22SW22 - Open 2CV73 - Close 2CC131 - Close 2CV116 -Align 2A/2B/2C East MCC: -2PR6 -21SW22 -2PR7 -2SJ13 -2CV69 * IF Swgr Rm Fire, -2SJ13 * Energize Wide Range Th & Tc * Close: -21MS10 -23MS10 -MS18s -MS167s * Close: -22MS10 -24MS10 -MS18s -MS167s Remain in Area	* Get Mat'l * Trip Turb * De-energize 4Kv Grp Buses * IF CR or RR Fire, -Trip DC Pwr to 13 KV Bkrs A-B & D-E -Align SWI MCC: -24SW20 Open -22SW20 Open -2SW26 Close -Align SBO A/C Go to HSD Panel	* Get Mat'l * IF CR or RR Fire, Align: -2C West MCC: -22SW21 -22SW22 -2CC31 -22 CHG LO PP -2SJ1 -2CV40 -2CV140 -2A West MCC: -21SW21 -2CC30 -21CC16 -21SJ44 -2B West MCC: -2SJ12 -22SJ44 -22CC16 -2CV68 -2CV139 -21SW23 -22SW23 * IF Swgr Rm Fire, -2SJ69 -21SJ44 -22SJ44 -2SJ12 Go to HSD Panel

SAFE SHUTDOWN OVERVIEW MATRIX
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PREPARATION FOR COLD SHUTDOWN							
SM/STA	**ATT 3 (CRS)**	**(RO)**	**(PO)**	**#1 NEO**	**#2 NEO**	**#3 NEO**	**SMT**
* Coordinate / Monitor Plant Shutdown	* Direct OSCC: -SBO S/D (Att 10) -Vent Sys (Att 11) -Chg & Ltdn -Sampling -RCS WR Pressure Gauge -Temp ABV -SW X-Tie -CCW/RHR Elect X-Tie	* Assist at HSD Panel	* Establish: -Chg -RCP seals w/e CR & RR fire	* Assist from the HSD Panel	* Control: -22MS10 -24MS10	* Control: -21MS10 -23MS10 (If Inner Penetration Area Temp conditions permit)	* Assist from the HSD Panel

ACHIEVING AND MAINTAINING COLD SHUTDOWN (CSD)							
SM/STA	**ATT 3 (CRS)**	**RO**	**PO**	**#1 NEO**	**#2 NEO**	**#3 NEO**	**SMT**
* Coordinate / Monitor Plant Shutdown	* Direct RCS Cooldown * Coordinate: -Pzr pressure -Pzr level -RCS soak -Accum Isolation -RCS temp -RHR Initiation -AFW S/D -MS10s Open -Maintaining CSD conditions	* Assist at HSD Panel	* Direct: -MS10s for RCS C/D -Chg for Pzr Lvl & Press Control -Periodic AFWST Level monitoring -RCS Pressure for RHR -Maintaining CSD conditions	* Assist from the HSD Panel	* Control: -22MS10 -24MS10	* Control: -21MS10 -23MS10 (If Inner Penetration Area Temp conditions permit)	* Assist from the HSD Panel

END OF DOCUMENT