



Entergy

Nuclear Northeast



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- ☒ Continuous
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Control Copy: _____

Effective Date: ~~4/25/08~~ ^{4/28/08}

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2-AOP-SSD-1, Revision: 12

CONTROL ROOM INACCESSIBILITY SAFE SHUTDOWN CONTROL

Approved By:

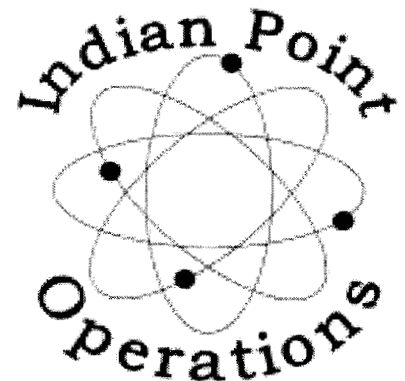
Procedure Sponsor, RPO/ Designee

Date

1 4/27/08

Team 2C

Procedure Owner



PARTIAL REVISION

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REVISION SUMMARY

(Page 1 of 1)

1.0 REASON FOR REVISION

- 1.1 Incorporate EC-33794 IP2 Appendix R Diesel Generator Mod.

2.0 SUMMARY OF CHANGES

- 2.1 Step 4.25 RNO pg.17 – Add use of new IP2 Appendix R DG.
- 2.2 Step 4.28 pg.19 - Add use of new IP2 Appendix R DG.
- 2.3 Step 4.207 NOTE pg. 91 – Incorporate Conditional TPC DN-08-01480. IP2-8817 tracks terminating condition.
- 2.4 ATT 6, Step 6.12 RNO pg.197 - Add use of new IP2 Appendix R DG.
- 2.5 ATT 6, Step 6.14 RNO pg.199 - Add use of new IP2 Appendix R DG.
- 2.6 ATT 6, Figure 1, pg. 205 – Update ASSS Distribution diagram.

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LIST OF ATTACHMENTS

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1. PURPOSE

To shutdown and cooldown the plant from outside the Control Room in the event the Control Room becomes inaccessible or due to damage outside the Control Room that renders normal controls or indications unreliable in the Control Room.

2. ENTRY CONDITIONS

The inability to safely occupy the CCR due to environmental conditions or the inability to safely control the plant from the CCR.

3. IMMEDIATE ACTIONS

NONE

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4. SUBSEQUENT ACTIONS

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> EOPs are not applicable during performance of this procedure. The following are time critical actions and should be completed as quickly as possible; AFW, Electrical Power, Charging and CCW restoration. Blowdown and Letdown line isolation. 	
<p>4.1 ___ IAAT CCR environment causes evacuation to become absolutely necessary, THEN evacuate CCR <u>and</u> GO TO Step 4.17.</p>	
<p>4.2 ___ Trip the reactor.</p>	<p>1. ___ Dispatch an operator to perform Attachment 1 (Local Manual Reactor Trip) (Page 97).</p> <p>2. ___ WHEN reactor is tripped, THEN continue in this procedure.</p>
<p>4.3 ___ Trip the turbine.</p>	<p>___ Locally trip the turbine.</p>
<p>4.4 ___ Trip <u>both</u> MBFPs.</p>	<p>___ Dispatch an operator to trip <u>both</u> MBFPs.</p>
<p>4.5 ___ Trip <u>all</u> RCPs.</p>	<p>___ Dispatch an operator to perform Attachment 7 (Manually Opening and Racking Out 6.9 KV Breakers) (Page 207) for affected RCPs.</p>
<p>4.6 ___ Start 21 or 22 ABFP.</p>	
<p>4.7 ___ Establish auxiliary feed flow to 21 and 22 SGs.</p>	
<p>4.8 ___ Is LCV-459 (Letdown Stop Valve) in AUTO?</p>	<p>___ Place LCV-459 in AUTO.</p>
<p>4.9 ___ Close <u>all</u> MSIVs.</p>	
<p>4.10 ___ Place RCS Makeup Control Switch to STOP</p>	
<p>4.11 ___ Place 863 (Accumulator N2 Supply Line Stop) in OPEN.</p>	
<p>4.12 ___ Is the CCR being evacuated due to <u>any</u> fire?</p>	<p>___ GO TO Step 4.15.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.13 Close <u>both</u> PORV block valves AND PLACE in Pullout:</p> <p>___ MOV-535</p> <p>___ MOV-536</p>	
<p>4.14 Remove Control Power Fuses to isolate Letdown, secure PORVs from spurious operation, and establish charging flow path.</p> <p>___ 455C (Panel FB rear facing west)</p> <p>___ 456 (Panel FB rear facing west)</p> <p>___ LCV-459 (Panel SF rear facing north)</p> <p>___ 204A (Panel SF rear facing north)</p> <p>___ 204B (Panel SF rear facing north)</p>	<p>1. ___ Trip any running charging pumps.</p> <p>2. ___ Open 125 Volt DC Distribution Panel 21 Circuit 5 on the back of Panel FD.</p> <p>3. ___ Open 125 Volt DC Distribution Panel 22 Circuit 15 on the back of Panel FD.</p>
<p>4.15 ___ Announce reactor trip and CCR evacuation over PA.</p>	
<p>4.16 Obtain two sets of security keys from lock box.</p> <p>___ One set for Conventional Side RO.</p> <p>___ One set for CRS.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>The expectations for the use of personnel are as follows:</p> <ul style="list-style-type: none"> • The CRS, one RO and the Nuclear NPO will be present on the Nuclear Side with one copy of this procedure. • The second RO and the Conventional NPO will be present in the Auxiliary Feed Pump Building. Each person will have one copy of this procedure. • The FSS and Unit 1 NPO will be conducting electrical operations, etc with the last copy of this procedure. • The Fire Brigade Leader (Unit 2 or Unit 3 SRO) and 3 NPOs will be fighting a fire IF any fire has occurred. IF a fire has NOT occurred, duties of these personnel will be directed by the SM/CRS/FSS. <p>4.17 Obtain the following from the Appendix R equipment locker in the CCR foyer:</p> <p><u>CRS:</u></p> <p>___ Procedure package</p> <p>___ Logbook</p> <p>___ Two radios</p> <p>___ One flashlight</p> <p>___ Keys</p> <p><u>SM:</u></p> <p>___ One radio</p> <p>___ One flashlight</p> <p>___ Keys</p> <p><u>RO:</u></p> <p>___ One radio</p> <p>___ One flashlight</p> <p>___ Keys</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Radio use is now permitted in all areas</p>	
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4.18 __ INITIATE establishing communications with <u>all</u> watch personnel.	
4.19 __ Is the reactor tripped?	<p>1. __ IF an operator has NOT been dispatched to perform Attachment 1 (Local Manual Reactor Trip) (Page 97), THEN dispatch an operator to perform Attachment 1.</p> <p>2. __ WHEN reactor is tripped, THEN continue in this procedure.</p>
4.20 __ INITIATE Attachment 2 (Conventional Side RO Actions) (Page 99).	
4.21 __ INITIATE Attachment 3 (Conventional Side NPO Actions) (Page 153).	
4.22 __ Are <u>all</u> RCP breakers open?	__ Dispatch Unit 1 NPO to perform Attachment 7 (Manually Opening and Racking Out 6.9 KV Breakers) (Page 207) for affected RCPs.

<p style="text-align: center;">NOTE</p> <p>For emergency classification purposes, control of the plant is considered to be established when control is established and reported to SM per Step 4.16 of Attachment 4 (Placing Safe Shutdown Panel in Service).</p>	
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4.23 __ Notify SM to implement E-Plan from the Unit 3 CCR.	
<ul style="list-style-type: none"> • Classify event • Perform Communicator Duties utilizing Unit 3 Control Room staff. 	
4.24 __ CRS and RO proceed to 90 ft el. PAB Fan Room, Alternate Safe Shutdown Panel.	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.25 ___ Are <u>all three</u> Light & Power Bus Section 3 glow lamps illuminated?</p>	<ol style="list-style-type: none"> 1. ___ IF the Unit 2 Appendix R Diesel is available, THEN GO TO 2-SOP-27.6 (Unit 2 Appendix R Diesel Generator Operation). 2. ___ IF the Unit 3 Appendix R Diesel is available, THEN GO TO AOI 27.1.9.2 (Providing Appendix R Power From Unit 3). 3. ___ INITIATE Attachment 6 (Gas Turbine Black Start/Unit 1 Power) (Page 195).
<p>4.26 ___ INITIATE Attachment 4 (Placing Safe Shutdown Panel in Service) (Page 175).</p>	
<p>4.27 ___ INITIATE request to Unit 3 Control Room to monitor 13.8kV system voltage via the District Operator <u>and</u> to notify Unit 2 if 13.8kV voltage CAN NOT be maintained between 13.5kV & 14.3kV.</p>	

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- 4.28 ___ **IAAT** notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV,
THEN INITIATE the following:
- A. ___ **IF** the Unit 2 Appendix R Diesel is available,
THEN GO TO
2-SOP-27.6 (Unit 2 Appendix R Diesel Generator Operation).
 - B. ___ **IF** the Unit 3 Appendix R Diesel is available,
THEN GO TO
AOI 27.1.9.2 (Providing Appendix R Power From Unit 3).
 - C. ___ **INITIATE** Attachment 6
(Gas Turbine Black Start/Unit 1 Power)
(Page 195).
-

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.29 ___ IAAT a 480V Bus has been lost and re-energized by its EDG, THEN perform Steps 4.30 - 4.31.</p>	<p>___ GO TO Step 4.32.</p>
<p>4.30 ___ Is at least one SW pump running on the essential header?</p>	<p>1. ___ Attempt to start at least one pump by transferring LOCAL/REMOTE switch for selected pump to LOCAL and pressing START button.</p> <p>2. ___ IF unable to start at least one pump on essential header, THEN perform the following:</p> <p>A. ___ IF power is available to a SW pump that is NOT aligned to the essential header, THEN INITIATE the <u>applicable section(s)</u> of 2-SOP-24.1 (Service Water System Operation) to transfer essential service water headers as necessary.</p> <p>B. ___ IF power is NOT available to <u>any</u> SW pumps, AND 480V Switchgear Room is accessible, THEN INITIATE Attachment 12 (Placing 23 or 24 Service Water Pump in Service On Safe Shutdown Power) (Page 233).</p> <p>C. ___ IF power is NOT available to any SW pumps, AND 480V Switchgear Room is NOT accessible, THEN place <u>all three</u> diesel generator control switches in OFF.</p>

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.31 Dispatch an operator to perform the following:</p> <p>___ PERFORM applicable sections of 2-SOP-27.1.5 (480 Volt System) to reset MCCs and lighting associated with re-energized buses.</p> <p>___ Periodically monitor <u>all</u> running EDGs.</p>	
<p>4.32 ___ IAAT instrument air is lost to a running charging pump, THEN perform the following:</p> <p>A. ___ Uncouple air speed controller from scoop tube linkage (above pump).</p> <p>B. ___ Place scoop tube in position "A".</p>	
<p>4.33 ___ Is <u>any</u> CCW pump operating?</p>	<p>1. ___ IF NO charging pumps are operating, THEN GO TO Step 4.134</p> <p>2. ___ IF <u>any</u> charging pump is operating, THEN GO TO Step 4.96.</p>

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.34 ___ Is <u>any</u> charging pump operating?	<p>1. Perform the following:</p> <p>A. ___ Place 22 or 23 Charging Pump LOCAL/REMOTE switch in LOCAL (Charging Pump Emergency Control Panel).</p> <p>B. ___ Depress local START button for selected charging pump.</p> <p>2. ___ IF a charging pump was started, THEN GO TO Step 4.35.</p> <p>3. ___ GO TO Step 4.65.</p>
4.35 ___ Does charging flow exist?	<p>1. ___ Open MOV-227 (CHARGING BYPASS STOP).</p> <p>2. ___ IF Charging flow still does NOT exist, THEN INITIATE the following:</p> <p>A. ___ Enter VC per requirements of OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) (Page 223).</p> <p>B. Isolate and disconnect instrument air to one of the following:</p> <p>___ 204A (CHARGING HEADER STOP TO LOOP 2)</p> <p>___ 204B (CHARGING HEADER STOP TO LOOP 1)</p>
4.36 ___ Place running charging pump LOCAL/REMOTE switch in LOCAL (Charging Pump Emergency Control Panel).	
4.37 ___ Open 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).	
4.38 ___ Close 297 (BORIC ACID BLENDER OUTLET STOP).	
4.39 ___ Open disconnect switch 1HR on MCC-26A (LCV-112C)	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.40 __ Manually close LCV-112C (VCT OUTLET STOP) (VCT alleyway).	
4.41 __ Note time LCV-112C was closed (charging pump placed on RWST suction). _____	
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). 	
4.42 __ Maintain indicated PRZR level between 30% and 37% by one of the following methods: <ul style="list-style-type: none"> • Instrument air available - place charging pump speed in manual and adjust speed control knob • Instrument air NOT available - manually adjust scoop tube 	
4.43 __ Is LCV-459 open?	1. __ Perform Attachment 27 (Placing Letdown In Service) (Page 323). 2. __ GO TO Step 4.45.

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.44 Is <u>any</u> letdown orifice stop open?</p> <p>___ 200A</p> <p>___ 200B</p> <p>___ 200C</p>	<p>1. ___ Place LCV-459 (LETDOWN STOP) control switch in OPEN.</p> <p>2. ___ Place LCV-459 (LETDOWN STOP) control switch in REMOTE.</p> <p>3. ___ Slowly open instrument air bleedoff valve for PCV-135 until PCV-135 is 50-75% open (Non-regenerative HX Room).</p> <p>4. Open one of the following letdown orifices:</p> <p>___ 200A (75 gpm)</p> <p>___ 200B (45 gpm)</p> <p>___ 200C (75 gpm)</p> <p>5. ___ Close instrument air bleedoff valve for PCV-135.</p>
<p>4.45 ___ Place 21 Backup Heater LOCAL/REMOTE switch in LOCAL.</p>	
<p>4.46 ___ Operate 21 Backup Heater START/STOP button to maintain RCS pressure at \approx 2235 psig.</p>	
<p>4.47 ___ Coordinate with operator at steam dumps (performing Attachment 3) to maintain RCS temperature at \approx 550°F.</p>	

NOTE

SG level in percent is obtained by dividing inches of water by 5.16 or per Attachment 30 (Pneumatic Back-up Transmitter for S/G 21 & 22 Level) (Page 329).

4.48 ___ Coordinate with operator at ABFP to maintain SG level 63 - 68% actual level per Attachment 11 (SG Wide Range Level Temperature Calibration Curves) (Page 231).

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.49 __ IAAT CCW, AND charging are lost, THEN INITIATE Attachment 18 (Loss of CCW and Charging) (Page 281).</p>	
<p>4.50 __ IAAT CCW is lost, AND charging is operating, THEN INITIATE Attachment 17 (Loss of CCW With Charging Available) (Page 275)</p>	
<p>4.51 __ IAAT charging is lost, AND CCW is operating, THEN INITIATE Attachment 16 (Loss of Charging With CCW Available) (Page 269)</p>	
<p>4.52 __ IAAT placing an SW pump (23 or 24) in service on safe shutdown power is desired, THEN INITIATE Attachment 12 (Placing 23 or 24 Service Water Pump in Service On Safe Shutdown Power) (Page 233).</p>	
<p>4.53 __ Perform Attachment 5 Combined Path Actions) (Page 185).</p>	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.49) CCW **AND** charging are lost...
- (4.50) CCW is lost **AND** charging is operating...
- (4.51) charging is lost **AND** CCW is operating...
- (4.52) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.54 ___ Is 288 (RWST Manual Bypass To Charging Suction Around LCV-112B)</p> <p style="text-align: center;">OR</p> <p>LCV-112C (VCT Outlet Stop) open?</p>	<p>Perform the following:</p> <ol style="list-style-type: none"> 1. ___ Ensure LCV-112B (Emergency Refueling Water Makeup To Charging Pmps Suction(CVCS) is open. <ul style="list-style-type: none"> • IF required, THEN open valve locally. 2. ___ IF unable to maintain Charging Pump suction, THEN place <u>all</u> charging Pumps in Pullout.
<p>4.55 ___ Is at least one SW Pump running on non-essential header?</p>	<ol style="list-style-type: none"> 1. ___ Place LOCAL/REMOTE switch for selected SW pump in LOCAL. 2. ___ Depress START pushbutton for selected SW pump. 3. ___ IF NO SW pump can be started on non-essential header, AND RCS temperature is < 350°F, THEN INITIATE applicable section of SOP 24.1.2 (Service Water Header Operation Mode 4, 5 or 6) to cross-connect essential and non-essential SW headers.
<p>4.56 ___ Is at least one FCU running?</p>	<p>Re-start one previously running FCU as follows:</p> <ol style="list-style-type: none"> A. ___ Place LOCAL/REMOTE switch for selected FCU in LOCAL. B. ___ Depress START pushbutton for selected FCU.

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.49) CCW **AND** charging are lost...
- (4.50) CCW is lost **AND** charging is operating...
- (4.51) charging is lost **AND** CCW is operating...
- (4.52) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.57 <input type="checkbox"/> IAAT SFP cooling is lost, THEN INITIATE Attachment 19 (Restoration of SFP Cooling) (Page 285).	
4.58 <input type="checkbox"/> IAAT <u>all</u> the following conditions exist: <input type="checkbox"/> Charging pump running <input type="checkbox"/> Boration from RWST has occurred for at least 15 minutes (See Step 4.41) <input type="checkbox"/> Shifting charging pump suction to VCT is desired THEN perform Steps 4.59 - 4.62.	<input type="checkbox"/> GO TO Step 4.63.
4.59 <input type="checkbox"/> Manually open LCV-112C (VCT OUTLET STOP) (VCT alleyway).	
4.60 <input type="checkbox"/> Close disconnect switch 1HR on MCC-26A (LCV-112C)	
4.61 <input type="checkbox"/> Close 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).	
4.62 <input type="checkbox"/> Open 297 (BORIC ACID BLENDER OUTLET STOP).	

NOTE

If charging was lost and a charging pump could **NOT** be started, PRZR spray is **NOT** available to reduce RCS pressure and hot shutdown must be maintained until charging can be established.

4.63 <input type="checkbox"/> IAAT cooldown from outside the CCR to RHR operation is desired, THEN GO TO Step 4.155.	
4.64 <input type="checkbox"/> WHEN directed by OM, THEN EXIT this procedure.	

... END ...

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>Unit Status</u></p> <p style="text-align: center;">CCW is available and NO charging pumps are running.</p>	
4.65 ___ Dispatch an operator to perform Attachment 8 (Placing 21 OR 23 Charging Pump in Service) (Page 211).	
4.66 ___ Remove lock and place LCV-459 (LETDOWN STOP) control switch in CLOSE.	
4.67 ___ Is LCV-459 closed?	<p>1. Close <u>all</u> letdown orifice stops:</p> <p style="margin-left: 40px;">___200A</p> <p style="margin-left: 40px;">___200B</p> <p style="margin-left: 40px;">___200C</p> <p>2. ___ IF <u>any</u> letdown orifice will NOT close, THEN dispatch an operator to perform the following:</p> <p>A. ___ Enter VC per the requirements of OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) (Page 223).</p> <p>B. Isolate and disconnect instrument air to the following:</p> <p style="margin-left: 40px;">___LCV-459 (LETDOWN STOP)</p> <p style="margin-left: 40px;">___213 (EXCESS LETDOWN STOP)</p>
4.68 ___ IAAT it is determined that 21 <u>and</u> 23 Charging Pump CANNOT be started, THEN dispatch an operator to perform Attachment 14 (Placing 21 SI Pump in Service with Safe Shutdown Power) (Page 251).	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.68) it is determined that 21 and 23 Charging Pump **CANNOT** be started...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.69 <input type="checkbox"/> IAAT 21 OR 23 Charging Pump is started, OR 21 SI Pump is started, THEN perform Steps 4.70 - 4.77.</p>	<p>2. <input type="checkbox"/> GO TO Step 4.78.</p>
<p>4.70 <input type="checkbox"/> Is 21 OR 23 Charging Pump running?</p>	<div data-bbox="863 549 1509 1134" style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). </div> <p>1. <input type="checkbox"/> Coordinate with operator at Loop SI stop (MOV-856E, A or B) to throttle stop as necessary to maintain indicated PRZR level between 30% and 37%.</p> <p>2. <input type="checkbox"/> GO TO Step 4.78.</p>
<p>4.71 <input type="checkbox"/> Is HCV-142 (CHARGING LINE FLOW CONTROLLER) open?</p>	<p><input type="checkbox"/> Locally open MOV-227 (CHARGING BYPASS STOP).</p>
<p>4.72 <input type="checkbox"/> Does charging flow exist?</p>	<p><input type="checkbox"/> Dispatch an operator to perform the following:</p> <p>A. <input type="checkbox"/> Enter VC per the requirements of OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) (Page 223).</p> <p>B. Isolate and disconnect instrument air to <u>one</u> of the following:</p> <p style="padding-left: 40px;"><input type="checkbox"/> 204A (CHARGING HEADER STOP TO LOOP 2)</p> <p style="padding-left: 40px;"><input type="checkbox"/> 204B (CHARGING HEADER STOP TO LOOP 1)</p>

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). 	
<p>4.73 ___ Maintain indicated PRZR level between 30% and 37% by one of the following methods:</p> <ul style="list-style-type: none"> • Instrument air available - place charging pump speed in manual and adjust speed control knob • Instrument air NOT available - manually adjust scoop tube 	
<p>4.74 ___ Was an operator sent into the VC due to inability to close letdown orifice stops?</p>	<p>___ GO TO Step 4.77.</p>
<p>4.75 ___ Notify operator to re-enter VC as necessary to reconnect instrument air to LCV-459 and 213.</p>	
<p>4.76 ___ WHEN LCV-459 can be operated, THEN continue with the procedure.</p>	
<p>4.77 ___ Perform Attachment 27 (Placing Letdown In Service) (Page 323).</p>	
<p>4.78 ___ Place 21 Backup Heater LOCAL/REMOTE switch in LOCAL.</p>	
<p>4.79 ___ Operate 21 Backup Heater START/STOP button to maintain RCS pressure at ≈ 2235 psig.</p>	
<p>4.80 ___ Coordinate with operator at steam dumps (performing Attachment 3) to maintain RCS temperature at ≈ 550°F.</p>	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.68) it is determined that 21 and 23 Charging Pump **CANNOT** be started...
- (4.69) 21 **OR** 23 Charging Pump is started **OR** 21 SI Pump is started...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

SG level in percent is obtained by dividing inches of water by 5.16 or per Attachment 30 (Pneumatic Back-up Transmitter for S/G 21 & 22 Level) (Page 329).

4.81 __ Coordinate with operator at ABFP to maintain SG level 63 - 68% actual level per Attachment 11 (SG Wide Range Level Temperature Calibration Curves) (Page 231).

4.82 __ **IAAT 21 OR 23** Charging Pump is running,
AND CCW is lost,
THEN INITIATE Attachment 17
(Loss of CCW With Charging Available)
(Page 275)

NOTE

Attachment 14 (Placing 21SI Pump In Service On Safe Shutdown Power) contains an IAAT step to address a loss of cooling to 21 SI Pump.

4.83 __ **IAAT 21** SI Pump is running,
AND CCW is lost,
THEN INITIATE Attachment 15
(Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).

4.84 __ **IAAT** placing an SW pump (23 or 24) in service on safe shutdown power is desired,
THEN INITIATE Attachment 12
(Placing 23 or 24 Service Water Pump in Service On Safe Shutdown Power) (Page 233).

4.85 __ Perform Attachment 5 Combined Path Actions) (Page 185).

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.68) it is determined that 21 and 23 Charging Pump **CANNOT** be started...
- (4.69) 21 **OR** 23 Charging Pump is started **OR** 21 SI Pump is started...
- (4.82) 21 **OR** 23 Charging Pump is running **AND** CCW is lost...
- (4.83) 21 SI Pump is running **AND** CCW is lost...
- (4.84) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.86 ___ Is at least one SW Pump running on non-essential header?	1. ___ Place LOCAL/REMOTE switch for selected SW pump in LOCAL. 2. ___ Depress START pushbutton for selected SW pump. 3. ___ IF NO SW pump can be started on non-essential header, AND RCS temperature is < 350°F, THEN INITIATE applicable section of SOP 24.1.2 (Service Water Header Operation Mode 4, 5 or 6) to cross-connect essential and non-essential SW headers.
4.87 ___ Is at least one FCU running?	Re-start one previously running FCU as follows: A. ___ Place LOCAL/REMOTE switch for selected FCU in LOCAL. B. ___ Depress START pushbutton for selected FCU.
4.88 ___ IAAT SFP cooling is lost, THEN INITIATE Attachment 19 (Restoration of SFP Cooling) (Page 285).	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.68) it is determined that 21 and 23 Charging Pump **CANNOT** be started...
- (4.69) 21 **OR** 23 Charging Pump is started **OR** 21 SI Pump is started...
- (4.82) 21 **OR** 23 Charging Pump is running **AND** CCW is lost...
- (4.83) 21 SI Pump is running **AND** CCW is lost...
- (4.84) placing an SW pump (23 or 24) in service on safe shutdown power is desired...
- (4.88) SFP cooling is lost...
- (4.94) cooldown from outside the CCR to RHR operation is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.89 ___ IAAT <u>all</u> the following conditions exist:</p> <p>___ Charging pump running</p> <p>___ Boration from RWST has occurred for at least 15 minutes (See Step found in Attachment 8 (Page 211))</p> <p>___ Shifting charging pump suction to VCT is desired</p> <p>THEN perform Steps 4.90 - 4.93.</p>	<p>___ GO TO Step 4.94.</p>
<p>4.90 ___ Manually open LCV-112C (VCT OUTLET STOP) (VCT alleyway).</p>	
<p>4.91 ___ Close disconnect switch 1HR on MCC-26A (LCV-112C).</p>	
<p>4.92 ___ Close 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).</p>	
<p>4.93 ___ Open 297 (BORIC ACID BLENDER OUTLET STOP).</p>	

NOTE

If charging was lost and a charging pump could **NOT** be started, PRZR spray is **NOT** available to reduce RCS pressure and Mode 4 must be maintained until charging can be established.

<p>4.94 ___ IAAT cooldown from outside the CCR to RHR operation is desired, THEN GO TO Step 4.155.</p>	
<p>4.95 ___ WHEN directed by OM, THEN EXIT this procedure.</p>	

... END ...

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED												
<div>Unit Status</div> <div>CCW is NOT operating. A charging pump is operating.</div>													
4.96 <input type="checkbox"/> INITIATE Attachment 10 (Backup Cooling Water Supply To Charging Pumps) (Page 229).													
4.97 <input type="checkbox"/> Is instrument air available?	1. <input type="checkbox"/> Manually adjust scoop tube to maintain charging pump at maximum speed. 2. <input type="checkbox"/> GO TO Step 4.99.												
4.98 <input type="checkbox"/> Place charging pump speed in manual and adjust speed control knob to maintain charging pump at maximum speed.													
4.99 Unlock and open charging pump bypass stop on running charging pump: <table><tr><td><input checked="" type="checkbox"/></td><td>PUMP</td><td>BYPASSES</td></tr><tr><td><input type="checkbox"/></td><td>21</td><td>1275</td></tr><tr><td><input type="checkbox"/></td><td>22</td><td>1277</td></tr><tr><td><input type="checkbox"/></td><td>23</td><td>1279</td></tr></table>	<input checked="" type="checkbox"/>	PUMP	BYPASSES	<input type="checkbox"/>	21	1275	<input type="checkbox"/>	22	1277	<input type="checkbox"/>	23	1279	
<input checked="" type="checkbox"/>	PUMP	BYPASSES											
<input type="checkbox"/>	21	1275											
<input type="checkbox"/>	22	1277											
<input type="checkbox"/>	23	1279											
4.100 Unlock and throttle charging pump bypass stop on running charging pump to maintain PRZR level: <table><tr><td><input checked="" type="checkbox"/></td><td>PUMP</td><td>BYPASSES</td></tr><tr><td><input type="checkbox"/></td><td>21</td><td>4900</td></tr><tr><td><input type="checkbox"/></td><td>22</td><td>4901</td></tr><tr><td><input type="checkbox"/></td><td>23</td><td>4902</td></tr></table>	<input checked="" type="checkbox"/>	PUMP	BYPASSES	<input type="checkbox"/>	21	4900	<input type="checkbox"/>	22	4901	<input type="checkbox"/>	23	4902	
<input checked="" type="checkbox"/>	PUMP	BYPASSES											
<input type="checkbox"/>	21	4900											
<input type="checkbox"/>	22	4901											
<input type="checkbox"/>	23	4902											
4.101 <input type="checkbox"/> INITIATE Attachment 15 (Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).													

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.102 __ IAAT cooling water is restored to the charging pump, THEN perform Steps 4.103 - 4.106.	__ GO TO Step 4.107.

NOTE

- Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A.
- Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level.
- For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327).

4.103 __ Adjust charging pump speed to maintain indicated PRZR level between 30% and 37%.	
4.104 __ Close applicable charging pump bypass stops that were opened to aid in PRZR level control (Step 4.99).	
4.105 __ Is HCV-142 (CHARGING LINE FLOW CONTROLLER) open?	__ Locally open MOV-227 (CHARGING BYPASS STOP).
4.106 __ Does charging flow exist? If "yes", you go to next step in effect.	Dispatch an operator to perform the following: A. __ Enter VC per the requirements of OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) (Page 223). B. Isolate and disconnect instrument air to one of the following: __ 204A (CHARGING HEADER STOP TO LOOP 2) __ 204B (CHARGING HEADER STOP TO LOOP 1)

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.102) cooling water is restored to the charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.107 <u> </u> IAAT 23 CCW pump is started, THEN perform Steps 4.108 - 4.109.	<u> </u> GO TO Step 4.110.
4.108 <u> </u> Is LCV-459 open?	1. <u> </u> Perform Attachment 27 (Placing Letdown In Service) (Page 323). 2. <u> </u> GO TO Step 4.110.
4.109 Is <u>any</u> letdown orifice stop open? <u> </u> 200A <u> </u> 200B <u> </u> 200C If "yes", you go to next step in effect.	1. <u> </u> Place LCV-459 (LETDOWN STOP) control switch in OPEN. 2. <u> </u> Place LCV-459 (LETDOWN STOP) control switch in REMOTE. 3. <u> </u> Slowly open instrument air bleedoff valve for PCV-135 until PCV-135 is 50- 75% open (Non-regenerative HX Room). 4. Open one of the following letdown orifices: <u> </u> 200A (75 gpm) <u> </u> 200B (45 gpm) <u> </u> 200C (75 gpm) 5. <u> </u> Close instrument air bleedoff valve for PCV-135.

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.102) cooling water is restored to the charging pump...
- (4.107) 23 CCW pump is started...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.110__ Open 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).	
4.111__ Close 297 (BORIC ACID BLENDER OUTLET STOP).	
4.112__ Open disconnect switch 1HR on MCC-26A (LCV-112C).	
4.113__ Manually close LCV-112C (VCT OUTLET STOP) (VCT alleyway).	
4.114__ Note time LCV-112C was closed (charging pump placed on RWST suction). _____	
4.115__ Place 21 Backup Heater LOCAL/REMOTE switch in LOCAL.	
4.116__ Operate 21 Backup Heater START/STOP button to maintain RCS pressure at \approx 2235 psig.	
4.117__ Coordinate with operator at steam dumps (performing Attachment 3) to maintain RCS temperature at \approx 550°F.	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.102) cooling water is restored to the charging pump...
- (4.107) 23 CCW pump is started...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;">NOTE</p> <p>SG level in percent is obtained by dividing inches of water by 5.16 or per Attachment 30 (Pneumatic Back-up Transmitter for S/G 21 & 22 Level) (Page 329).</p>	
4.118__ Coordinate with operator at ABFP to maintain SG level 63 - 68% actual level per Attachment 11 (SG Wide Range Level Temperature Calibration Curves) (Page 231).	
4.119__ IAAT CCW, AND charging are lost, THEN INITIATE Attachment 18 (Loss of CCW and Charging) (Page 281).	
4.120__ IAAT charging is lost, AND CCW is operating, THEN INITIATE Attachment 16 (Loss of Charging With CCW Available) (Page 269)	
4.121__ INITIATE Attachment 15 (Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).	
4.122__ IAAT placing an SW pump (23 or 24) in service on safe shutdown power is desired, THEN INITIATE Attachment 12 (Placing 23 or 24 Service Water Pump in Service On Safe Shutdown Power) (Page 233).	
4.123__ Perform Attachment 5 Combined Path Actions) (Page 185).	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.102) cooling water is restored to the charging pump...
- (4.107) 23 CCW pump is started...
- (4.119) CCW **AND** charging are lost...
- (4.120) charging is lost **AND** CCW is operating...
- (4.122) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.124 ___ Is at least one SW Pump running on non-essential header?	1. ___ Place LOCAL/REMOTE switch for selected SW pump in LOCAL. 2. ___ Depress START pushbutton for selected SW pump. 3. ___ IF NO SW pump can be started on non-essential header, AND RCS temperature is < 350°F THEN INITIATE applicable section of SOP 24.1.2 (Service Water Header Operation Mode 4, 5 or 6) to cross-connect essential and non-essential SW headers.
4.125 ___ Is at least one FCU running?	Re-start one previously running FCU as follows: A. ___ Place LOCAL/REMOTE switch for selected FCU in LOCAL. B. ___ Depress START pushbutton for selected FCU.
4.126 ___ IAAT SFP cooling is lost, THEN INITIATE Attachment 19 (Restoration of SFP Cooling) (Page 285).	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.102) cooling water is restored to the charging pump...
- (4.107) 23 CCW pump is started...
- (4.119) CCW **AND** charging are lost...
- (4.120) charging is lost **AND** CCW is operating...
- (4.122) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.127 <u>IAAT</u> <u>all</u> the following conditions exist:</p> <p>___ Charging pump running</p> <p>___ Boration from RWST has occurred for at least 15 minutes (See Step 4.114)</p> <p>___ Shifting charging pump suction to VCT is desired</p> <p>THEN perform Steps 4.128 - 4.131.</p>	<p>___ GO TO Step 4.132.</p>
<p>4.128 ___ Manually open LCV-112C (VCT OUTLET STOP) (VCT alleyway).</p>	
<p>4.129 ___ Close disconnect switch 1HR on MCC-26A (LCV-112C)</p>	
<p>4.130 ___ Close 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).</p>	
<p>4.131 ___ Open 297 (BORIC ACID BLENDER OUTLET STOP).</p>	

NOTE

If charging was lost and a charging pump could **NOT** be started, PRZR spray is **NOT** available to reduce RCS pressure and hot shutdown must be maintained until charging can be established.

<p>4.132 <u>IAAT</u> cooldown from outside the CCR to RHR operation is desired, THEN GO TO Step 4.155.</p>	
<p>4.133 WHEN directed by OM, THEN EXIT this procedure.</p>	

... END ...

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>Unit Status</u></p> <p style="text-align: center;">CCW and Charging are NOT operating.</p>	
<p>4.134__ Were LCV-459 fuses removed prior to CCR evacuation?</p>	<p>A.__ Remove lock and place LCV-459 (LETDOWN STOP) control switch in CLOSE.</p> <p>B. Close <u>all</u> letdown orifice stops:</p> <p>__ 200A</p> <p>__ 200B</p> <p>__ 200C</p>
<p>4.135__ Isolate seal injection by closing CVCS Seal Injection Filter Outlet Stops:</p> <p>__ 249A</p> <p>__ 249C</p>	<p>__ Close the following locally (PAB 67' mezzanine location of the valve operators).</p> <p>__ 250A (21 RCP Seal Wtr Injection Line Isolation)</p> <p>__ 250B (22 RCP Seal Wtr Injection Line Isolation)</p> <p>__ 250C (23 RCP Seal Wtr Injection Line Isolation)</p> <p>__ 250D (24 RCP Seal Wtr Injection Line Isolation).</p>
<p>4.136__ INITIATE Attachment 8 (Placing 21 OR 23 Charging Pump in Service) (Page 211).</p>	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.137 __ De-energize MOV-789 (RCP'S Thermal Barrier CCW Return Isolation) by opening breaker 3M at MCC-26B.	
4.138 __ De-energize MOV-222 (RCP Seal Return Flow Stop). by opening breaker 1MR at MCC-26A.	
4.139 __ Is HCV-142 (CHARGING LINE FLOW CONTROLLER) open?	__ Locally open MOV-227 (CHARGING BYPASS STOP).
4.140 __ MANUALLY Close MOV-789 (RCP Thermal Barrier CCW Return Isolation Valve Outside Containment).	
4.141 __ MANUALLY Close MOV-222 (RCP Seal Return Flow Stop).	
4.142 __ Coordinate with operator at steam dumps (performing Attachment 3) to maintain RCS temperature at $\approx 550^{\circ}\text{F}$.	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>SG level in percent is obtained by dividing inches of water by 5.16 or per Attachment 30 (Pneumatic Back-up Transmitter for S/G 21 & 22 Level) (Page 329).</p>	
4.143__ Coordinate with operator at ABFP to maintain SG level 63 – 68% actual level per Attachment 11 (SG Wide Range Level Temperature Calibration Curves) (Page 231).	
4.144__ INITIATE Attachment 15 (Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).	
4.145__ INITIATE Attachment 14 (Placing 21 SI Pump In Service On Safe Shutdown Power) (Page 251).	
4.146__ IAAT placing an SW pump (23 or 24) in service on safe shutdown power is desired, THEN INITIATE Attachment 12 (Placing 23 or 24 Service Water Pump in Service On Safe Shutdown Power) (Page 233).	
4.147__ Perform Attachment 5 Combined Path Actions) (Page 185).	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.146) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.148__ Is at least one FCU running?	<p>Re-start one previously running FCU as follows:</p> <p>A. __ Place LOCAL/REMOTE switch for selected FCU in LOCAL.</p> <p>B. __ Depress START pushbutton for selected FCU.</p>
4.149__ IAAT SFP cooling is lost, THEN INITIATE Attachment 19 (Restoration of SFP Cooling) (Page 285).	
<p style="text-align: center;"><u>NOTE</u></p> <p>If a charging pump could NOT be started, PRZR spray is NOT available to reduce RCS pressure and hot shutdown must be maintained until charging can be established.</p>	
4.150__ IAAT cooldown from outside the CCR to RHR operation is desired, THEN GO TO Step 4.155.	

IF AT ANY TIME:

- (4.28) notification is received that the District Operator **CAN NOT** provide 13.8kV voltage within 13.5kV & 14.3kV ...
- (4.29) a 480V Bus has been lost and re-energized by its EDG...
- (4.32) instrument air is lost to a running charging pump...
- (4.146) placing an SW pump (23 or 24) in service on safe shutdown power is desired...

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.151 __ IAAT letdown is desired, THEN perform Attachment 27 (Placing Letdown In Service) (Page 323).	
4.152 __ Place 21 Backup Heater LOCAL/REMOTE switch in LOCAL.	
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • If 21 <u>or</u> 23 Charging Pump CANNOT be started, RCS pressure must be less than SI pump discharge pressure (≈ 1700 psig) for makeup to the RCS. • If RCP seals have failed due to loss of seal injection and CCW, RCS pressure will decrease and allow SI to makeup. • The pressurizer heaters are NOT credited in the safe-shutdown model or able to be supplied from the ASSS power distribution during a post-fire alternate shutdown scenario. 	
4.153 __ Operate 21 Backup Heater START/STOP button to maintain desired RCS pressure.	
4.154 __ WHEN directed by OM, THEN EXIT this procedure.	

... END ...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p style="text-align: center;">VC entry will be required for local operation of components.</p>	
<p>4.155 Request TSC determine shutdown margin using the following information:</p> <ul style="list-style-type: none"> ___ Last known boron concentration ___ Time charging pump suction established from RWST (Step 4.41) OR 21 SI Pump started ___ Time charging pump suction established from RWST (Step 4.114) OR 21 SI Pump started ___ Time charging pump suction established from RWST (Step found in Attachment 8 (Page 211) OR 21 SI Pump started ___ Change in RWST level 	
<p>4.156 Close the following:</p> <ul style="list-style-type: none"> ___ MOV-889A (22 RHR HEAT EXCHANGER OUTLET STOP) ___ MOV-889B (21 RHR HEAT EXCHANGER OUTLET STOP) 	
<p>4.157 Open <u>breakers</u> for the following</p> <ul style="list-style-type: none"> ___ MOV-889A on MCC-26A ___ MOV-889B on MCC-26B 	
<p>4.158 Close the following:</p> <ul style="list-style-type: none"> ___ S-51A (21 RHR HEAT EXCHANGER SPRAY HEADER DRAIN STOP) ___ S-51B (22 RHR HEAT EXCHANGER SPRAY HEADER DRAIN STOP) 	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.159__ Refer to Attachment 20 (Reactor Coolant System Cooldown Curves) (Page 289).	
4.160__ Coordinate with operator at atmospheric steam dumps to establish a cooldown rate $\leq 25^{\circ}\text{F/hr}$.	
4.161__ Dispatch an operator to perform Attachment 21 (CST Level/Backup City Water Supply) (Page 291).	
4.162__ Is 480V Switchgear Room accessible?	<p>1.__ IF all <u>three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. Dispatch an operator to perform Attachment 7 (6.9KV Manual Breaker Operation) (Page 207) for the following breakers:</p> <p>__ SS5 (6.9/480 TRANSF BUS-5 SUPPLY BREAKER)</p> <p>__ SS2 (6.9/480 TRANSF BUS-2 SUPPLY BREAKER)</p> <p>__ SS3 (6.9/480 TRANSF BUS-3 SUPPLY BREAKER)</p> <p>__ SS6 (6.9/480 TRANSF BUS-6 SUPPLY BREAKER)</p> <p>3.__ GO TO Step 4.164.</p>
<p>4.163 Dispatch an operator to perform Attachment 22 (480V Breaker Rack-out (DB-50) (Page 295) for the following breakers:</p> <p>__ 22 BU heater group (Bus 2A, Bkr 22A)</p> <p>__ 23 BU heater group (Bus 5A, Bkr 16A)</p> <p>__ Control heater group (Bus 6A, Bkr 9A)</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.164 ___ Is 21 SI Pump running?	___ GO TO Step 4.166.
4.165 ___ Press 21 Back-up Heater Group STOP pushbutton.	
4.166 ___ Were both CCW <u>and</u> Charging lost at the same time?	___ GO TO Step 4.168.
4.167 ___ GO TO Step 4.170	
4.168 ___ Is a CCW pump running?	___ GO TO Step 4.170.
4.169 ___ Is CCW flow indicated from RCP thermal barriers on FIC-625?	1. ___ IF either of the following is closed, THEN open affected valve: ___ FCV-789 (RCP THERMAL BARRIER RETURN ISOLATION) ___ FCV-625 (RCP THERMAL BARRIER RETURN ISOLATION) 2. ___ IF either of the following is closed, THEN open affected valve: ___ MOV-769 (RCP CCW SUPPLY ISOLATION) ___ MOV-797 (RCP CCW SUPPLY ISOLATION)
4.170 Isolate and bleed off instrument air from diaphragms of the following: ___ 204A (CHARGING LINE STOP) ___ 204B (CHARGING LINE STOP)	
4.171 Connect portable nitrogen supply with regulator to diaphragms of the following: ___ 204A (CHARGING LINE STOP) ___ 204B (CHARGING LINE STOP)	
4.172 Adjust nitrogen regulators to maintain the following closed: ___ 204A (CHARGING LINE STOP) ___ 204B (CHARGING LINE STOP)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.173__ Isolate and bleed off instrument air from diaphragms of 212 (AUXILIARY SPRAY VALVE).	
4.174__ Connect portable nitrogen supply with regulator to diaphragms of 212 (AUXILIARY SPRAY VALVE).	
4.175__ Maintain RCS pressure to achieve $\geq 65^{\circ}\text{F}$ subcooling per Attachment 23 (65°F Subcooling Margin Table) (Page 297) by adjusting nitrogen supply pressure to 212.	
4.176__ Is 21 SI Pump running?	__ GO TO Step 4.178.
4.177__ GO TO Step 4.181.	
4.178__ Is 480V Switchgear Room accessible?	<p>1.__ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. Dispatch an operator to perform Attachment 7 (6.9KV Manual Breaker Operation) (Page 207) for the following breakers:</p> <p>__ SS5 (6.9/480 TRANSF BUS-5 SUPPLY BREAKER)</p> <p>__ SS2 (6.9/480 TRANSF BUS-2 SUPPLY BREAKER)</p> <p>__ SS3 (6.9/480 TRANSF BUS-3 SUPPLY BREAKER)</p> <p>__ SS6 (6.9/480 TRANSF BUS-6 SUPPLY BREAKER)</p> <p>3.__ GO TO Step 4.185.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.179 Dispatch an operator to perform Attachment 22 (480V Breaker Rack-out (DB-50) (Page 295) for the following breakers:</p> <p>___ 21 SI Pump (Bus 5A, Bkr 15A)</p> <p>___ 22 SI Pump (Bus 2A, Bkr 24B)</p> <p>___ 22 SI Pump (Bus 3A, Bkr 4C)</p> <p>___ 23 SI Pump (Bus 6A, Bkr 10A)</p>	
<p>4.180 ___ GO TO Step 4.185.</p>	
<p>4.181 Throttle the following as necessary to maintain indicated PRZR level between 30% and 37%:</p> <p>___ 856E (23 LOOP COLD LEG SI STOP)</p> <p>___ 856A (21 LOOP COLD LEG SI STOP)</p> <p>___ 856B (23 LOOP HOT LEG SI STOP)</p>	
<p>4.182 ___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. Dispatch an operator to perform Attachment 7 (6.9KV Manual Breaker Operation) (Page 207) for the following breakers:</p> <p>___ SS2 (6.9/480 TRANSF BUS-2 SUPPLY BREAKER)</p> <p>___ SS3 (6.9/480 TRANSF BUS-3 SUPPLY BREAKER)</p> <p>___ SS6 (6.9/480 TRANSF BUS-6 SUPPLY BREAKER)</p> <p>3. ___ GO TO Step 4.190.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.183 Dispatch an operator to perform Attachment 22 (480V Breaker Rack-out (DB-50) (Page 295) for the following breakers:</p> <p>___ 22 SI Pump (Bus 2A, Bkr 24B)</p> <p>___ 22 SI Pump (Bus 3A, Bkr 4C)</p> <p>___ 23 SI Pump (Bus 6A, Bkr 10A)</p>	
<p>4.184 ___ Is the Primary System Zinc Injection System shutdown?</p>	<p>___ Notify Chemistry to shutdown the Primary System Zinc Injection System.</p>
<p>4.185 ___ WHEN RCS pressure is \leq 1890 psig THEN stop depressurization and maintain pressure at \approx 1890 psig.</p>	
<p>4.186 ___ WHEN RCS temperature is \leq 400 °F THEN continue depressurizing and maintain pressure \geq 65°F subcooling.</p>	
<p>4.187 ___ WHEN RCS pressure is \leq 1100 psig THEN stop depressurization and maintain pressure at \approx 1100 psig.</p>	
<p align="center"><u>NOTE</u></p> <p>When only two Steam Generators are used for cooldown, computer models and calculations have shown that as temperature approaches 350 °F the cooldown rate slows excessively. If this is the case, then contact the TSC for further direction.</p>	
<p>4.188 ___ WHEN RCS temperature is \leq 320 °F THEN stop cooldown.</p>	
<p>4.189 ___ WHEN 8 hours has elapsed THEN continue to next step.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>The 300°F limit with 21 SI Pump running is to prevent cooling down below the OPS arming setpoint.</p>	
<p>4.190__ Continue cooldown and depressurization without going below 300°F.</p>	
<p style="text-align: center;"><u>NOTE</u></p> <p>An SI signal will be generated when RCS pressure goes below 1840 psig. At that time, letdown isolation occurs and safeguards equipment aligned to a 480V Bus will start.</p>	
<p>4.191__ WHEN PRZR pressure is < 1000 psig, THEN continue in this procedure.</p>	
<p>4.192 Close the following:</p> <ul style="list-style-type: none"> __ 894A (21 ACCUMULATOR OUTLET STOP) __ 894B (22 ACCUMULATOR OUTLET STOP) __ 894C (23 ACCUMULATOR OUTLET STOP) __ 894D (24 ACCUMULATOR OUTLET STOP) 	
<p>4.193__ WHEN the following conditions exist:</p> <ul style="list-style-type: none"> __ PRZR pressure < 375 psig __ RCS temperature < 350°F <p>THEN continue in this procedure.</p>	
<p>4.194__ Adjust nitrogen pressure to 212 (AUXILIARY SPRAY VALVE) to maintain RCS pressure < 375 psig.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.195___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. ___ IF the following have NOT been racked out:</p> <p>___ SS3 (6.9/480 TRANSF BUS-3 SUPPLY BREAKER)</p> <p>___ SS6 (6.9/480 TRANSF BUS-6 SUPPLY BREAKER)</p> <p>THEN PERFORM Attachment 7 (6.9KV Manual Breaker Operation) (Page 207) for these breakers.</p> <p>3. ___ GO TO Step 4.198.</p>
<p>4.196 Dispatch an operator to perform Attachment 22 (480V Breaker Rack-out (DB-50) (Page 295) for the following breakers:</p> <p>___ 21 RHR Pump (Bus 3A, Bkr 5C)</p> <p>___ 22 RHR Pump (Bus 6A, Bkr 11A)</p>	
<p>4.197___ Is 21 SI Pump running?</p>	<p>___ GO TO Step 4.203.</p>
<p>4.198___ Cooldown until RCS temperature reaches but is NOT < 300°F.</p>	
<p>4.199___ Are PORVs operable?</p>	<p>___ GO TO Step 4.201.</p>
<p>4.200 Place the following disconnects in ON:</p> <p>___ MCC-26A, Breaker 1H (MOV-536)</p> <p>___ MCC-26B, Breaker 1H (MOV-535)</p>	
<p>4.201___ Depressurize to < 125 psig by adjusting nitrogen to 212 (AUXILIARY SPRAY VALVE) while maintaining RCS temperature at ≈ 300°F (but NOT less).</p>	
<p>4.202___ Throttle SI flow to stabilize indicated PRZR level between 30% and 37%.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED																								
4.203___Is indicated PRZR level between 30% and 37% and stable?	<div>1. Open the following bypass stop on the running charging pump:</div> <table><tr><td>✓</td><td>Pump</td><td>Valve</td></tr><tr><td></td><td>21</td><td>1275</td></tr><tr><td></td><td>22</td><td>1277</td></tr><tr><td></td><td>23</td><td>1279</td></tr></table> <div>2. Throttle the following bypass stop on the running charging pump to stabilize indicated PRZR level between 30% and 37%.</div> <table><tr><td>✓</td><td>Pump</td><td>Valve</td></tr><tr><td></td><td>21</td><td>4900</td></tr><tr><td></td><td>22</td><td>4901</td></tr><tr><td></td><td>23</td><td>4902</td></tr></table> <div>3.___Adjust charging pump speed as necessary to maintain indicated PRZR level between 30% and 37%.</div>	✓	Pump	Valve		21	1275		22	1277		23	1279	✓	Pump	Valve		21	4900		22	4901		23	4902
✓	Pump	Valve																							
	21	1275																							
	22	1277																							
	23	1279																							
✓	Pump	Valve																							
	21	4900																							
	22	4901																							
	23	4902																							

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>4.204 Are the following open?</p> <p>___ MOV-1870 (RHR PUMP MIN-FLOW TEST LINE STOP)</p> <p>___ MOV-743 (RHR PUMP MIN-FLOW TEST LINE STOP)</p>	<p>___ Open affected valve.</p>
<p>4.205 ___ Is a SW pump running?</p>	<p>1. ___ PERFORM Attachment 12 (Placing 23 or 24 Service Water Pump In Service On Safe Shutdown Power) (Page 233).</p> <p>2. ___ GO TO Step 4.207.</p>
<p>4.206 ___ Is at least one SW Pump running on non-essential header?</p>	<p>1. ___ Place LOCAL/REMOTE switch for selected SW pump in LOCAL.</p> <p>2. ___ Depress START pushbutton for selected SW pump.</p> <p>3. ___ IF NO SW pump can be started on non-essential header, THEN INITIATE applicable section of SOP 24.1.2 (Service Water Header Operation Mode 4, 5 or 6) to cross-connect essential and non-essential SW headers.</p>

NOTE

22 RHR heat exchanger is preferred because MOV-746 (HX outlet stop) is **NOT** susceptible to "smart hot short" failure and MOV-822B can **NOT** be operated manually via handwheel at this time..

4.207 Open RHR heat exchanger CCW outlet stop on selected RHR heat exchanger:

✓	RHR HX	VALVE
	22	822A
	21	822B

4.208 ___ Close MOV-882 (RHR PUMP SUCTION STOP) (15 ft el. PAB)

4.209 ___ Open 732 (RHR PUMP SUCTION FROM RCS STOP) (53 ft el. Pipe Penetration).

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED									
4.210 ___ Is 21 SI Pump running?	___ GO TO Step 4.212.									
4.211 ___ Is RCS temperature $\geq 300^{\circ}\text{F}$?	Perform <u>one</u> of the following: ___ Restore temperature to $\geq 300^{\circ}\text{F}$ ___ Stop 21 SI Pump									
4.212 Open the following: ___ MOV-731 (RHR PUMP SUCTION FROM LOOP 2 HOT LEG) (inside VC ring wall 46 ft el., 22 loop) ___ MOV-730 (RHR PUMP SUCTION FROM LOOP 2 HOT LEG) (outside VC ring wall, overhead, above letdown orifices)										
4.213 Close the following (68 ft el. VC, RHR HX Room): ___ HCV-638 (21 RHR HEAT EXCHANGER OUTLET FLOW CONTROL) ___ HCV-640 (22 RHR HEAT EXCHANGER OUTLET FLOW CONTROL)										
4.214 Open RHR heat exchanger outlet stop on selected RHR heat exchanger: <table border="1"><tr><td>✓</td><td>RHR HX</td><td>VALVE</td></tr><tr><td></td><td>22</td><td>MOV-746</td></tr><tr><td></td><td>21</td><td>MOV-747</td></tr></table>	✓	RHR HX	VALVE		22	MOV-746		21	MOV-747	
✓	RHR HX	VALVE								
	22	MOV-746								
	21	MOV-747								
4.215 ___ Is a CCW pump running?	___ WHEN TSC has restored a CCW pump to service, THEN continue in this procedure.									
4.216 ___ Is 21 RHR Pump available?	1. ___ PERFORM Attachment 25 (Placing RHR In Service With 22 RHR Pump) (Page 309). 2. ___ GO TO Step 4.218.									

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.217 __ PERFORM Attachment 24 (Placing RHR In Service With 21 RHR Pump) (Page 299).	
4.218 __ WHEN RCS temperature is < 300°F, THEN continue in this procedure.	
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • With RCS temperature < 300°F, PORV block valves will open as soon as the disconnect is closed. • Attachment 26 (OPS Graphs) (Page 319) provides acceptable regions of RCS pressure and temperature operation. 	
4.219 Are the following disconnects in ON: __ MCC-26A, Breaker 1H (MOV-536) __ MCC-26B, Breaker 1H (MOV-535)	Place the following disconnects in ON: __ MCC-26A, Breaker 1H (MOV-536) __ MCC-26B, Breaker 1H (MOV-535)
4.220 __ Consult with TSC for further operational direction.	
4.221 __ EXIT this procedure.	

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Attachment 1
Local Manual Reactor Trip
Page 1 of 1

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.1 ___ Is Cable Spreading Room accessible?	1.___ Open (21 ROD POWER SUPPLY M-G SET 480V 2A-23C) breaker. 2.___ Open (22 ROD POWER SUPPLY M-G SET 480V 6A-7C) breaker. 3.___ GO TO Step 1.4.
1.2 Depress breaker TRIP buttons for the following (Cable Spreading Room): ___ Reactor Trip Breaker A ___ Reactor Trip Breaker B	
1.3 ___ Did <u>both</u> reactor trip breakers open?	1. Perform one of the following for 21 MG Set: ___ Place Generator No. 21 switch in pullout. OR ___ Place Motor No. 21 switch in pullout 2. Perform one of the following for 22 MG Set: ___ Place Generator No. 22 switch in pullout. OR ___ Place Motor No. 22 switch in pullout
1.4 ___ Notify CRS of reactor status.	
1.5 ___ EXIT this attachment.	

● ● ● **END** ● ● ●

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Attachment 2
Conventional Side RO Actions
Page 1 of 53

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.1 ___ Are both MBFPs tripped?	___ Locally trip both MBFPs
2.2 IAAT an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves, THEN perform the following to fail close the Atmospheric Steam Dump Valves. ___ Close IA-53 (HDR Stop-SO End Main HDR Aux BFPB) (18' el. ABFP Room SE corner) ___ Open IA-1500 (Instrument Air Header Blowdown Silencer Inlet Stop) (18' el. MFRV room north of stairs just off of floor) ___ Open IA-1501 (Instrument Air Header Blowdown Silencer Outlet Stop) (18' el. MFRV room north of stairs just off of floor)	

NOTE

When controlling Steam generator Levels refer to Attachment 11 (SG Wide Range Level Temperature Calibration Curves) (Page 231).

2.3 ___ Is 21 ABFP running?	1. ___ IF 22 ABFP is running, THEN GO TO Step 2.75. 2. ___ GO TO Step 2.7.
2.4 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	

**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.5 Open the following: ___ IA-2585 (FCV-406A ACTUATOR EQUILIZER) ___ IA-2588 (FCV-406B ACTUATOR EQUILIZER)	
2.6 ___ GO TO Step 2.15.	
<p style="text-align: center;"><u>NOTE</u></p> <p>For purposes of this attachment, an ABFP is available if it was NOT OOS prior to procedure entry.</p>	
2.7 ___ Is 21 ABFP available?	1. ___ IF 22 ABFP is available, THEN GO TO Step 2.75. 2. ___ GO TO Step 2.124.
2.8 ___ Place 21 ABFP LOCAL/REMOTE selector to LOCAL.	
2.9 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	
2.10 Open the following: ___ IA-2585 (FCV-406A ACTUATOR EQUILIZER) ___ IA-2588 (FCV-406B ACTUATOR EQUILIZER)	

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**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.11 Are both of the following closed? ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	___ Close affected valves using manual handwheel.
2.12 ___ Is FCV-1121 (21 AUXILIARY FEEDWATER PUMP RECIRCULATION CONTROL VALVE) open?	1. ___ Unlock and open BFD-77 (21 AUXILIARY FEEDWATER PUMP BYPASS). 2. ___ Throttle BFD-77 as required.
2.13 ___ Press 21 ABFP local START button.	
2.14 ___ Did 21 ABFP start?	___ GO TO Step 2.19.

NOTE

Safe shutdown SG level indication is only available at the Safe Shutdown Panel.

2.15 Adjust the following to control 21 and 22 SG levels 63 - 68% using the manual handwheel: ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	
---	--

NOTE

Only 21 and 22 SGs should be fed unless explicitly directed to steam from the "intact" or "affected" SGs by the EOPs or FRPs. 21 and 22 SGs are the only SGs with reliable backup wide range level indication at the Safe Shutdown Panel.

2.16 ___ Is feeding 23 or 24 SG required?	___ GO TO Step 2.19.
---	-----------------------------

**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.19) power to 21 ABFP is lost **OR** does **NOT** start when aligned to normal power...

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**Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.17 ___ Is 23 ABFP available?	1. ___ IF 22 ABFP is available, THEN GO TO Step 2.75. 2. ___ Notify CRS that 23 and 24 SGs CANNOT be fed. 3. ___ GO TO Step 2.19.
2.18 ___ GO TO Step 2.43.	
2.19 ___ IAAT power to 21 ABFP is lost, OR does NOT start when aligned to normal power, THEN perform Steps 2.20 - 2.29.	___ GO TO Step 2.30.
2.20 Close the following: ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	

**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.19) power to 21 ABFP is lost **OR** does **NOT** start when aligned to normal power...

Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.21 ___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. ___ IF breaker SS3 (6.9KV Breaker for Station Service Transformer No. 3) is NOT open, THEN perform the following for breaker SS3.</p> <p>A. ___ Remove A phase 51/50 relay cover.</p> <p>B. ___ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. ___ Replace relay cover.</p> <p>D. ___ Reset targets.</p> <p>E. ___ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. ___ GO TO Step 2.24.</p>
<p>2.22 Perform the following for 21 ABFP breaker:</p> <p>A. ___ Open breaker on 480V Bus 3A, compartment 6C.</p> <p>B. ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	
<p>2.23 ___ Is 12FD3 Sub-Station energized?</p>	<p>___ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 2.24.</p>
<p>2.24 ___ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1B in LOCAL (in control panel/box directly above 21 ABF Pump Breaker Control Switch).</p>	

**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.19) power to 21 ABFP is lost **OR** does **NOT** start when aligned to normal power...

Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Figure 1 (Substation and Transfer Switch Locations) (Page 53 of this attachment) shows locations of 12FD3 and EDC5. • Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram for Safe Shutdown Power Supplies 	
2.25 <input type="checkbox"/> Is Substation 12FD3 Breaker 1B open?	<input type="checkbox"/> Operate CLOSE/TRIP switch to open breaker.
2.26 <input type="checkbox"/> Place transfer switch EDC5 (inside cabinet) to EMERGENCY FEED position.	
2.27 <input type="checkbox"/> Unlock and place Substation 12FD3 Breaker 1B in the vertical position.	
2.28 <input type="checkbox"/> Close Substation 12FD3 Breaker 1B by operating CLOSE/TRIP switch.	
2.29 Adjust the following to control 21 and 22 SG levels 63 - 68% using the manual handwheel: <input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	

**Attachment 2
Conventional Side RO Actions
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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.19) power to 21 ABFP is lost **OR** does **NOT** start when aligned to normal power...

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**Attachment 2
Conventional Side RO Actions
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.30 ___ IAAT ABFP room ventilation is lost, THEN perform Steps 2.31 - 2.32.	___ GO TO Step 2.33.
2.31 ___ Open ABFP room rollup door.	
2.32 ___ Notify Security for compensatory actions.	
2.33 ___ Is 22 ABFP running?	___ GO TO Step 2.36.
2.34 ___ Place control switch for PCV-1139 (STM STOP VALVE AUX FW PMP 22) in TRIP (ABFP local control panel).	
2.35 ___ Place control switch for PCV-1139 in AUTO for at least 10 seconds.	
2.36 ___ Is 23 ABFP running?	___ GO TO Step 2.39.
2.37 ___ Place 23 ABFP LOCAL/REMOTE selector in LOCAL.	
2.38 ___ Press 23 ABFP local STOP button.	
2.39 ___ WHEN local SG level control is no longer required, THEN continue in this attachment.	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.40 Close the following: ___ IA-2585 (FCV-406A ACTUATOR EQUILIZER) ___ IA-2588 (FCV-406B ACTUATOR EQUILIZER)	
2.41 Place manual handwheel for the following in fully counter-clockwise position: ___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) ___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	
2.42 ___ EXIT this attachment.	

... END ...

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>Unit Status</u></p> <ul style="list-style-type: none"> • 21 ABFP is running. • 23 ABFP is available and feeding 23 or 24 SGs is desired. 	
2.43 <input type="checkbox"/> Is 23 ABFP running?	<input type="checkbox"/> GO TO Step 2.47.
2.44 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: <input type="checkbox"/> FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	
2.45 Open the following: <input type="checkbox"/> IA-2591 (FCV-406C ACTUATOR EQUILIZER) <input type="checkbox"/> IA-2594 (FCV-406D ACTUATOR EQUILIZER)	
2.46 <input type="checkbox"/> GO TO Step 2.53.	
2.47 <input type="checkbox"/> Place 23 ABFP LOCAL/REMOTE selector to LOCAL.	
2.48 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: <input type="checkbox"/> FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.49 Open the following:</p> <p>___ IA-2591 (FCV-406C ACTUATOR EQUILIZER)</p> <p>___ IA-2594 (FCV-406D ACTUATOR EQUILIZER)</p>	
<p>2.50 Are <u>both</u> of the following closed?</p> <p>___ FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)</p>	<p>___ Close affected valves using manual handwheel.</p>
<p>2.51 ___ Is FCV-1123 (23 AUXILIARY FEEDWATER PUMP RECIRCULATION CONTROL VALVE) open?</p>	<p>1. ___ Unlock and open BFD-78 (23 AUXILIARY FEEDWATER PUMP BYPASS).</p> <p>2. ___ Throttle BFD-78 as required.</p>
<p>2.52 ___ Press 23 ABFP local START button.</p>	
<p>2.53 Adjust the following as applicable to control 23 and 24 SG levels using the manual handwheel:</p> <p>___ FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)</p>	
<p>2.54 ___ IAAT power to 21 ABFP is lost, THEN perform Steps 2.55 - 2.64.</p>	<p>___ GO TO Step 2.65.</p>

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.55 Close the following:</p> <p>___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)</p>	
<p>2.56 ___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. ___ IF breaker SS3 (6.9KV Breaker for Station Service Transformer No. 3) is NOT open, THEN perform the following for breaker SS3.</p> <p>A. ___ Remove 51/50 Phase A relay cover.</p> <p>B. ___ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. ___ Replace relay cover.</p> <p>D. ___ Reset targets.</p> <p>E. ___ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. ___ GO TO Step 2.59.</p>

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.57 Perform the following for 21 ABFP breaker: A. ___ Open breaker on 480V Bus 3A, compartment 6C. B. ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).	
2.58 ___ Is 12FD3 Sub-Station energized?	___ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 2.59.
2.59 ___ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1B in LOCAL (in control panel/box directly above 21 ABF PUMP Breaker Control Switch).	
<u>NOTE</u>	
<ul style="list-style-type: none">• Figure 1 (Substation and Transfer Switch Locations) (Page 53 of this attachment) shows locations of 12FD3 and EDC5.• Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies	
2.60 ___ Is Substation 12FD3 Breaker 1B open?	___ Operate CLOSE/TRIP switch to open breaker.

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.61 <input type="checkbox"/> Place transfer switch EDC5 (inside cabinet) to EMERGENCY FEED position.	
2.62 <input type="checkbox"/> Unlock and place Substation 12FD3 Breaker 1B in the vertical position.	
2.63 <input type="checkbox"/> Close Substation 12FD3 Breaker 1B by operating CLOSE/TRIP switch.	
2.64 Adjust the following to control 21 and 22 SG levels 63 - 68% using the manual handwheel: <input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	
2.65 <input type="checkbox"/> IAAT ABFP room ventilation is lost, THEN perform Steps 2.66 - 2.67.	<input type="checkbox"/> GO TO Step 2.68.
2.66 <input type="checkbox"/> Open ABFP room rollup door.	
2.67 <input type="checkbox"/> Notify Security for compensatory actions.	
2.68 <input type="checkbox"/> Is 22 ABFP running?	<input type="checkbox"/> GO TO Step 2.71.
2.69 <input type="checkbox"/> Place control switch for PCV-1139 (STM STOP VALVE AUX FW PMP 22) in TRIP (ABFP local control panel).	
2.70 <input type="checkbox"/> Place control switch for PCV-1139 in AUTO for at least 10 seconds.	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.71 <input type="checkbox"/> WHEN local SG level control is no longer required, THEN continue in this attachment.	
2.72 Close the following: <input type="checkbox"/> IA-2585 (FCV-406A ACTUATOR EQUILIZER) <input type="checkbox"/> IA-2588 (FCV-406B ACTUATOR EQUILIZER) <input type="checkbox"/> IA-2591 (FCV-406C ACTUATOR EQUILIZER) <input type="checkbox"/> IA-2594 (FCV-406D ACTUATOR EQUILIZER)	
2.73 Place manual handwheel for the following in fully counter-clockwise position: <input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	
2.74 <input type="checkbox"/> EXIT this attachment.	

... END ...

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>Unit Status</u></p> <p>22 ABFP is available and one or more of the following conditions exist:</p> <ul style="list-style-type: none"> • No ABFPs are running. • 21 ABFP is NOT running. 22 ABFP is running and feeding 21 and 22 SGs is desired. • 22 ABFP is running. Feeding 23 or 24 SG is desired. 	
<p>2.75 Unlock the handwheel and then loosen lock nut on manual hand wheel stem and operate the manual handwheel (jack) in clockwise direction to engage and maintain the following in the current position:</p> <p>___ FCV-405A (ABFP 22 DISCHARGE TO 21 SG)</p> <p>___ FCV-405B (ABFP 22 DISCHARGE TO 22 SG)</p> <p>___ FCV-405C (ABFP 22 DISCHARGE TO 23 SG)</p> <p>___ FCV-405D (ABFP 22 DISCHARGE TO 24 SG)</p>	
<p>2.76 Close the following:</p> <p>___ IA-858 (FCV-405A INSTRUMENT AIR STOP)</p> <p>___ IA-859 (FCV-405B INSTRUMENT AIR STOP)</p> <p>___ IA-860 (FCV-405C INSTRUMENT AIR STOP)</p> <p>___ IA-872 (FCV-405D INSTRUMENT AIR STOP)</p>	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.77 Open <u>valve filter/regulator petcocks</u> for the following:</p> <p>___ FCV-405A</p> <p>___ FCV-405B</p> <p>___ FCV-405C</p> <p>___ FCV-405D</p>	
<p>2.78 Close the following with the manual handwheel (jack):</p> <p>___ FCV-405A (ABFP 22 DISCHARGE TO 21 SG)</p> <p>___ FCV-405B (ABFP 22 DISCHARGE TO 22 SG)</p> <p>___ FCV-405C (ABFP 22 DISCHARGE TO 23 SG)</p> <p>___ FCV-405D (ABFP 22 DISCHARGE TO 24 SG)</p>	
<p>2.79 ___ Is 22 ABFP running?</p>	<p>___ GO TO Step 2.81.</p>
<p>2.80 ___ GO TO Step 2.90.</p>	
<p>2.81 ___ Operate HCV-1118 (AUX BFP 22 TURBINE SPEED GOVERNOR) hand control jack clockwise to the completely DOWN/IN position.</p>	
<p>2.82 ___ Close IA-1391 (INST AIR/NITROGEN HEADERS ROOT VLV TO HC-1118/HCV-1118). (Racks near FT-1201)</p>	
<p>2.83 ___ Disconnect instrument air line to HCV-1118.</p>	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.84 ___ Is 22 ABFP trip flapper valve latched?	1. ___ Place PCV-1139 control switch in TRIP. 2. ___ Open MS-100-14 (STEAM SUPPLY LINE TRAP BYPASS STOP). 3. ___ Lift <u>and</u> hold trip flapper valve operating handle. 4. ___ Position holding spring to first notch of trip lever (closest to free end of trip lever). 5. ___ Release trip flapper valve operating handle. 6. ___ Close MS-100-14. 7. ___ Press PCV-1139 reset micro-switch (under governor mechanism).
2.85 ___ Place control switch for PCV-1139 (STM STOP VALVE AUX FW PMP 22) in TRIP (ABFP local control panel).	
2.86 ___ Place control switch for PCV-1139 in AUTO for at least 10 seconds.	
2.87 ___ Place control switch for PCV-1139 in ON.	
2.88 ___ Is 22 ABFP steam inlet pressure 525 - 575 psig on PI-6331?	1. ___ Place hand control jack on top of PCV-1139 completely down/in. 2. ___ Place IA-1196 (PIC-1139/PCV-1139 3-WAY VALVE) to VENT. 3. ___ Slowly release hand control jack until steam inlet pressure is 525 - 575 psig. 4. ___ Throttle PCV-1139 to maintain pressure in band as required.

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.89 <input type="checkbox"/> Rotate hand control jack on HCV-1118 (AUX BFP 22 TURBINE SPEED GOVERNOR) counter-clockwise to adjust 22 ABFP speed until discharge pressure is 200 - 250 psig above SG pressure (ABFP local control panel).</p>	
<p>2.90 Adjust the following to control 21 and 22 SG levels 63 - 68% using hand control jack:</p> <p><input type="checkbox"/> FCV-405A (ABFP 22 DISCHARGE TO 21 SG)</p> <p><input type="checkbox"/> FCV-405B (ABFP 22 DISCHARGE TO 22 SG)</p>	
<p>2.91 <input type="checkbox"/> Is 21 ABFP feeding SGs?</p>	<p><input type="checkbox"/> GO TO Step 2.95.</p>
<p>2.92 <input type="checkbox"/> Stop 21 ABFP.</p>	
<p>2.93 Close the following:</p> <p><input type="checkbox"/> IA-2585 (FCV-406A ACTUATOR EQUILIZER)</p> <p><input type="checkbox"/> IA-2588 (FCV-406B ACTUATOR EQUILIZER)</p>	
<p>2.94 Place manual handwheel for the following in fully counter-clockwise position <u>and</u> lock:</p> <p><input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE)</p> <p><input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)</p>	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.95 <input type="checkbox"/> IAAT feeding 23, OR 24 SG is desired, THEN adjust hand control jack on the following as necessary:</p> <p><input type="checkbox"/> FCV-405C (ABFP 22 DISCHARGE TO 23 SG)</p> <p><input type="checkbox"/> FCV-405D (ABFP 22 DISCHARGE TO 24 SG)</p>	
<p>2.96 <input type="checkbox"/> IAAT feeding SGs (21 and 22) with 21 ABFP is desired, THEN perform Steps 2.97 - 2.109.</p>	<p><input type="checkbox"/> GO TO Step 2.110.</p>
<p>2.97 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves:</p> <p><input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE)</p> <p><input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)</p>	
<p>2.98 Open the following:</p> <p><input type="checkbox"/> IA-2585 (FCV-406A ACTUATOR EQUILIZER)</p> <p><input type="checkbox"/> IA-2588 (FCV-406B ACTUATOR EQUILIZER)</p>	
<p>2.99 Are <u>both</u> of the following closed?</p> <p><input type="checkbox"/> FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE)</p> <p><input type="checkbox"/> FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)</p>	<p><input type="checkbox"/> Close affected valves using manual handwheel.</p>

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.95) feeding 23 **OR** 24 SG is desired...
- (2.96) feeding SGs (21 and 22) with 21 ABFP is desired...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.100__ Is 480V Switchgear Room accessible?</p>	<p>1.__ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2.__ IF breaker SS3 (6.9KV Breaker for Station Service Transformer No. 3) is NOT open, THEN perform the following for breaker SS3.</p> <p>A.__ Remove 51/50 Phase A relay cover.</p> <p>B.__ Gently rotate relay disc clockwise until breaker opens.</p> <p>C.__ Replace relay cover.</p> <p>D.__ Reset targets.</p> <p>E.__ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3.__ GO TO Step 2.103.</p>
<p>2.101 Perform the following for 21 ABFP breaker:</p> <p>A. __ Open breaker on 480V Bus 3A, compartment 6C.</p> <p>B. __ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	
<p>2.102__ Is 12FD3 Sub-Station energized?</p>	<p>__ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 2.103.</p>
<p>2.103__ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1B in LOCAL (in control panel/box directly above 21 ABF PUMP Breaker Control Switch).</p>	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...
- (2.95) feeding 23 **OR** 24 SG is desired...
- (2.96) feeding SGs (21 and 22) with 21 ABFP is desired...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p align="center"><u>NOTE</u></p> <ul style="list-style-type: none"> Figure 1 (Substation and Transfer Switch Locations) (Page 53 of this attachment) shows locations of 12FD3 and EDC5. Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies 	
2.104 __ Is Substation 12FD3 Breaker 1B open?	__ Operate CLOSE/TRIP switch to open breaker.
2.105 __ Place transfer switch EDC5 (inside cabinet) to EMERGENCY FEED position.	
2.106 __ Unlock and place Substation 12FD3 Breaker 1B in the vertical position.	
2.107 __ Close Substation 12FD3 Breaker 1B by operating CLOSE/TRIP switch.	
2.108 Adjust the following to control 21 and 22 SG levels 63 - 68% using the manual handwheel: __ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE) __ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)	
2.109 Close the following using hand control jack: __ FCV-405A (ABFP 22 DISCHARGE TO 21 SG) __ FCV-405B (ABFP 22 DISCHARGE TO 22 SG)	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.110__ IAAT ABFP room ventilation is lost, THEN perform Steps 2.111 - 2.112.	__ GO TO Step 2.113.
2.111__ Open ABFP room rollup door.	
2.112__ Notify Security for compensatory actions.	
2.113__ Is 23 ABFP running?	__ GO TO Step 2.116.
2.114__ Place 23 ABFP LOCAL/REMOTE selector in LOCAL.	
2.115__ Press 23 ABFP local STOP button.	
2.116__ WHEN local SG level control is no longer required, THEN continue in this attachment.	
2.117 Close <u>valve filter/regulator petcocks</u> for the following: __ FCV-405A __ FCV-405B __ FCV-405C __ FCV-405D	
2.118 Open the following: __ IA-858 (FCV-405A INSTRUMENT AIR STOP) __ IA-859 (FCV-405B INSTRUMENT AIR STOP) __ IA-860 (FCV-405C INSTRUMENT AIR STOP) __ IA-872 (FCV-405D INSTRUMENT AIR STOP)	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.119 Operate hand control jack in full counter-clockwise position for the following:</p> <p>___ FCV-405A (ABFP 22 DISCHARGE TO 21 SG)</p> <p>___ FCV-405B (ABFP 22 DISCHARGE TO 22 SG)</p> <p>___ FCV-405C (ABFP 22 DISCHARGE TO 23 SG)</p> <p>___ FCV-405D (ABFP 22 DISCHARGE TO 24 SG)</p>	
<p>2.120 ___ Was 21 ABFP used to feed 21 and 22 SGs?</p>	<p>___ GO TO Step 2.123.</p>
<p>2.121 Close the following:</p> <p>___ IA-2585 (FCV-406A ACTUATOR EQUILIZER)</p> <p>___ IA-2588 (FCV-406B ACTUATOR EQUILIZER)</p>	
<p>2.122 Place manual handwheel for the following in fully counter-clockwise position:</p> <p>___ FCV-406A (AFP 21 TO SG 21 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406B (AFP 21 TO SG 22 FEEDWATER REGULATING VALVE)</p>	
<p>2.123 ___ EXIT this attachment.</p>	

... END ...

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>Unit Status</u></p> <p style="text-align: center;">21 and 22 ABFPs are NOT available.</p>	
2.124 <input type="checkbox"/> Is 23 ABFP running?	<input type="checkbox"/> GO TO Step 2.128.
2.125 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: <input type="checkbox"/> FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	
2.126 Open the following: <input type="checkbox"/> IA-2591 (FCV-406C ACTUATOR EQUILIZER) <input type="checkbox"/> IA-2594 (FCV-406D ACTUATOR EQUILIZER)	
2.127 <input type="checkbox"/> GO TO Step 2.134.	
2.128 <input type="checkbox"/> Place 23 ABFP LOCAL/REMOTE selector in LOCAL.	
2.129 Unlock handwheel and fully engage the jacking device using Manual hand wheel to keep the valve in its current position for the following valves: <input type="checkbox"/> FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) <input type="checkbox"/> FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>2.130 Open the following:</p> <p>___ IA-2591 (FCV-406C ACTUATOR EQUILIZER)</p> <p>___ IA-2594 (FCV-406D ACTUATOR EQUILIZER)</p>	
<p>2.131 Are <u>both</u> of the following closed?</p> <p>___ FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)</p>	<p>___ Close affected valves using manual handwheel.</p>
<p>2.132 ___ Is FCV-1123 (23 AUXILIARY FEEDWATER PUMP RECIRCULATION CONTROL VALVE) open?</p>	<p>1. ___ Unlock and open BFD-78 (23 AUXILIARY FEEDWATER PUMP BYPASS).</p> <p>2. ___ Throttle BFD-78 as required.</p>
<p>2.133 ___ Press 23 ABFP local START button.</p>	
<p>2.134 Adjust the following to control 23 and 24 SG levels 63 - 68% using the manual handwheel:</p> <p>___ FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE)</p> <p>___ FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)</p>	
<p>2.135 ___ IAAT ABFP room ventilation is lost, THEN perform Steps 2.136 - 2.137.</p>	<p>___ GO TO Step 2.138.</p>
<p>2.136 ___ Open ABFP room rollup door.</p>	

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IF AT ANY TIME:

- (2.2) an excessive cooldown exist due to failed open Atmospheric Steam Dump Valves...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.137 __ Notify Security for compensatory actions.	
2.138 __ WHEN local SG level control is no longer required, THEN continue in this attachment.	
2.139 Close the following: __ IA-2591 (FCV-406C ACTUATOR EQUILIZER) __ IA-2594 (FCV-406D ACTUATOR EQUILIZER)	
2.140 Place manual handwheel for the following in fully counter-clockwise position: __ FCV-406C (AFP 23 TO SG 23 FEEDWATER REGULATING VALVE) __ FCV-406D (AFP 23 TO SG 24 FEEDWATER REGULATING VALVE)	
2.141 __ EXIT this attachment.	

... END ...

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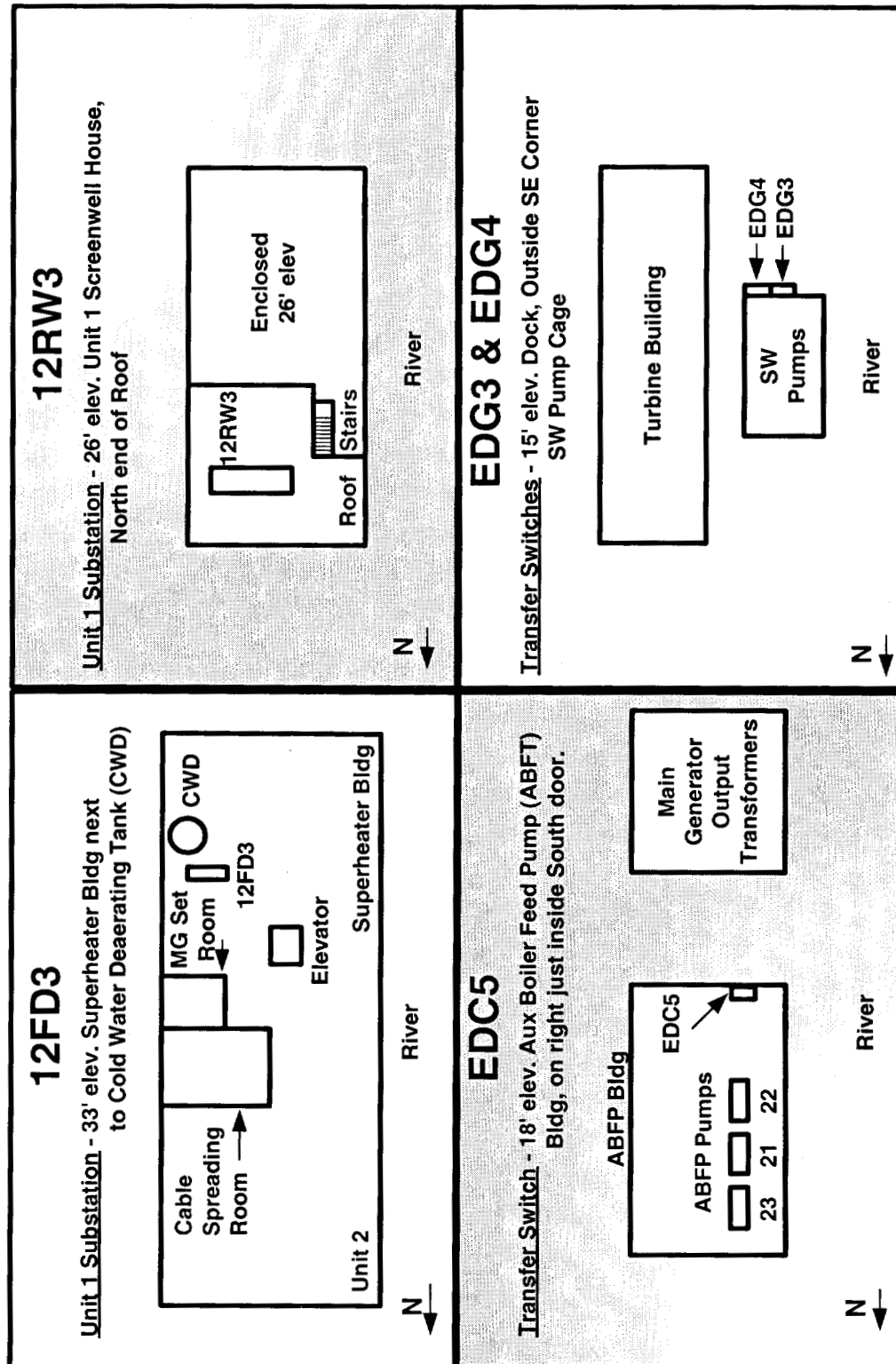
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Figure 1 - Substation and Transfer Switch Locations



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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.1 ___ Is turbine tripped?	___ Locally trip the turbine.
3.2 ___ Are <u>any</u> MSIVS open?	___ GO TO Step 3.7

NOTE

Steps 3.3 through 3.6 may be performed in any order.

<p>3.3 Close 21 MSIV:</p> <p> ___ Close IA-792 (MS-1-21 INSTRUMENT AIR SUPPLY STOP)</p> <p> ___ Close IA-793 (MS-1-21 ACCUMULATOR ISOLATION VALVE)</p> <p> ___ Open IA-960 (PRESSURE INST. STOP MSIV 21 IA SYSTEM)</p> <p> ___ Open IA-791 (MS-1-21 PI-5065 VENT STOP)</p>	
<p>3.4 Close 23 MSIV:</p> <p> ___ Close IA-800 (MS-1-23 INSTRUMENT AIR SUPPLY STOP)</p> <p> ___ Close IA-801 (ACCUMULATOR STOP MSIV 23 IA SYSTEM)</p> <p> ___ Open IA-962 (PRESSURE INT STOP MSIV 23 IA SYSTEM)</p> <p> ___ Open IA-799 (VENT STOP MSIV 23 IA SYSTEM)</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.5 Close 22 MSIV:</p> <p>___ Close IA-796 (MS-1-22 INSTRUMENT AIR SUPPLY STOP)</p> <p>___ Close IA-797 (ACCUMULATOR STOP MSIV 22 IA SYSTEM)</p> <p>___ Open IA-961 (MS-1-22 PI-5066 STOP)</p> <p>___ Open IA-795 (VENT STOP MSIV 22 IA SYSTEM)</p>	
<p>3.6 Close 24 MSIV:</p> <p>___ Close IA-804 (MS-1-24 INSTRUMENT AIR SUPPLY STOP)</p> <p>___ Close IA-805 (ACCUMULATOR STOP MSIV 24 IA SYSTEM)</p> <p>___ Open IA-963 (PRESSURE INST. STOP MSIV. 24 IA SYSTEM)</p> <p>___ Open IA-802 (MS-1-24 PI-5068 VENT STOP)</p>	
<p>3.7 Are <u>all</u> the following open?</p> <p>___ MS-3A (PCV-1134 INLET STOP MAIN STM LINE 21)</p> <p>___ MS-3B (PCV-1135 INLET STOP MAIN STM LINE 22)</p> <p>___ MS-3C PCV-1136 INLET STOP MAIN STM LINE 23)</p> <p>___ MS-3D (PCV-1137 INLET STOP MAIN STM LINE 24)</p>	<p>___ Open affected valve.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none">• Steps 3.8 through 3.11 may be performed in any order.• Refer to Figure 1 (Typical Atmospheric Relief Valve Control System) (Page 173) for operation of atmospheric steam dumps. Letter designations in the following steps correspond to generic valve labels on Figure 1.	
<p>3.8 Position the following valving for 21 Atmospheric Steam Dump:</p> <ul style="list-style-type: none">___ Close IA-1202 (F or V-1) (PCV-1134 POSITIONER INSTRUMENT AIR STOP)___ Back out regulator for PRV-5608 (H) (NITROGEN REGULATOR TO PCV-1134)___ Open SGN-500 (C or V-4): (PCV-1134 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)___ Open SGN-508 (D or V-2) (NITROGEN STOP VALVE TO PCV-1134 DIAPHRAGM)___ Close IA-1008 (E or V-3) (PCV-1134 INSTRUMENT AIR CONTROL PANEL VENT)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.9 Position the following valving for 22 Atmospheric Steam Dump:</p> <ul style="list-style-type: none">___ Close IA-1203 (F or V-1) (PCV-1135 POSITIONER INSTRUMENT AIR STOP)___ Back out regulator PRV-5610 (H) (NITROGEN REGULATOR TO PCV-1135)___ Open SGN-501 (C or V-4): (PCV-1135 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)___ Open SGN-509 (D or V-2) (NITROGEN STOP VALVE TO PCV-1135 DIAPHRAGM)___ Close IA-1009 (E or V-3) (PCV-1135 INSTRUMENT AIR CONTROL PANEL VENT)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.10 Position the following valving for 23 Atmospheric Steam Dump:</p> <ul style="list-style-type: none">___ Close IA-1204 (F or V-1) (PCV-1136 POSITIONER INSTRUMENT AIR STOP)___ Back out regulator PRV-5612 (H) (NITROGEN REGULATOR TO PCV-1136)___ Open SGN-502 (C or V-4): (PCV-1136 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)___ Open SGN-510 (D or V-2) (NITROGEN STOP VALVE TO PCV-1136 DIAPHRAGM)___ Close IA-1010 (E or V-3) (PCV-1136 NITROGEN SUPPLY VENT STOP)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.11 Position the following valving for 24 Atmospheric Steam Dump:</p> <p>___ Close IA-1205 (F or V-1) (PCV-1137 POSITIONER INSTRUMENT AIR STOP)</p> <p>___ Back out regulator PRV-5614 (H) (NITROGEN REGULATOR VALVE TO PCV-1137)</p> <p>___ Open SGN-503 (C or V-4): (PCV-1137 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)</p> <p>___ Open SGN-511 (D or V-2) (NITROGEN STOP VALVE TO PCV-1137 DIAPHRAGM)</p> <p>___ Close IA-1011 (E or V-3) (PCV-1137 NITROGEN SUPPLY VENT STOP)</p>	
<p>3.12 ___ Notify CRS and operator at ABFPs that atmospheric steam dumps are manned and ready for steaming.</p>	
<p>3.13 ___ WHEN directed to commence steaming, THEN continue in this attachment.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.14 ___ IAAT steaming of 21 SG is directed, THEN perform the following as necessary:</p> <ul style="list-style-type: none">___ Operate PRV-5608 (NITROGEN REGULATOR TO PCV-1134) to raise or lower N2 pressure for valve operation (H).___ Slowly open IA-1008 (PCV-1134 INSTRUMENT AIR CONTROL PANEL VENT) to aid in closing atmospheric steam dump (E or V-3).	
<p>3.15 ___ IAAT steaming of 22 SG is directed, THEN perform the following as necessary:</p> <ul style="list-style-type: none">___ Operate PRV-5610 (NITROGEN REGULATOR TO PCV-1135) to raise or lower N2 pressure for valve operation (H).___ Slowly open IA-1009 (PCV-1135 INSTRUMENT AIR CONTROL PANEL VENT) to aid in closing atmospheric steam dump (E or V-3).	

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IF AT ANY TIME:

(3.14) steaming of 21 SG is directed...

(3.15) steaming of 22 SG is directed...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>Steaming of 23 SG will NOT normally be directed unless directed by an EOP or FRP.</p>	
<p>3.16 — IAAT steaming of 23 SG is directed, THEN perform the following as necessary:</p> <ul style="list-style-type: none"> — Operate PRV-5612 (NITROGEN REGULATOR TO PCV-1136) to raise or lower N2 pressure for valve operation (H). — Slowly open IA-1010 (PCV-1136 NITROGEN SUPPLY VENT STOP) to aid in closing atmospheric steam dump (E or V-3). 	
<p style="text-align: center;"><u>NOTE</u></p> <p>Steaming of 24 SG will NOT normally be directed unless directed by an EOP or FRP.</p>	
<p>3.17 — IAAT steaming of 24 SG is directed, THEN perform the following as necessary:</p> <ul style="list-style-type: none"> — Operate PRV-5614 (NITROGEN REGULATOR VALVE TO PCV-1137) to raise or lower N2 pressure for valve operation (H). — Slowly open IA-1011 (PCV-1137 NITROGEN SUPPLY VENT STOP) to aid in closing atmospheric steam dump (E or V-3). 	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.18 <input type="checkbox"/> WHEN local operation of atmospheric steam dumps is no longer necessary, THEN continue in this attachment.</p>	
<p>3.19 Open the following (F or V-1):</p> <ul style="list-style-type: none"> <input type="checkbox"/> IA-1202 (PCV-1134 POSITIONER INSTRUMENT AIR STOP) <input type="checkbox"/> IA-1203 (PCV-1135 POSITIONER INSTRUMENT AIR STOP) <input type="checkbox"/> IA-1204 (PCV-1136 POSITIONER INSTRUMENT AIR STOP) <input type="checkbox"/> IA-1205 (PCV-1137 POSITIONER INSTRUMENT AIR STOP) 	
<p>3.20 Close the following (D or V-2):</p> <ul style="list-style-type: none"> <input type="checkbox"/> SGN-508 (NITROGEN STOP VALVE TO PCV-1134 DIAPHRAGM) <input type="checkbox"/> SGN-509 (NITROGEN STOP VALVE TO PCV-1135 DIAPHRAGM) <input type="checkbox"/> SGN-510 (NITROGEN STOP VALVE TO PCV-1136 DIAPHRAGM) <input type="checkbox"/> SGN-511 (NITROGEN STOP VALVE TO PCV-1137 DIAPHRAGM) 	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>3.21 Are <u>all</u> the following closed (E or V-3)?</p> <p>___ IA-1008 (PCV-1134 INSTRUMENT AIR CONTROL PANEL VENT)</p> <p>___ IA-1009 (PCV-1135 INSTRUMENT AIR CONTROL PANEL VENT)</p> <p>___ IA-1010 (PCV-1136 NITROGEN SUPPLY VENT STOP)</p> <p>___ IA-1011 (PCV-1137 NITROGEN SUPPLY VENT STOP)</p>	<p>___ Close affected valve.</p>
<p>3.22 Close the following (C or V-4):</p> <p>___ SGN-500 (PCV-1134 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)</p> <p>___ SGN-501 (PCV-1135 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)</p> <p>___ SGN-502 (PCV-1136 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)</p> <p>___ SGN-503 (PCV-1137 LOCAL CONTROL STATION NITROGEN SUPPLY STOP)</p>	
<p>3.23 ___ EXIT this attachment.</p>	

... END ...

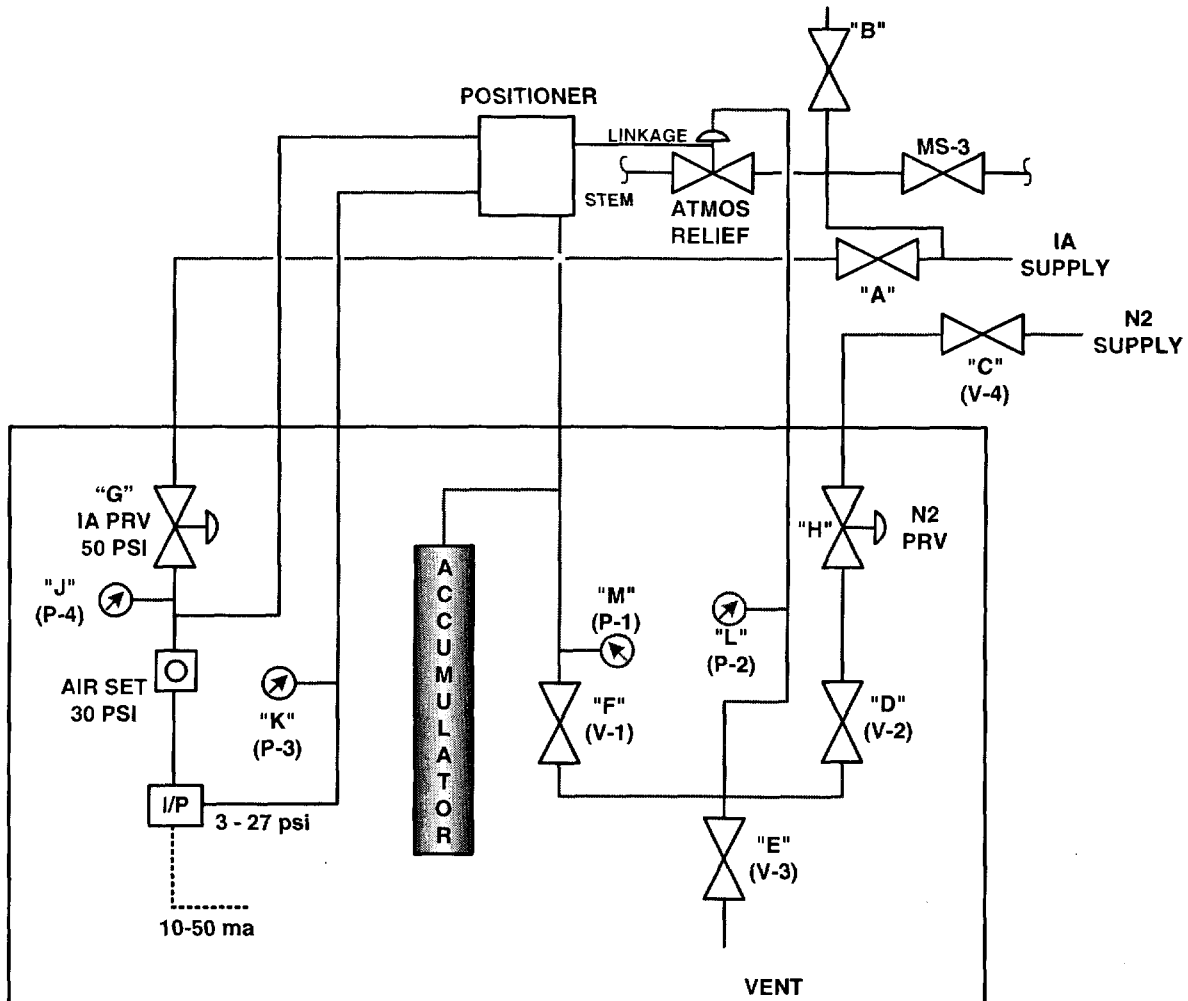
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Figure 1 -Typical Atmospheric Relief Valve Control System



VALVE NUMBERING TABLE

VALVE LETTER	FOR PCV-1134	FOR PCV-1135	FOR PCV-1136	FOR PCV-1137
A	IA-806	IA-807	IA-808	IA-809
B	IA-1206	IA-1207	IA-1208	IA-1209
C (V-4)	SGN-500	SGN-501	SGN-502	SGN-503
D (V-2)	SGN-508	SGN-509	SGN-510	SGN-511
E (V-3)	IA-1008	IA-1009	IA-1010	IA-1011
F (V-1)	IA-1202	IA-1203	IA-1204	IA-1205
G	PRV-5607	PRV-5609	PRV-5611	PRV-5613
H	PRV-5608	PRV-5610	PRV-5612	PRV-5614
J (P-4)	PI-6106	PI-6110	PI-6114	PI-6118
K (P-3)	PI-6107	PI-6111	PI-6115	PI-6119
L (P-2)	PI-6108	PI-6112	PI-6116	PI-6120
M (P-1)	PI-6109	PI-6113	PI-6117	PI-6121

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.1 <input type="checkbox"/> IAAT 863 (ACCUMULATOR NITROGEN SUPPLY LINE STOP) is closed, OR instrument air is lost, THEN perform Steps 4.2 - 4.5.	<input type="checkbox"/> GO TO Step 4.6.
4.2 <input type="checkbox"/> Remove lock and close IA-1787-1 (Instrument Air To 863 Solenoid Vent Isolation).	
4.3 <input type="checkbox"/> Remove lock and open N-767 (PRV-7642 OUTLET STOP).	
4.4 <input type="checkbox"/> Open N-765 (PRV-7642 INLET STOP).	
4.5 <input type="checkbox"/> Adjust PRV-7642 (BACKUP NITROGEN REGULATOR) to obtain 70 - 80 psig on PI-7642.	<input type="checkbox"/> IF PI-7642 indicates > 80 psig, THEN perform the following: A. <input type="checkbox"/> Adjust PRV-7642 one-half turn counter-clockwise. B. <input type="checkbox"/> Uncap and crack open N-769 (PRV-7642 OUTLET VENT STOP). C. <input type="checkbox"/> WHEN PI-7642 indicates 70 - 80 psig, THEN close and cap N-769.

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IF AT ANY TIME:

- (4.1) 863 (ACCUMULATOR NITROGEN SUPPLY LINE STOP) is closed **OR**
instrument air is lost...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • The metal banding has to be cut and fire protection wrapping removed prior to unlocking the following PRZR and SG level indicator stop. The banding cutter is located in the emergency cabinet at the Safe Shutdown Panel. • Stops are located at the penetration area near the seal injection lines. 	
<p>4.6 Dispatch an operator to open the following:</p> <p>___ IIP-504 (PRZR LEVEL INDICATOR LI-3101-1 CIV STOP)</p> <p>___ IIP-505 (PRZR LEVEL INDICATOR LI-3101-1 CIV STOP)</p> <p>___ IIP-506 (PRESSURIZER PRESSURE INDICATOR PI-3105-1 CIV STOP)</p> <p>___ IIP-507 (PRESSURIZER PRESSURE INDICATOR PI-3105-1 CIV STOP)</p> <p>___ IIP-500 (22 SG LEVEL INDICATOR LI-5002-1 CIV STOP)</p> <p>___ IIP-501 (22 SG LEVEL INDICATOR LI-5002-1 CIV STOP)</p> <p>___ IIP-502 (21 SG LEVEL INDICATOR LI-5001-1 CIV STOP)</p> <p>___ IIP-503 (21 SG LEVEL INDICATOR LI-5001-1 CIV STOP)</p>	<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • PRZR level is determined by dividing the reading in in/H₂O by 5.26 or from Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). • SG level is determined by dividing the reading in in/H₂O by 5.16 or from Attachment 30 (Pneumatic Back-up Transmitter for S/G 21 & 22 Level) (Page 329). <p>___ IF penetration area is NOT accessible THEN perform containment entry per OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) to station an operator at local PRZR and SG level gauges (VC side 80Ft el airlock) for reporting levels as requested by CRS.</p>
<p>4.7 ___ Has this procedure been entered due to <u>any</u> fire?</p>	<p>___ GO TO Step 4.10.</p>
<p>4.8 ___ Unlock <u>and</u> close IA-501 (IA Containment Stop Pab/Piping Penetration Area 59ft).</p>	<p>___ Close IA-739 (IA Containment Stop 480 Volt Room).</p>
<p>4.9 ___ Is 12FD3 Sub-Station energized?</p>	<p>___ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 4.10.</p>

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IF AT ANY TIME:

- (4.1) 863 (ACCUMULATOR NITROGEN SUPPLY LINE STOP) is closed **OR**
instrument air is lost...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.10 __ Place Substation 12FD3 Breaker 2B 69 control switch (in Control Panel/Box) in LOCAL.	
4.11 __ Is Substation 12FD3 Breaker 2B open (33 ft el. Superheater Building next to Cold Water Deaerating Tank)?	__ Open Substation 12FD3 Breaker 2B by operating CLOSE/TRIP switch.
4.12 __ Close disconnect switch EDH7.	
4.13 __ Unlock and place Substation 12FD3 Breaker 2B in the vertical position.	
4.14 __ Close Substation 12FD3 Breaker 2B using the CLOSE/TRIP switch.	
4.15 __ Install fuses in Source Range Drawer (fuses stored inside cabinet).	
4.16 __ Notify SM that plant control has been established.	
4.17 __ Note time Safe Shutdown Panel in service. _____	
4.18 __ WHEN operation of Safe Shutdown Panel is no longer required, THEN continue in this attachment.	
4.19 __ Is N-765 (PRV-7642 INLET STOP) closed?	__ Close N-765.
4.20 __ Is N-767 (PRV-7642 OUTLET STOP) closed?	1.__ Close N-767. 2.__ Perform double verification and lock N-767.

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.21 ___ Is N-769 (PRV-7642 OUTLET VENT STOP) closed and capped?	___ Close and cap N-769.
4.22 ___ Is IA-501 (IA Containment Stop Pab/Piping Penetration Area 59ft) open?	1. ___ Open IA-501. 2. ___ Perform double verification of IA-501.
4.23 ___ Is IA-1787-1 (INSTRUMENT AIR TO 863 SOLENOID VENT ISOLATION) open?	1. ___ Open IA-1787-1. 2. ___ Perform double verification and lock IA-1787-1.
4.24 Close the following: ___ IIP-504 (PRZR LEVEL INDICATOR LI-3101-1 CIV STOP) ___ IIP-505 (PRZR LEVEL INDICATOR LI-3101-1 CIV STOP) ___ IIP-506 (PRESSURIZER PRESSURE INDICATOR PI-3105-1 CIV STOP) ___ IIP-507 (PRESSURIZER PRESSURE INDICATOR PI-3105-1 CIV STOP) ___ IIP-500 (22 SG LEVEL INDICATOR LI-5002-1 CIV STOP) ___ IIP-501 (22 SG LEVEL INDICATOR LI-5002-1 CIV STOP) ___ IIP-502 (21 SG LEVEL INDICATOR LI-5001-1 CIV STOP) ___ IIP-503 (21 SG LEVEL INDICATOR LI-5001-1 CIV STOP)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.25 __ Open Substation 12FD3 Breaker 2B by operating CLOSE/TRIP switch.	
4.26 __ Lock open Substation 12FD3 Breaker 2B.	
4.27 __ Open disconnect switch EDH-7.	
4.28 __ Place Substation 12FD3 Breaker 2B 69 control switch (in Control Panel/Box) in REMOTE.	
4.29 __ Remove fuses from Source Range Drawer and store inside cabinet.	
4.30 __ Log Safe Shutdown Panel secured.	
4.31 __ EXIT this attachment.	

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**Control Room Inaccessibility
Safe Shutdown Control
Attachment 5
Combined Path Actions**

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.1 <input type="checkbox"/> Was CCR evacuated due to <u>any</u> fire?	<input type="checkbox"/> GO TO Step 5.11.
5.2 Is there a fire in <u>any</u> of the following areas? <input type="checkbox"/> Zone 1A (Electrical and piping tunnel, piping penetration area, PAB 33 ft to 68 ft) <input type="checkbox"/> Zone 2A (68 ft primary water makeup pump area) <input type="checkbox"/> Zone 11 (Cable Spreading Room, Control Bldg 33 ft) <input type="checkbox"/> Zone 32A (Electrical tunnel 33 ft to 68 ft)	<input type="checkbox"/> GO TO Step 5.4
5.3 Open the following PORV SOV isolation switches (44 ft ABFP Bldg South): <input type="checkbox"/> EDC 11 (SOV-455C Isolation Switch) <input type="checkbox"/> EDC 10 (SOV-456 Isolation Switch)	
5.4 Is there a fire in any of the following areas? <input type="checkbox"/> 44 ft ABFP Bldg <input type="checkbox"/> Zone 74A (Electrical penetration area PAB) <input type="checkbox"/> Zone 70A (VC reactor coolant pumps 93 ft) <input type="checkbox"/> Zone 80A, 81A, 82A, 83A, or 84A (Containment Fan Cooler Units 68 ft)	<input type="checkbox"/> GO TO Step 5.7.

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>5.5 Open the following (Control Bldg 33 ft Cable Spreading Room):</p> <p>___ Power Panel 21, Circuit 7</p> <p>___ Power Panel 22, Circuit 6</p> <p>___ Power Panel 23, Circuit 4</p> <p>___ Power Panel 24, Circuit 5</p> <p>___ Power Panel 24, Circuit 8</p>	
<p>5.6 Open the following (98 ft PAB):</p> <p>___ Distribution Panel 21AA, Circuit 23</p> <p>___ Distribution Panel 22AA, Circuit 5</p> <p>___ Distribution Panel 22AA, Circuit 6</p> <p>___ Distribution Panel 23AA, Circuit 3</p> <p>___ Distribution Panel 24AA, Circuit 23</p>	
<p>5.7 ___ Is there a fire in Zone 75A (VC electrical penetration area, outer annulus, 46 ft)?</p>	<p>___ GO TO Step 5.10.</p>
<p>5.8 ___ Open Power Panel 24, Circuit 8 (Control Bldg 33 ft Cable Spreading Room).</p>	
<p>5.9 Open the following (98 ft PAB):</p> <p>___ Distribution Panel 21AA, Circuit 23</p> <p>___ Distribution Panel 22AA, Circuit 5</p> <p>___ Distribution Panel 22AA, Circuit 6</p> <p>___ Distribution Panel 23AA, Circuit 3</p> <p>___ Distribution Panel 24AA, Circuit 23</p>	
<p>5.10 ___ Report any circuits that have been opened to TSC.</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.11 __ Dispatch an operator to perform Attachment 13 (Operation of Lube Oil and Seal Oil Systems) (Page 247).	
<p style="text-align: center;"><u>NOTE</u></p> <p>Valves PCV-1214 -1217 OR PCV-1214A – 1217A should be closed within 30 minutes to avoid excessive depletion of SG inventory while AFW makeup restoration is in progress.</p>	
5.12 __ Remove the following fuses from Sampling System Control Panel #1 (80' PAB) to fail close PCV-1214 – 1217. <ul style="list-style-type: none">• FU2-4068 (FBA between terminals 37 and 38)• FU2-4069 (FBA between terminals 39 and 40)	
5.13 __ Remove the following fuses from Sampling System Control Panel #2 (80' PAB) to fail close PCV-1214A – 1217A. <ul style="list-style-type: none">• FU2-4038 (FBB between terminals 37 and 38)• FU2-4039 (FBB between terminals 39 and 40)	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.14 Frequently monitor <u>and</u> immediately notify SM if <u>any</u> of the following pumps are running: ___ Containment Spray ___ High Head Safety Injection (SI) ___ Residual Heat Removal (RHR)	
5.15 ___ Are any Containment Spray Pump(s) running?	___ GO TO Step 5.17.
5.16 ___ Remove control power fuses and open 480V breakers for running Containment Spray Pumps.	1. ___ Secure associated 480V Bus(es) by opening bus supply breaker or shutting down associated EDG. 2. IF pump(s) are still running, THEN dispatch NPO to close the following valves: (PAB 68ft., Piping Pen Area): ___ 869A (21 CONTAINMENT SPRAY PUMP DISCH TO SPRAY HEADER STOP) ___ 869B (22 CONTAINMENT SPRAY PUMP DISCH TO SPRAY HEADER STOP).
5.17 ___ Are any RHR pumps running that were not previously running?	___ GO TO Step 5.19.
5.18 ___ Remove control power fuses and open 480V breaker for running RHR Pumps.	___ Secure associated 480V Bus(es) by opening bus supply breaker or shutting down associated EDG.
5.19 ___ Are any HHSI pumps running?	___ GO TO Step 5.21.
5.20 ___ Remove control power fuses and open 480V breaker for running HHSI Pumps.	___ Secure associated 480V Bus(es) by opening bus supply breaker or shutting down associated EDG.

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>Closing 885A, 885B, or 882 isolates a potential drain-down path from the RWST to the containment sump through potentially open valve 1805, which cannot be reached for local manual closure.</p>	
5.21 ___ Is 882 (RHR PUMPS SUCTION FROM RWST) (PAB 15' El. Sump Pump room) accessible?	___ GO TO Step 5.23.
5.22 _ GO TO Step 5.26.	
5.23 ___ Open breakers for the following: <ul style="list-style-type: none"> • ___ 885A (MCC-26A Compartment 3HR) • ___ 885B (MCC-26B Compartment 3HR) 	
5.24 ___ Locally close one of the following: <ul style="list-style-type: none"> • ___ 885A (RHR PMP INLET FROM CONTAINMENT SUMP) (Pipe Penetration 35' El. Piping Tunnel). • ___ 885B (RHR PUMP SUCTION FROM CONTAINMENT SUMP) (Pipe Penetration 35' El. Piping Tunnel). 	
5.25 _ GO TO Step 5.27.	
5.26 ___ Locally close 882 (RHR PUMPS SUCTION FROM RWST). (PAB 15' El. Sump Pump room)	
5.27 ___ EXIT this attachment.	

... END ...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

- Figure 1 (Electrical Distribution For ASSS (Gas Turbine) Power) (last page of this attachment) provides the 13.8KV Bus layout to aid in understanding power alignment from the gas turbines.
- Proper PPE must be worn to open cubicle door on energized equipment.

6.1 <input type="checkbox"/> IAAT DC power is NOT available to 13.8KV breakers, AND a step in this attachment directs closure of a 13.8KV breaker, THEN PERFORM Steps 6.2 through 6.10:	<input type="checkbox"/> GO TO Step 6.11.
6.2 <input type="checkbox"/> Open breaker door.	
6.3 <input type="checkbox"/> Remove trip and close fuses.	
6.4 <input type="checkbox"/> Does the breaker indicate "DISCHARGED"?	<input type="checkbox"/> GO TO Step 6.9.

NOTE

More than 100 strokes may be required to fully charge the closing spring, due to the limited range of motion with the breaker cover in place.

6.5 <input type="checkbox"/> Engage manual charging clutch by loosening locking bolt using 9/16" socket, and turning counter-clockwise until locking lever is forward against stop.	
6.6 <input type="checkbox"/> Charge closing spring by advancing charging shaft clockwise as viewed from left side of breaker, using 1" socket on charging motor shaft nut.	
6.7 <input type="checkbox"/> Observe "DISCHARGED" indicator gradually moving to confirm that spring is being charged.	

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IF AT ANY TIME:

- (6.1) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs closure of a 13.8KV breaker...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.8 ___ When spring is fully charged, cams will lock into place and "CHARGED" indicator will pop out flush with cabinet cover.	
6.9 ___ Press MANUAL CLOSE pushbutton.	
6.10 ___ Close breaker door.	

NOTE

Proper PPE must be worn to open cubicle door on energized equipment.

<p>6.11 ___ IAAT DC power is NOT available to 13.8KV breakers, AND a step in this attachment directs opening of a 13.8KV breaker, THEN perform the following for the specified breaker:</p> <p>A. ___ Open breaker door.</p> <p>B. ___ Remove trip and close fuses.</p> <p>C. ___ Press MANUAL TRIP pushbutton.</p> <p>D. ___ Close breaker door.</p>	
6.12 ___ Is Gas Turbine 1 available?	<p>1. ___ IF the Unit 2 Appendix R Diesel is available, THEN GO TO 2-SOP-27.6 (Unit 2 Appendix R Diesel Generator Operation).</p> <p>2. ___ IF the Unit 3 Appendix R Diesel is available, THEN GO TO AOI 27.1.9.2 (Providing Appendix R Power From Unit 3).</p> <p>3. ___ GO TO Step 6.27</p>

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IF AT ANY TIME:

- (6.1) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs closure of a 13.8KV breaker...
- (6.11) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs opening of a 13.8KV breaker...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>The Netcon will reboot in less than one minute and default to LOCAL control.</p>	
<p>6.13 __ IAAT GT-1 cannot be started locally because the Local Optrend/Netcon is in REMOTE, THEN reboot the Local Netcon controller by placing the Power Switch in OFF for approximately 10 seconds and then placing to ON.</p>	
<p>6.14 __ INITIATE GT-1 Emergency Fast Start on a Dead Bus per 2-SOP 31.1.2 (Gas Turbine 1 Local Operations)</p>	<p>1. __ IF the Unit 2 Appendix R Diesel is available, THEN GO TO 2-SOP-27.6 (Unit 2 Appendix R Diesel Generator Operation).</p> <p>2. __ IF the Unit 3 Appendix R Diesel is available, THEN GO TO AOI 27.1.9.2 (Providing Appendix R Power From Unit 3).</p> <p>3. __ GO TO Step 6.27</p>
<p>6.15 __ Establish communication with DO (Tel. 212-580-6754).</p>	
<p>6.16 __ Is Breaker F2-3 open (Buchanan Substation)?</p>	<p>__ Direct DO to Open Breaker F2-3.</p>
<p>6.17 __ Place GT-1/GT-2 CONTROL LOCATION SELECTOR switch in LOCAL (GT-1 local control panel).</p>	
<p>6.18 Are the following breakers open? __ 52/GT-1 __ 52/GT-2</p>	<p>__ Open affected breaker. __ 52/GT-1 __ 52/GT-2</p>
<p>6.19 __ Is breaker SB1-4 open (Unit 1 Light and Power Room)?</p>	<p>1. __ Place breaker SB1-4 LOCAL/REMOTE switch in LOCAL.</p> <p>2. __ Place breaker control switch for breaker SB1-4 in TRIP.</p>

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IF AT ANY TIME:

- (6.1) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs closure of a 13.8KV breaker...
- (6.11) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs opening of a 13.8KV breaker...
- (6.13) GT-1 cannot be started locally because the Local Optrend/Netcon is in
REMOTE...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.20 ___ Is breaker B3-3 open (Unit 1 Light and Power Room)?	1. ___ Place breaker B3-3 LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker B3-3 in TRIP.
6.21 ___ Is breaker SB1-1 open (Unit 1 Light and Power Room)?	1. ___ Place breaker SB1-1 LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker SB1-1 in TRIP.
6.1 ___ Is breaker SB1-2 closed (Unit 1 Light and Power Room)?	1. ___ Place breaker SB1-2 LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker SB1-2 in CLOSE.
6.22 ___ Is breaker SB1-T closed (Unit 1 Light and Power Room)?	1. ___ Place breaker SB1-T LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker SB1-T in CLOSE.
6.23 ___ Is breaker SB1-3 closed (Unit 1 Light and Power Room)?	1. ___ Place breaker SB1-3 LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker SB1-3 in CLOSE.
6.24 ___ Is breaker B2-2 closed?	1. ___ Place breaker B2-2 LOCAL/REMOTE switch in LOCAL. 2. ___ Place breaker control switch for breaker B2-2 in CLOSE.
6.25 ___ Obtain DO concurrence <u>and</u> close the following breakers: <ul style="list-style-type: none"> • ___ 52/GT (GAS TURBINE 1 OUTPUT BREAKER) • ___ 52/GT-1 	
6.26 ___ EXIT this attachment.	

... END ...

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IF AT ANY TIME:

- (6.1) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs closure of a 13.8KV breaker...
- (6.11) DC power is **NOT** available to 13.8KV breakers **AND**
a step in this attachment directs opening of a 13.8KV breaker...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.27 <input type="checkbox"/> PERFORM 2-SOP 31.3.2 (Gas Turbine 3 Local Operations) to black start GT-3.	
6.28 <input type="checkbox"/> Establish communication with DO (Tel. 212-580-6754).	
6.29 <input type="checkbox"/> Is motor operated disconnect BK-1 open?	<input type="checkbox"/> Direct D.O. to open motor operated disconnect BK-1.
6.30 <input type="checkbox"/> Is Breaker SBT-1 open (Buchanan Substation)?	<input type="checkbox"/> Open Breaker SBT-1.
6.31 <input type="checkbox"/> Is breaker B3-3 open (Unit 1 Light and Power Room)?	1. <input type="checkbox"/> Place breaker B3-3 LOCAL/REMOTE switch in LOCAL. 2. <input type="checkbox"/> Place breaker control switch for breaker B3-3 in TRIP.
6.32 <input type="checkbox"/> Is breaker SB1-T open (Unit 1 Light and Power Room)?	1. <input type="checkbox"/> Place breaker SB1-T LOCAL/REMOTE switch in LOCAL. 2. <input type="checkbox"/> Place breaker control switch for breaker SB1-T in TRIP.
6.33 <input type="checkbox"/> Is breaker SB1-4 closed (Unit 1 Light and Power Room)?	1. <input type="checkbox"/> Place breaker SB1-4 LOCAL/REMOTE switch in LOCAL. 2. <input type="checkbox"/> Place breaker control switch for breaker SB1-4 in CLOSE.
6.34 <input type="checkbox"/> Is breaker SB1-3 closed (Unit 1 Light and Power Room)?	1. <input type="checkbox"/> Place breaker SB1-3 LOCAL/REMOTE switch in LOCAL. 2. <input type="checkbox"/> Place breaker control switch for breaker SB1-3 in CLOSE.
6.35 <input type="checkbox"/> Is breaker R1-4 closed?	1. <input type="checkbox"/> Place breaker R1-4 LOCAL/REMOTE switch in LOCAL. 2. <input type="checkbox"/> Place breaker control switch for breaker R1-4 in CLOSE.
6.36 <input type="checkbox"/> Obtain DO concurrence and close Breaker BGT-3.	
6.37 <input type="checkbox"/> EXIT this attachment.	

••• END •••

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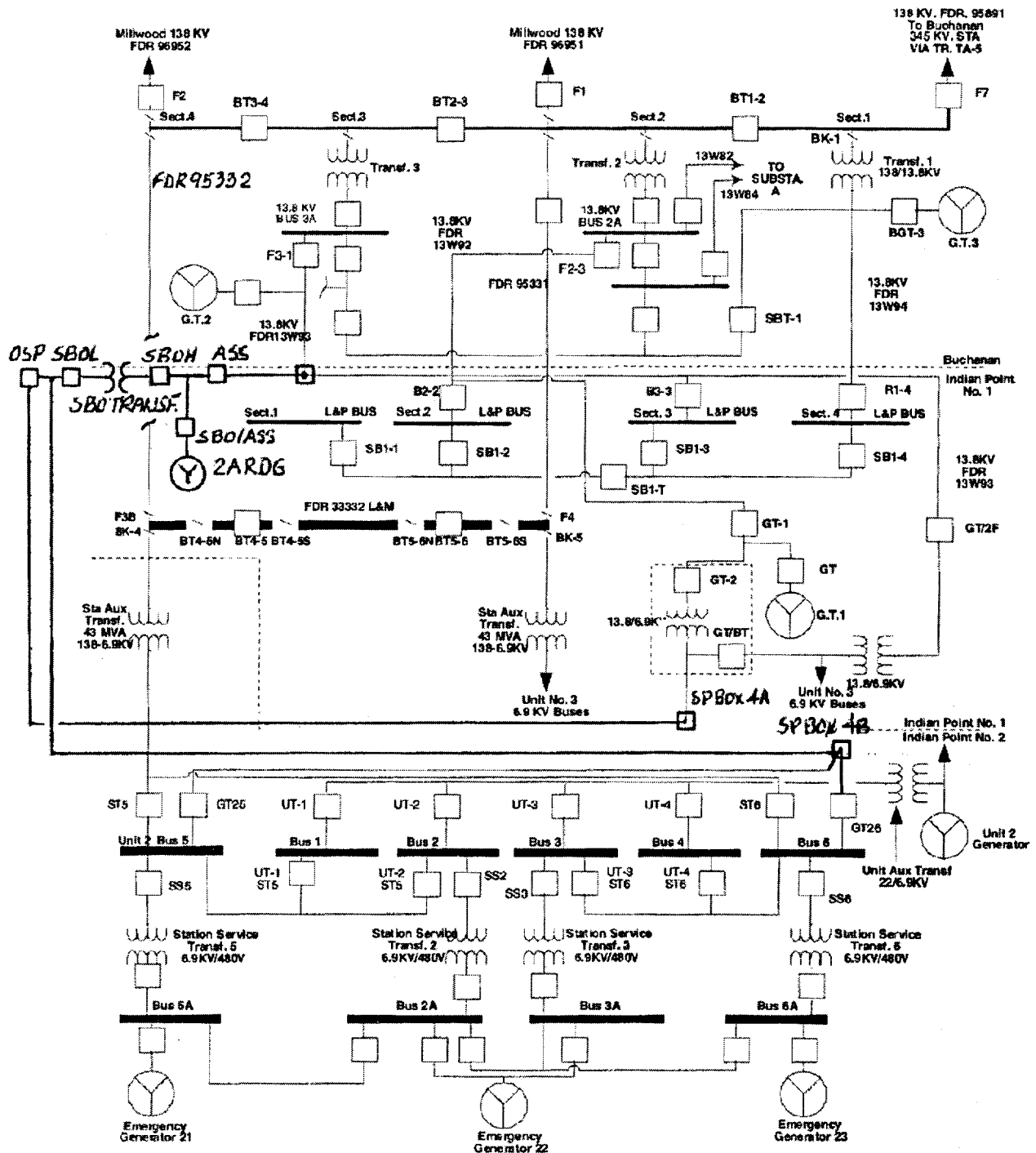
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Figure 1 - Electrical Distribution For ASSS (Gas Turbine) Power



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Manually Opening and Racking Out
6.9KV Breakers
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED																		
<p><u>NOTE</u></p> <p>PPE must be worn when racking out breakers.</p>																			
<p>7.1 <input type="checkbox"/> Remove the relay cover for the appropriate breaker.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%; text-align: center;">Breaker</th> <th style="width: 70%; text-align: center;">Relay</th> </tr> </thead> <tbody> <tr> <td>RX COOLANT 2X</td> <td>51/50</td> </tr> <tr> <td>CONDENSATE 2X</td> <td>51/50</td> </tr> <tr> <td>CIRCULATOR 2X</td> <td>51/50 B PHASE LO SPEED 51/50 B PHASE HI SPEED</td> </tr> <tr> <td>UNIT SUPPLY BUS-X</td> <td>51 UTX PHASE A</td> </tr> <tr> <td>6.9/480 TRANSF. BUS-X</td> <td>51/50 PHASE A</td> </tr> <tr> <td>STA SUPPLY BUS-X</td> <td>51 STX PHASE A</td> </tr> <tr> <td>HEATER DRAIN 2X</td> <td>51/50</td> </tr> <tr> <td>2X RWX 6.9KV BRKR</td> <td>51 RWX PHA</td> </tr> </tbody> </table> <p>* X denotes Pump or Bus number.</p>	Breaker	Relay	RX COOLANT 2X	51/50	CONDENSATE 2X	51/50	CIRCULATOR 2X	51/50 B PHASE LO SPEED 51/50 B PHASE HI SPEED	UNIT SUPPLY BUS-X	51 UTX PHASE A	6.9/480 TRANSF. BUS-X	51/50 PHASE A	STA SUPPLY BUS-X	51 STX PHASE A	HEATER DRAIN 2X	51/50	2X RWX 6.9KV BRKR	51 RWX PHA	
Breaker	Relay																		
RX COOLANT 2X	51/50																		
CONDENSATE 2X	51/50																		
CIRCULATOR 2X	51/50 B PHASE LO SPEED 51/50 B PHASE HI SPEED																		
UNIT SUPPLY BUS-X	51 UTX PHASE A																		
6.9/480 TRANSF. BUS-X	51/50 PHASE A																		
STA SUPPLY BUS-X	51 STX PHASE A																		
HEATER DRAIN 2X	51/50																		
2X RWX 6.9KV BRKR	51 RWX PHA																		
<p>7.2 <input type="checkbox"/> Gently rotate relay disc clockwise until breaker opens.</p>																			
<p>7.3 <input type="checkbox"/> Replace relay cover.</p>																			
<p>7.4 <input type="checkbox"/> Reset targets.</p>																			
<p>7.5 <input type="checkbox"/> Is breaker open?</p>	<p><input type="checkbox"/> Lift trip coil plunger mechanism.</p>																		
<p>7.6 <input type="checkbox"/> Open DC control power knife switch (upper left corner).</p>																			

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Safe Shutdown Control
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Manually Opening and Racking Out
6.9KV Breakers
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Manually Opening and Racking Out
6.9KV Breakers

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7.7 ___ Is racking out of breaker desired?	___ GO TO Step 7.10.
7.8 ___ Attach hand crank to shaft.	

NOTE

In DISCONNECT, the shutter indicator points to SHUTTER CLOSED.

7.9 ___ Push in crank handle and rotate counter-clockwise until position indicator is in DISCONNECT and pointer aligned to yellow paint mark.	
7.10 ___ EXIT this attachment.	

••• END •••

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Safe Shutdown Control
Attachment 8
Placing 21 OR 23 Charging Pump in
Service
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>8.1 ___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. ___ IF breaker SS6 (6.9KV Breaker for Station Service Transformer No. 6) is NOT open, THEN perform the following for breaker SS6.</p> <p>A. ___ Remove 51/50 Phase A relay cover.</p> <p>B. ___ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. ___ Replace relay cover.</p> <p>D. ___ Reset targets.</p> <p>E. ___ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. ___ GO TO Step 8.5.</p>
<p>8.2 ___ IAAT 21 Charging Pump available to start from the 480V Switchgear Room <u>and</u> the SM desires, THEN GO TO Step 8.19.</p>	<p>___ GO TO Step 8.3</p>
<p>8.3 Perform the following for 23 Charging Pump breaker:</p> <p>A. ___ Open breaker on Bus 6A using trip button, compartment 11B.</p> <p>B. ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	

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Safe Shutdown Control
Attachment 8
Placing 21 OR 23 Charging Pump in
Service
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IF AT ANY TIME:

(8.2) 21 Charging Pump available to start from the 480V Switchgear Room and the SM desires...

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Placing 21 OR 23 Charging Pump in
Service**

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> Substation 12FD3 is located at 33 ft el. Superheater Building next to Cold Water Deaerating Tank. Figure 1 (PAB Transfer Switch Locations) (Page 11 of this attachment) shows location of EDC4. Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies 	
8.4 <input type="checkbox"/> Is 12FD3 Sub-Station energized?	<input type="checkbox"/> WHEN 12FD3 Sub-Station is energized, THEN continue with Step 8.5.
8.5 <input type="checkbox"/> Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1M in LOCAL (in control panel/box directly above CHARGING PUMP 23 Breaker Control Switch).	
8.6 <input type="checkbox"/> Is Substation 12FD3 Breaker 1M open?	<input type="checkbox"/> Operate CLOSE/TRIP switch to open breaker.
8.7 <input type="checkbox"/> Place transfer switch EDC4 (inside cabinet) to EMERGENCY FEED position.	
8.8 <input type="checkbox"/> Is instrument air available?	1. <input type="checkbox"/> Uncouple air speed controller from scoop tube linkage (above pump). 2. <input type="checkbox"/> Place scoop tube in position "A".
8.9 <input type="checkbox"/> Open 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).	
8.10 <input type="checkbox"/> Close 297 (BORIC ACID BLENDER OUTLET STOP).	

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Safe Shutdown Control
Attachment 8
Placing 21 OR 23 Charging Pump in
Service
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IF AT ANY TIME:

(8.2) 21 Charging Pump available to start from the 480V Switchgear Room and the SM desires...

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Placing 21 OR 23 Charging Pump in
Service

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.11 __ Unlock and place Substation 12FD3 Breaker 1M in the vertical position.	
8.12 __ Close Substation 12FD3 Breaker 1M by operating CLOSE/TRIP switch.	
8.13 __ Open disconnect switch 1HR on MCC-26A (LCV-112C).	
8.14 __ Manually close LCV-112C (VCT OUTLET STOP) (VCT alleyway).	
8.15 __ Note time LCV-112C was closed (charging pump placed on RWST suction). _____	
8.16 __ IAAT CCW to Charging Pumps CAN NOT be established within 1 hour, THEN Initiate Attachment 10 (Backup Cooling Water Supply to Charging Pumps)	
8.17 __ IAAT PAB ventilation is NOT available, THEN establish alternate PAB ventilation per 2-SOP-ESP-001, Local Equipment Operation and Compensatory Actions.	
8.18 __ WHEN actions specified by IAAT Steps 8.16 <u>and</u> 8.17 are complete, OR 23 Charging Pump operation is no longer necessary, THEN EXIT this attachment.	

... END ...

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Safe Shutdown Control
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Placing 21 OR 23 Charging Pump in
Service
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Placing 21 OR 23 Charging Pump in
Service
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.19 ___ Is instrument air available?	1. ___ Uncouple air speed controller from scoop tube linkage (above pump). 2. ___ Place scoop tube in position "A".
8.20 ___ Open 288 (RWST MANUAL INLET STOP) (22 Charging Pump cell).	
8.21 ___ Close 297 (BORIC ACID BLENDER OUTLET STOP).	

CAUTION

Local operation of 21 Charging Pump removes both the low bearing oil trip and the under-voltage trip from the control circuit.

8.22 ___ Insert key into Control Switch for 21 Charging Pump at Panel EDA56.	
8.23 ___ Place 21 Charging Pump Control Switch to Start.	
8.24 ___ Is 21 Charging Pump Running.	___ GO TO Step 8.3.
8.25 ___ Manually close LCV-112C (VCT OUTLET STOP) (VCT alleyway).	
8.26 ___ Note time LCV-112C was closed (charging pump placed on RWST suction). _____	
8.27 ___ IAAT CCW to Charging Pumps CAN NOT be established within 1 hour, THEN Initiate Attachment 10 (Backup Cooling Water Supply to Charging Pumps)	

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IF AT ANY TIME:

(8.27) CCW to Charging Pumps **CAN NOT** be established within 1 hour ...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.28 __ IAAT PAB ventilation is NOT available, THEN establish alternate PAB ventilation per 2-SOP-ESP-001, Local Equipment Operation and Compensatory Actions.	
8.29 __ IAAT 21 Charging Pump is not needed, THEN place control switch to STOP.	
8.30 __ WHEN actions specified by IAAT Steps 8.27 <u>and</u> 8.28 are complete, OR 21 Charging Pump operation is no longer necessary, THEN EXIT this attachment.	

• • • END • • •

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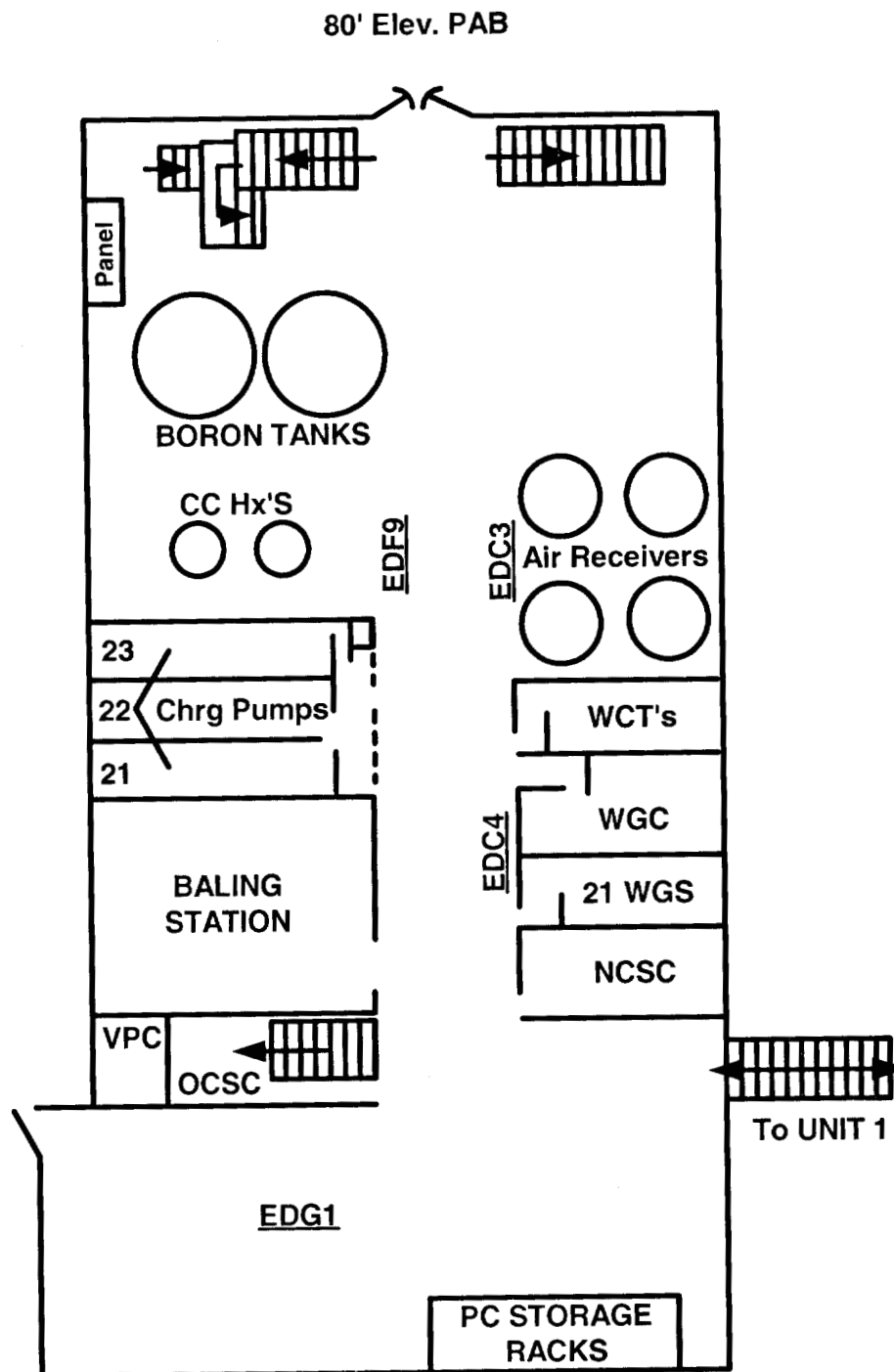
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Figure 1 - PAB Transfer Switch Locations



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NOTE

In the event an emergency condition is declared by the SM which requires immediate access to the VC, normal entry requirements should be followed to the maximum extent practical along with the following guidelines

1. MATERIAL/EQUIPMENT

NOTE

- R-41/R-42 LCU readings shall be observed. If readings are increasing at a rate such that an increase by a factor of 100 could occur in 10 - 15 minutes, SCBA may NOT provide adequate protection. Other available radiation monitoring instrumentation should be observed for indication of severe radiological conditions prior to entry.
- The containment evacuation alarm may be changed by adjusting the WARN setpoint for R-41 or R-42 at the LCU.

- R-41 Status: Bkgnd _____, 1 - 10X Bkgnd _____ 10X BKGND _____
(Check one)
- R-42 Status: Bkgnd _____, 1 - 10X Bkgnd _____ 10X BKGND _____
(Check one)
- IF airborne activity levels are **NOT** known prior to entry, SCBA shall be used for respiratory protection **AND** a 20 - 30 minute maximum time limit applies to those working under heavy working conditions.
- High range dosimeters (0 - 5000 mR) or Merlin (or equivalent) are required for all personnel entering the VC.
- High range beta-gamma survey instrument (> 50R/hr)
- Portable air sampler (lapel or equivalent) for particulate and iodine activity
- Hand-held emergency lighting (e.g. flashlights)

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2. ADMINISTRATIVE REQUIREMENTS AND PRE-ENTRY BRIEFING

- An ALARA review and dose estimate must be performed by the Watch HP and HPS and HPM notified ASAP.
- An RWP must be started ASAP for record purposes (it need **NOT** be completed prior to entry).
- A pre-entry briefing must be conducted by the SM and Watch HP prior to entry and must include anticipated radiological conditions and concerns, individual stay times and an evaluation of containment pressure. The following items should be addressed at the briefing:
 - Anticipate poor visibility; do **NOT** go where you **CANNOT** see.
 - Watch for signs of heat stress and respirator distress.
 - Ensure that an air sample is taken.
 - After gamma dose rates have been determined, the HP should evaluate whether self-monitoring qualified individuals may enter areas with gamma fields < 5R/hr without an HP escort.
 - If R-41 or R-42 are available, ensure the WARN setpoint (evacuation alarm) is set to a usable value.
 - Do **NOT** enter an area where the dose rate exceeds 5 R/hr without HPM approval.
 - Do **NOT** separate into parties of less than two people.

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- All parties on the entry team must sign the pre-entry briefing sheet.

NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.
NAME/TLD No.	NAME/TLD No.

Shift Manager/Date

- Individual exposures must be logged “after the fact” by HP personnel on the RWP and personnel exposure data from processed TLD results must be recorded on the RWP as applicable.
- HP supervision must evaluate entry data and ensure required records are complete.

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.1 __ Connect hose to 1873D (CHARGING PUMPS CITY WATER BACKUP OUTLET HEADER STOP) and route to <u>any</u> drain.	
10.2 __ Close 1874 (CHARGING PUMPS CITY WATER BACKUP TELLTALE STOP).	
10.3 __ Close 756B (CHARGING PUMPS OIL AND FLUID DRIVE COOLERS OUTLET STOP).	
10.4 __ Close 756A (CHARGING PUMPS OIL AND FLUID DRIVE COOLERS INLET STOP).	
10.5 __ Open 1873C (CHARGING PUMPS CITY WATER BACKUP OUTLET HEADER STOP).	
10.6 __ Open 1873D (CHARGING PUMPS CITY WATER BACKUP OUTLET HEADER STOP).	
10.7 __ Open 1873A (CHARGING PUMPS CITY WATER BACKUP INLET HEADER STOP).	
10.8 __ Open 1873B (CHARGING PUMPS CITY WATER BACKUP INLET HEADER STOP).	
10.9 __ EXIT this attachment.	

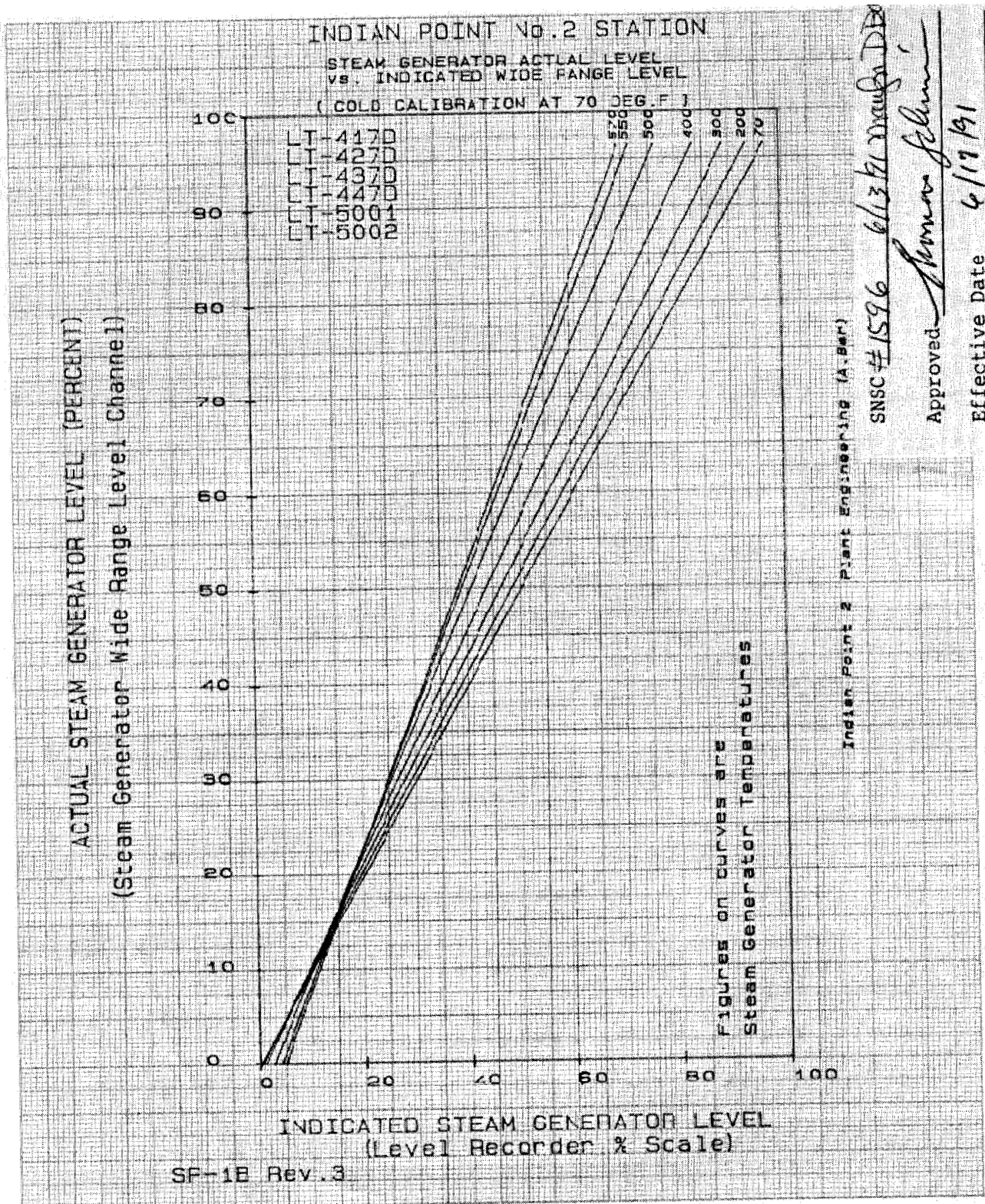
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SG Wide Level Temperature Calibration
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p>At least one pump aligned to the essential header should be started. If neither pump is aligned to the essential header, steps in this attachment will re-align the pumps once started.</p>	
12.1 <input type="checkbox"/> Is starting 23 SW Pump desired?	<input type="checkbox"/> GO TO Step 12.11.
12.2 <input type="checkbox"/> Is 480V Switchgear Room accessible?	<p>1. <input type="checkbox"/> IF all three diesel generator control switches are NOT in OFF, THEN place all three diesel generator control switches in OFF.</p> <p>2. <input type="checkbox"/> IF breaker SS6 (6.9KV Breaker for Station Service Transformer No. 6) is NOT open, THEN perform the following for breaker SS6.</p> <p>A. <input type="checkbox"/> Remove 51/50 Phase A relay cover.</p> <p>B. <input type="checkbox"/> Gently rotate relay disc clockwise until breaker opens.</p> <p>C. <input type="checkbox"/> Replace relay cover.</p> <p>D. <input type="checkbox"/> Reset targets.</p> <p>E. <input type="checkbox"/> IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. <input type="checkbox"/> GO TO Step 12.5.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>12.3 Perform the following for 23 SW Pump breaker:</p> <p>A. <input type="checkbox"/> Open breaker on Bus 6A using trip button, compartment 8C.</p> <p>B. <input type="checkbox"/> Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	
<p>12.4 <input type="checkbox"/> is 12RW3 Sub-Station energized?</p>	<p><input type="checkbox"/> WHEN 12RW3 Sub-Station is energized, THEN continue with Step 12.5.</p>
<p>12.5 <input type="checkbox"/> Place "LOCAL-REMOTE Control Switch Device 69" for 23SWP in LOCAL (in 12RW3 Breaker Control Cabinet).</p>	

NOTE

- Figure 1 (Substation and Transfer Switch Locations) (Page 11 of this attachment) shows locations of 12RW3 and EDG3.
- Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies

<p>12.6 <input type="checkbox"/> Is Substation 12RW3 Breaker 1M open?</p>	<p><input type="checkbox"/> Operate CLOSE/TRIP switch to open breaker.</p>
<p>12.7 <input type="checkbox"/> Place transfer switch EDG3 (inside cabinet) to EMERGENCY FEED position.</p>	
<p>12.8 <input type="checkbox"/> Unlock and place Substation 12RW3 Breaker 1M in the vertical position.</p>	
<p>12.9 <input type="checkbox"/> Close Substation 12RW3 Breaker 1M by operating CLOSE/TRIP switch.</p>	
<p>12.10 <input type="checkbox"/> Is starting 24 SW Pump desired?</p>	<p><input type="checkbox"/> GO TO Step 12.19.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>12.11 __ Is 480V Switchgear Room accessible?</p>	<p>1. __ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. __ IF breaker SS5 (6.9KV Breaker for Station Service Transformer No. 5) is NOT open, THEN perform the following for breaker SS5.</p> <p>A. __ Remove 51/50 Phase A relay cover.</p> <p>B. __ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. __ Replace relay cover.</p> <p>D. __ Reset targets.</p> <p>E. __ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. __ GO TO Step 12.14.</p>
<p>12.12 Perform the following for 24 SW Pump breaker:</p> <p>A. __ Open breaker on Bus 5A using trip button, compartment 19B.</p> <p>B. __ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	
<p>12.13 __ is 12RW3 Sub-Station energized?</p>	<p>__ WHEN 12RW3 Sub-Station is energized, THEN continue with Step 12.14.</p>
<p>12.14 __ Place "LOCAL-REMOTE Control Switch Device 69" for 24SWP in LOCAL (in 12RW3 Breaker Control Cabinet).</p>	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> Figure 1 (Substation and Transfer Switch Locations) (Page 11 of this attachment) shows locations of 12RW3 and EDG4. Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies 	
12.15 __ Is Substation 12RW3 Breaker 3M open?	__ Operate CLOSE/TRIP switch to open breaker.
12.16 __ Place transfer switch EDG4 (inside cabinet) to EMERGENCY FEED position.	
12.17 __ Unlock and place Substation 12RW3 Breaker 3M in the vertical position.	
12.18 __ Close Substation 12RW3 Breaker 3M by operating CLOSE/TRIP switch.	
12.19 __ Is at least one SW pump running on essential header?	__ PERFORM applicable section of SOP 24.1 (Service Water System Operation) to establish at least one SW pump running on essential header.
12.20 __ Is at least one SW pump running on non-essential header?	<p style="text-align: center;"><u>NOTE</u></p> <p>IF there are NO non-essential loads, cross-connecting headers is NOT necessary.</p>
	__ IF running an SW pump on non-essential header is desired, AND RCS temperature is < 350°F THEN PERFORM applicable section of SOP 24.1.2 (Service Water Header Operation Mode 4, 5 or 6) to cross-connect essential and non-essential header.
12.21 __ IAAT Zurn strainer differential pressure is abnormal, THEN perform Steps 12.22 - 12.25 for affected SW Pump.	__ GO TO Step 12.26.

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IF AT ANY TIME:

(12.21) Zurn strainer differential pressure is abnormal...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12.22 __ Open strainer feeder breaker adjacent to associated SW Pump.	

NOTE

Refer to Figure 2 (Strain-O-Matic Diagram) (Page 13 of this attachment) for following step.

12.23 Remove gib head as follows: A. __ Loosen <u>both</u> allen head screws on gib head. B. __ Remove locknut and spacer. C. __ Pry gib head drive key loose and pull straight up. D. __ Replace spacer and locknut. E. __ Pull thrust collar up against reducer.	
12.24 __ Rotate backwash arm 5-7 rpm as necessary to maintain acceptable ΔP .	
12.25 __ WHEN manual strainer operation is no longer necessary, THEN PERFORM applicable section of SOP 24.1 (Service Water System Operation) to return strainer to normal operation.	
12.26 __ WHEN determined NO longer applicable by CRS/SM, THEN EXIT this attachment.	

... END ...

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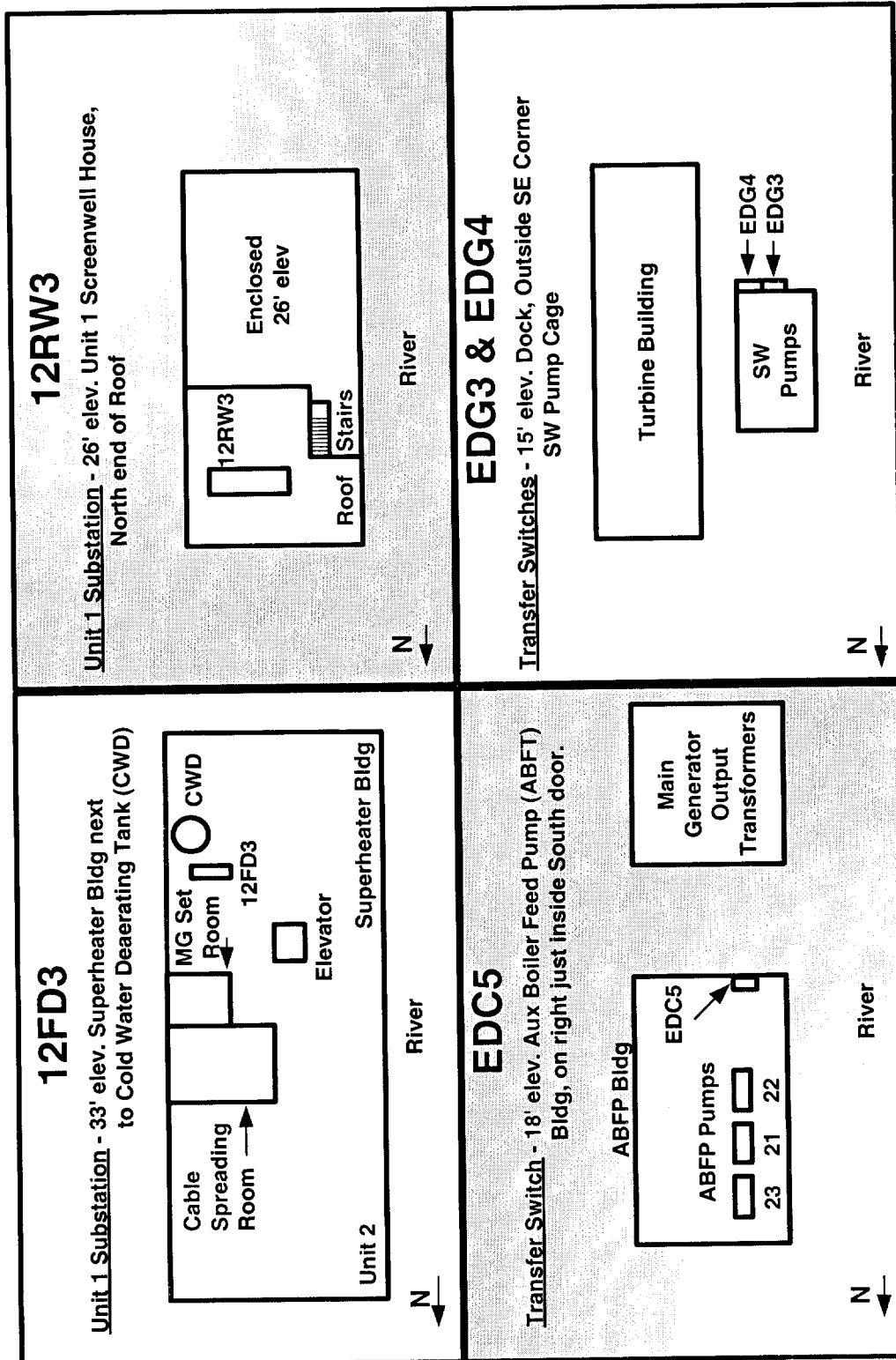
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Figure 1 - Substation and Transfer Switch Locations



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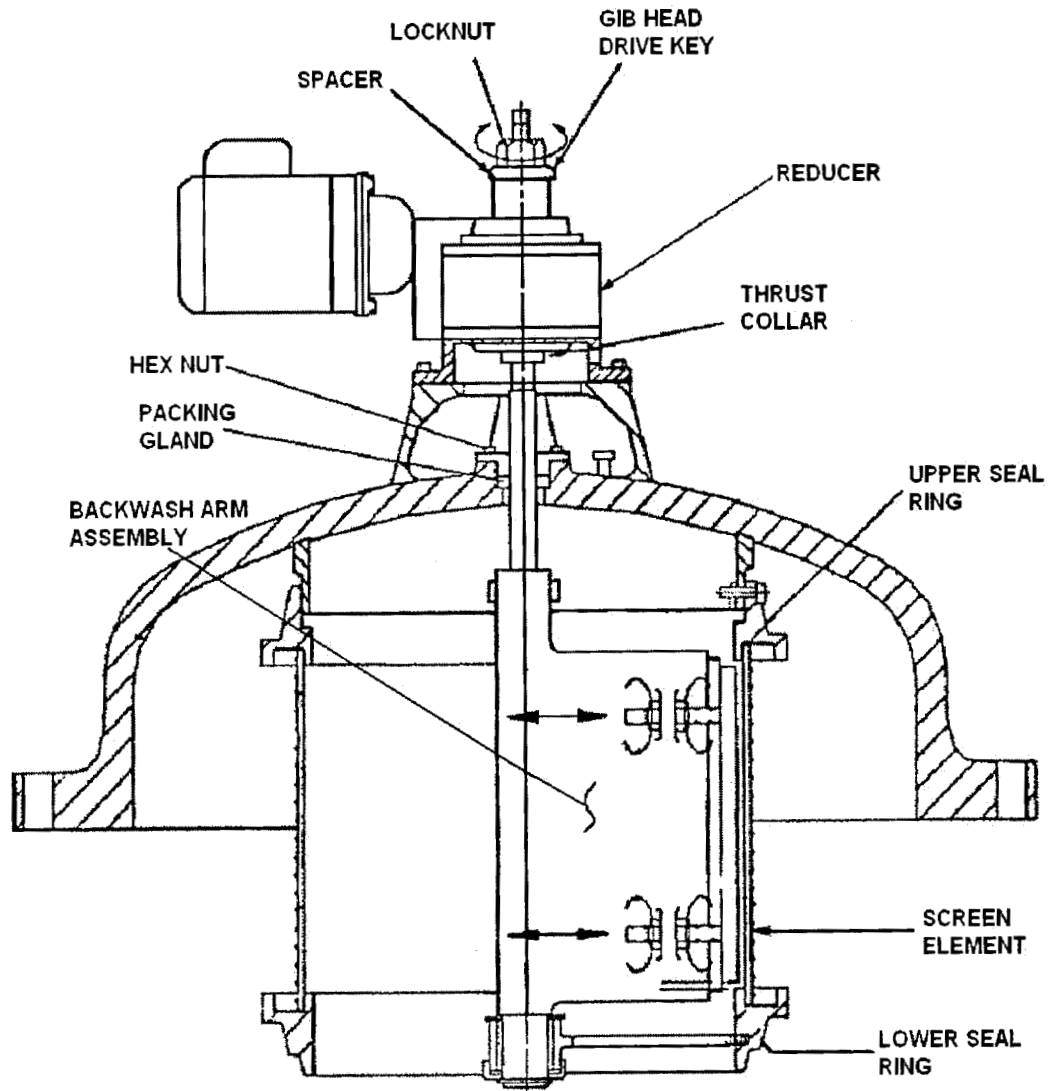
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Figure 2 - Strain-O-Matic Diagram



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Operation of Lube Oil and Seal Oil
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13.1 <input type="checkbox"/> Are <u>all</u> 480V Buses energized?	<input type="checkbox"/> GO TO Step 13.11.
13.2 <input type="checkbox"/> Place Main/Recirculating Seal Oil Pump in RUN.	
13.3 <input type="checkbox"/> Is Main/Recirculating Seal Oil Pump running?	<input type="checkbox"/> GO TO Step 13.6.
13.4 <input type="checkbox"/> Place Emergency Seal Oil Pump in OFF.	
13.5 <input type="checkbox"/> Place Emergency Seal Oil Pump in AUTO.	
13.6 Place <u>either</u> Main Oil Pump in START: <input type="checkbox"/> MOP-1 <input type="checkbox"/> MOP-2	
13.7 Place <u>selected</u> Main Oil Pump in AUTO: <input type="checkbox"/> MOP-1 <input type="checkbox"/> MOP-2	
13.8 <input type="checkbox"/> Is Main Oil Pump running? • MOTOR ON light lit • MOP RUNNING light lit	<input type="checkbox"/> GO TO Step 13.11.
13.9 <input type="checkbox"/> Place Emergency DC Oil Pump MOP-3 in STOP.	
13.10 <input type="checkbox"/> Place Emergency DC Oil Pump MOP-3 in AUTO.	
13.11 <input type="checkbox"/> IAAT Main Turbine Emergency DC Oil Pump is running, AND main turbine shaft stops rotating, THEN place DC T/G Emergency Oil Pump breaker EDN6 in OFF (33 ft el, Unit 1 outside MG Set Rm).	

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13.12__ IAAT a MBFP Emergency Oil Pump is running, AND the MBFP shaft stops rotating, THEN place MBFP Emergency Oil Pump switch MOP-3 in pullout.	
13.13__ IAAT the Emergency Seal Oil Pump is running, THEN perform Steps 13.14 - 13.16.	__ GO TO Step 13.17.
13.14__ Is carbon dioxide unit available?	1.__ Close HS-72 (Hydrogen Bulk Supply Stop). 2.__ Slowly open PG-532 (PURGE STOP TO VENT TEST PLUG STOP). 3.__ WHEN main generator gas pressure reaches 5 psig, THEN INITIATE 2-SOP-26.3.1 (Generator Seal Oil System) to bypass Seal Oil Return Float Trap. 4.__ WHEN main generator gas pressure reaches 2 psig, THEN close PG-532. 5.__ GO TO Step 13.16.
13.15__ PERFORM applicable section of SOP 26.2 (Hydrogen and Carbon Dioxide to Main Generator) to purge main generator.	
13.16__ Place Emergency Seal Oil Pump in PULL-TO-LOCK.	
13.17__ WHEN determined NO longer applicable by CRS/SM, THEN EXIT this attachment.	

... END ...

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Placing 21 SI Pump in Service with Safe
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>14.1 __ Is 480V Switchgear Room accessible?</p>	<p>1. __ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. __ IF breaker SS5 (6.9KV Breaker for Station Service Transformer No. 5) is NOT open, THEN perform the following for breaker SS5.</p> <p>A. __ Remove 51/50 Phase A relay cover.</p> <p>B. __ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. __ Replace relay cover.</p> <p>D. __ Reset targets.</p> <p>E. __ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>F. __ Open DC control power knife switch (upper left corner).</p> <p>G. __ Attach hand crank to shaft.</p> <p>H. __ Push in crank handle and rotate counter-clockwise until position indicator is in DISCONNECT and pointer aligned to yellow paint mark (In DISCONNECT, the shutter indicator points to SHUTTER CLOSED).</p> <p>3. __ GO TO Step 14.3.</p>

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>14.2 Perform the following for 21 SI Pump breaker:</p> <p>A. ___ Open breaker on Bus 5A using trip button, compartment 15A.</p> <p>B. ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p> <p>C. ___ Engage breaker racking lever.</p> <p>D. ___ Press and hold interlock lever (left side of breaker frame).</p> <p>E. ___ Press breaker racking lever to move breaker from CONNECT to TEST position.</p> <p>F. ___ Release interlock lever.</p> <p>G. ___ Remove breaker racking lever.</p> <p>H. ___ Press and hold interlock lever (left side of breaker frame).</p> <p>I. ___ Pull breaker forward until locking pin is in front notch.</p> <p>J. ___ Release interlock lever.</p>	
<p>14.3 ___ IAAT CCW cooling to 21 SI Pump does NOT exist, THEN perform Steps 14.4 - 14.13.</p>	<p>___ GO TO Step 14.15.</p>
<p>14.4 ___ Close 734A (SI/RHR SUPPLY HEADER STOP).</p>	
<p>14.5 ___ Close 734B (SI/RHR NORMAL OUTLET STOP).</p>	

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IF AT ANY TIME:

(14.3) CCW cooling to 21 SI Pump does **NOT** exist...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14.6 Connect a hose between the following: ___ PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP) ___ MW-746 (CITY WATER HEADER OUTLET STOP)	
14.7 ___ Connect a hose at 734F (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP) and direct to a drain.	
14.8 ___ Open 734F.	
14.9 ___ Open 734E (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP).	
14.10 ___ Is PW-114 (PW AND CCW SUPPLY ISOLATION) closed?	___ Close PW-114.
14.11 ___ Open PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP).	
14.12 ___ Open MW-746 (CITY WATER HEADER OUTLET STOP).	
14.13 ___ Open 733C (SI/RHR PUMPS PRIMARY WATER EMERGENCY SUPPLY STOP).	
14.14 ___ Is 12FD3 Sub-Station energized?	___ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 14.15.
14.15 ___ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1T in LOCAL (in control panel/box directly above 21RHR 21SIS Breaker Control Switch).	

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IF AT ANY TIME:

(14.3) CCW cooling to 21 SI Pump does **NOT** exist...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14.16__ Is Substation 12FD3 Breaker 1T open (33 ft el. Superheater Building next to Cold Water Deaerating Tank)?	__ Operate CLOSE/TRIP switch to open breaker.

NOTE

- Figure 1 (PAB Transfer Switch Locations) (Page 11 of this attachment) shows location of EDC3 and EDG1.
- Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies

14.17__ Is transfer switch EDC3 in NEUTRAL/MID position (inside cabinet).	__ Place EDC3 in NEUTRAL/MID position
14.18__ Place transfer switch EDG1 to NEUTRAL/MID position (inside cabinet).	
14.19__ Connect pre-cut color coded casualty cables from splice box EZH1 to 21 SI Pump (EZH1 is located at 59 ft el. PAB, SI Pump Room).	
14.20__ Is one of the following open? __ MOV-856E (23 LOOP COLD LEG SI STOP) __ MOV-856A (21 LOOP COLD LEG SI STOP) __ MOV-856B (23 LOOP HOT LEG SI STOP)	Manually open one of the following: __ MOV-856E (23 LOOP COLD LEG SI STOP) __ MOV-856A (21 LOOP COLD LEG SI STOP) __ MOV-856B (23 LOOP HOT LEG SI STOP)

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IF AT ANY TIME:

(14.3) CCW cooling to 21 SI Pump does **NOT** exist...

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14.21 __ Place transfer switch EDC3 in SAFETY INJECTION/RESIDUAL HEAT REMOVAL PUMP position.	
14.22 __ Place transfer switch EDG1 in 21 SI PUMP OR 22 RHR PUMP position.	
14.23 __ Unlock and place Substation 12FD3 Breaker 1T in the vertical position.	
14.24 __ WHEN RCS pressure is < SI pump discharge pressure (\approx 1700 psig), THEN close Substation 12FD3 Breaker 1T by operating CLOSE/TRIP switch.	
14.25 __ Report time 21 SI Pump started to CRS.	
14.26 __ WHEN determined NO longer applicable by CRS/SM, THEN EXIT this attachment.	

... END ...

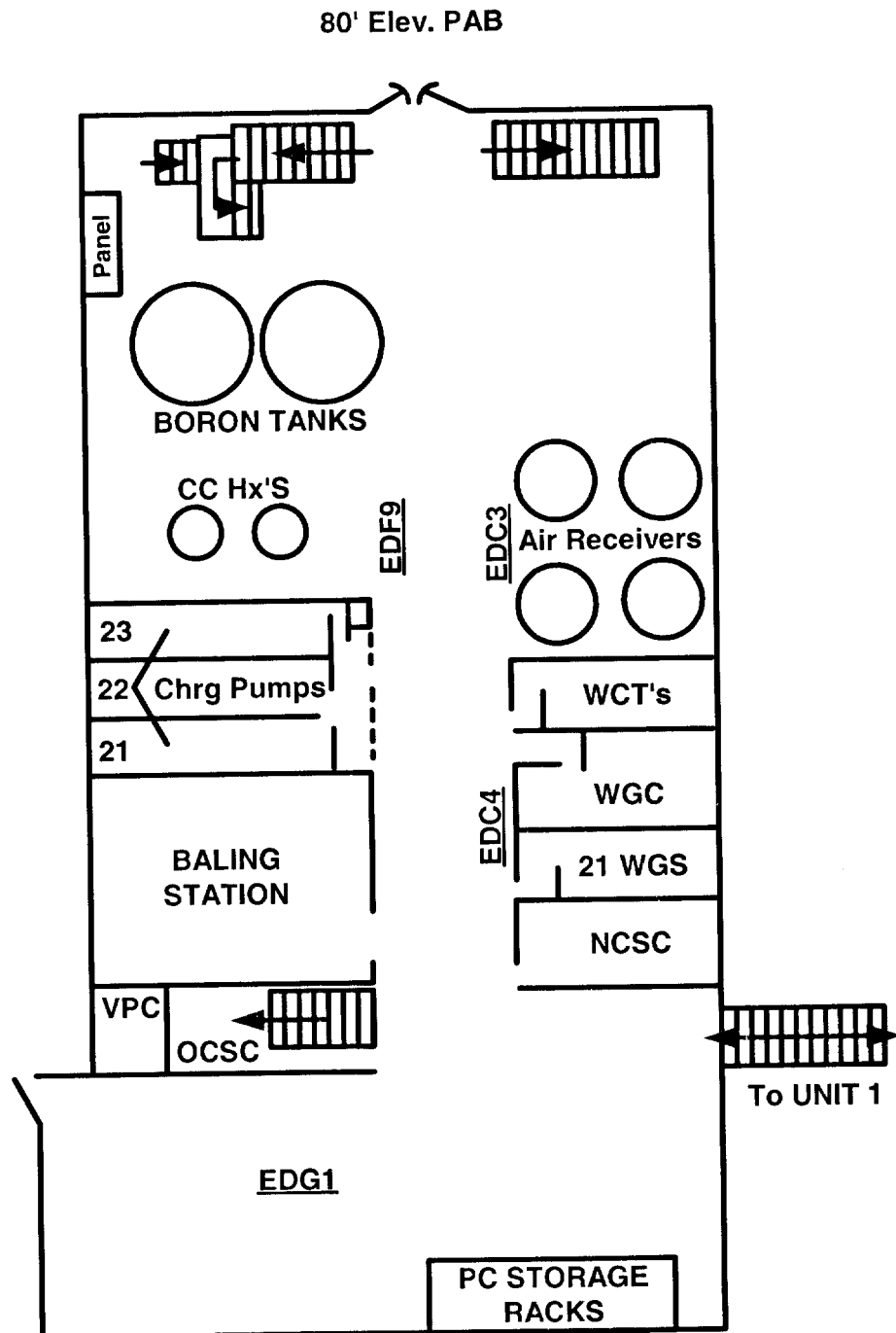
**Control Room Inaccessibility
Safe Shutdown Control
Attachment 14
Placing 21 SI Pump in Service with Safe
Shutdown Power
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Figure 1 - PAB Transfer Switch Locations



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Control Room Inaccessibility
 Safe Shutdown Control
 Attachment 15
 Placing 23 CCW Pump in Service On
 Safe Shutdown Power
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>15.1 ___ Is 480V Switchgear Room accessible?</p>	<p>1. ___ IF <u>all three</u> diesel generator control switches are NOT in OFF, THEN place <u>all three</u> diesel generator control switches in OFF.</p> <p>2. ___ IF breaker SS6 (6.9KV Breaker for Station Service Transformer No. 6) is NOT open, THEN perform the following for breaker SS6.</p> <p>A. ___ Remove 51/50 Phase A relay cover.</p> <p>B. ___ Gently rotate relay disc clockwise until breaker opens.</p> <p>C. ___ Replace relay cover.</p> <p>D. ___ Reset targets.</p> <p>E. ___ IF breaker did NOT open, THEN lift trip coil plunger mechanism.</p> <p>3. ___ GO TO Step 15.4.</p>
<p>15.2 Perform the following for 23 CCW Pump breaker:</p> <p>A. ___ Open breaker on Bus 6A using trip button, compartment 12C.</p> <p>B. ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).</p>	

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 15
Placing 23 CCW Pump in Service On
Safe Shutdown Power
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Placing 23 CCW Pump in Service On
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Substation 12FD3 is located at 33 ft el. Superheater Building next to Cold Water Deaerating Tank. • Figure 1 (PAB Transfer Switch Locations) (Page 5 of this attachment) shows location of EDF9. • Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies 	
15.3 ___ Is 12FD3 Sub-Station energized?	___ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 15.4.
15.4 ___ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 2B in LOCAL (in control panel/box directly above COMPONENT COOLING PUMP 23 Breaker Control Switch).	
15.5 ___ Is Substation 12FD3 Breaker 2B open?	___ Operate CLOSE/TRIP switch to open breaker.
15.6 ___ Place transfer switch EDF9 (inside cabinet) to EMERGENCY FEED position.	
15.7 ___ Unlock and place Substation 12FD3 Breaker 2B in the vertical position.	
15.8 ___ Close Substation 12FD3 Breaker 2B by operating CLOSE/TRIP switch.	
15.9 ___ EXIT this attachment.	

... END ...

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 15
Placing 23 CCW Pump in Service On
Safe Shutdown Power
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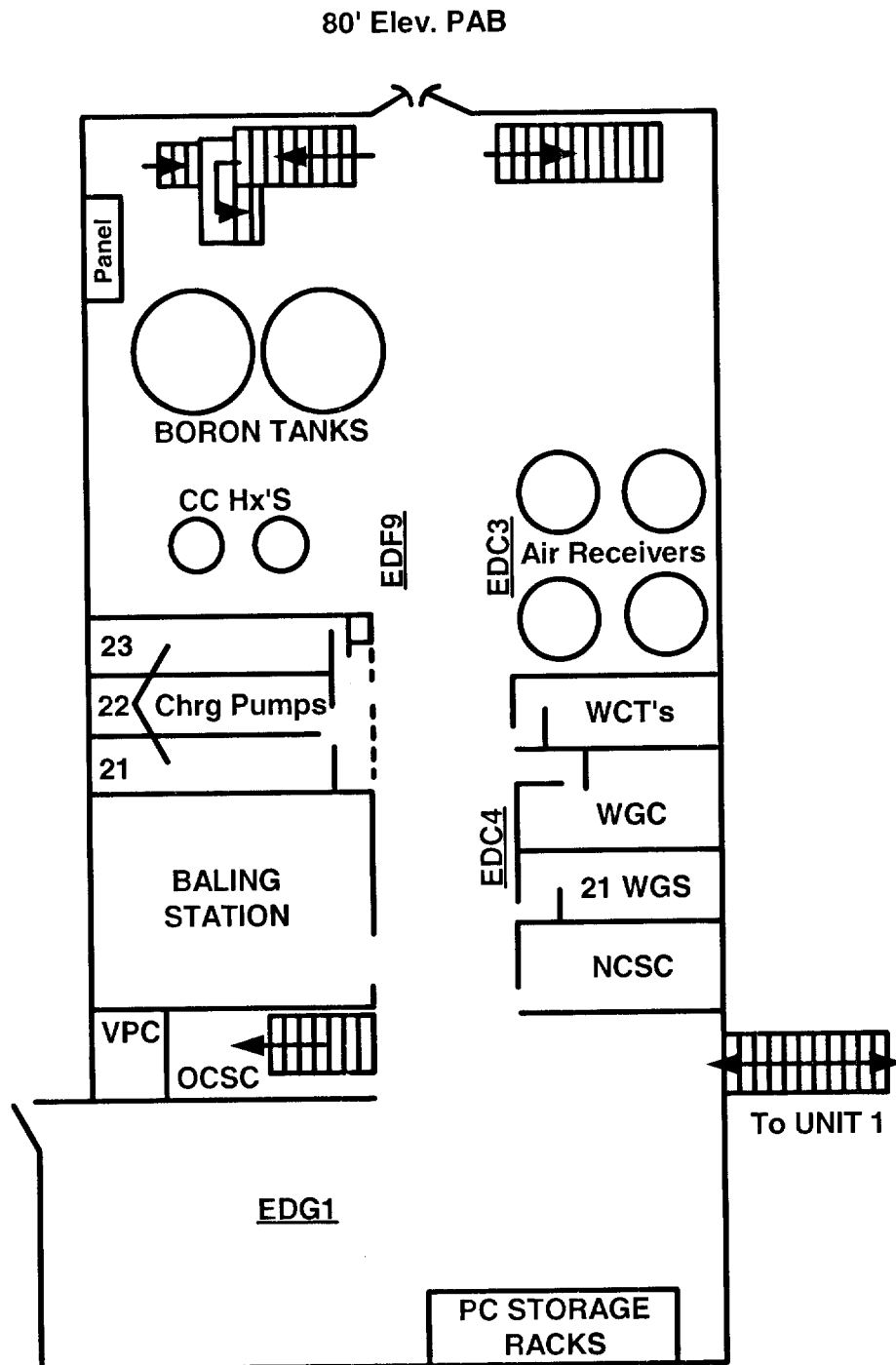
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Figure 1 - PAB Transfer Switch Locations



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Safe Shutdown Control
Attachment 16
Loss Of Charging With CCW Available
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16.1 ___ Dispatch an operator to perform Attachment 8 (Placing 21 OR 23 Charging Pump in Service) (Page 211).	
16.2 ___ Remove lock and place LCV-459 (LETDOWN STOP) control switch in CLOSE.	
16.3 ___ Is LCV-459 closed?	<p>1. Close <u>all</u> letdown orifice stops:</p> <p style="margin-left: 40px;">___ 200A</p> <p style="margin-left: 40px;">___ 200B</p> <p style="margin-left: 40px;">___ 200C</p> <p>2. ___ IF <u>any</u> letdown orifice will NOT close, THEN dispatch an operator to perform the following:</p> <p>A. ___ Enter VC per the requirements of OAP-007 (<i>CONTAINMENT ENTRY AND EGRESS</i>) and Attachment 9 (Emergency VC Entry Guide) (Page 223).</p> <p>B. Isolate and disconnect instrument air to the following:</p> <p style="margin-left: 40px;">___ LCV-459 (LETDOWN STOP)</p> <p style="margin-left: 40px;">___ 213 (EXCESS LETDOWN STOP)</p>
16.4 ___ IAAT it is determined that 21 <u>or</u> 23 Charging Pump CANNOT be started, THEN dispatch an operator to perform Attachment 14 (Placing 21 SI Pump in Service with Safe Shutdown Power) (Page 251).	
16.5 ___ WHEN 21 OR 23 Charging Pump is started, OR 21 SI Pump is started, THEN continue in this attachment.	

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Safe Shutdown Control
Attachment 16
Loss Of Charging With CCW Available
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Safe Shutdown Control
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Loss Of Charging With CCW Available
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>16.6 <input type="checkbox"/> Is 21 OR 23 Charging Pump running?</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). </div> <p>1. <input type="checkbox"/> Coordinate with operator at Loop SI stop (MOV-856E, A or B) to throttle stop as necessary to maintain indicated PRZR level between 30% and 37%.</p> <p>2. <input type="checkbox"/> GO TO Step 16.10.</p>
<p>16.7 <input type="checkbox"/> Is HCV-142 (CHARGING LINE FLOW CONTROLLER) open?</p>	<p><input type="checkbox"/> Locally open MOV-227 (CHARGING BYPASS STOP).</p>
<p>16.8 <input type="checkbox"/> Does charging flow exist?</p>	<p>Dispatch an operator to perform the following:</p> <p>A. <input type="checkbox"/> Enter VC per the requirements of OAP-007 (CONTAINMENT ENTRY AND EGRESS) and Attachment 9 (Emergency VC Entry Guide) (Page 223).</p> <p>B. Isolate and disconnect instrument air to one of the following:</p> <p style="padding-left: 40px;"><input type="checkbox"/> 204A (CHARGING HEADER STOP TO LOOP 2)</p> <p style="padding-left: 40px;"><input type="checkbox"/> 204B (CHARGING HEADER STOP TO LOOP 1)</p>

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Safe Shutdown Control
Attachment 16
Loss Of Charging With CCW Available
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Safe Shutdown Control
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). 	
<p>16.9 __ Maintain indicated PRZR level between 30% and 37% by one of the following methods:</p> <ul style="list-style-type: none"> • Instrument air available - place charging pump speed in manual and adjust speed control knob • Instrument air NOT available - manually adjust scoop tube 	
<p>16.10 __ WHEN PRZR level is between 30% and 37%, THEN continue in this procedure.</p>	
<p>16.11 __ Was an operator sent into the VC due to inability to close letdown orifice stops?</p>	<p>__ GO TO Step 16.14.</p>
<p>16.12 __ Notify operator to re-enter VC as necessary to reconnect instrument air to LCV-459 and 213.</p>	
<p>16.13 __ WHEN LCV-459 can be operated, THEN continue with the procedure.</p>	
<p>16.14 __ Perform Attachment 27 (Placing Letdown In Service) (Page 323).</p>	
<p>16.15 __ EXIT this attachment</p>	

... END ...

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Control Room Inaccessibility
Safe Shutdown Control
Attachment 17
Loss Of CCW With Charging Available
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED												
17.1 ___ INITIATE Attachment 10 (Backup Cooling Water Supply To Charging Pumps) (Page 229).													
17.2 ___ Is instrument air available?	1. ___ Manually adjust scoop tube to maintain charging pump at maximum speed. 2. ___ GO TO Step 17.4.												
17.3 ___ Place charging pump speed in manual and adjust speed control knob to maintain charging pump at maximum speed.													
17.4 Unlock and open charging pump bypass stop on running charging pump: <table><tr><td>√</td><td>PUMP</td><td>BYPASSES</td></tr><tr><td></td><td>21</td><td>1275</td></tr><tr><td></td><td>22</td><td>1277</td></tr><tr><td></td><td>23</td><td>1279</td></tr></table>	√	PUMP	BYPASSES		21	1275		22	1277		23	1279	
√	PUMP	BYPASSES											
	21	1275											
	22	1277											
	23	1279											
17.5 Unlock and throttle charging pump bypass stop on running charging pump to maintain PRZR level: <table><tr><td>√</td><td>PUMP</td><td>BYPASSES</td></tr><tr><td></td><td>21</td><td>4900</td></tr><tr><td></td><td>22</td><td>4901</td></tr><tr><td></td><td>23</td><td>4902</td></tr></table>	√	PUMP	BYPASSES		21	4900		22	4901		23	4902	
√	PUMP	BYPASSES											
	21	4900											
	22	4901											
	23	4902											
17.6 ___ INITIATE Attachment 15 (Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).													

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Safe Shutdown Control
Attachment 17
Loss Of CCW With Charging Available
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Safe Shutdown Control
Attachment 17
Loss Of CCW With Charging Available
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17.7 ___ IAAT cooling water is restored to the charging pump, THEN perform Steps 17.8 - 17.9.	___ GO TO Step 17.10.
<p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Maintaining 30% to 37% using hot cal level gauges LI-459A or LI-459B corresponds to between 24% and 37% actual level per graph RCS-3A. • Maintaining 30% to 37% (158 – 195 inH₂O) using cold cal level gauges LI-3101 or LI-3101-1 corresponds to between 30% and 58% actual level. • For LI-3101 or LI-3101-1, PRZR level in percent is obtained by dividing inches of water by 5.26 or per Attachment 29 (Pneumatic Back-up Transmitter for Pressurizer Level) (Page 327). 	
17.8 ___ Adjust charging pump speed to maintain indicated PRZR level between 30% and 37%.	
17.9 ___ Close applicable charging pump bypass stops that were opened to aid in PRZR level control (Step 17.4).	
17.10 ___ IAAT 23 CCW pump is started, THEN perform Steps 17.11 - 17.12.	___ GO TO Step 17.13.
17.11 ___ Is LCV-459 open?	1. ___ Perform Attachment 27 (Placing Letdown In Service) (Page 323). 2. ___ GO TO Step 17.13.

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 17
Loss Of CCW With Charging Available
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IF AT ANY TIME:

- (17.7) cooling water is restored to the charging pump...
- (17.10) 23 CCW pump is started...

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Safe Shutdown Control
Attachment 17
Loss Of CCW With Charging Available
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>17.12 Is <u>any</u> letdown orifice stop open?</p> <p>___ 200A</p> <p>___ 200B</p> <p>___ 200C</p> <p>If "yes", you go to next step in effect.</p>	<p>1. ___ Place LCV-459 (LETDOWN STOP) control switch in OPEN.</p> <p>2. ___ Place LCV-459 (LETDOWN STOP) control switch in REMOTE.</p> <p>3. ___ Slowly open instrument air bleedoff valve for PCV-135 until PCV-135 is 50-75% open (Non-regenerative HX Room).</p> <p>4. Open one of the following letdown orifices:</p> <p>___ 200A (75 gpm)</p> <p>___ 200B (45 gpm)</p> <p>___ 200C (75 gpm)</p> <p>5. ___ Close instrument air bleedoff valve for PCV-135.</p>
<p>17.13 ___ WHEN <u>all</u> IAAT steps in this attachment have been completed, THEN EXIT this attachment.</p>	

... END ...

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**Control Room Inaccessibility
Safe Shutdown Control
Attachment 18
Loss Of CCW And Charging
Page 1 of 3**

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>18.1 <input type="checkbox"/> Were LCV-459 fuses removed prior to CCR evacuation?</p>	<p>A. <input type="checkbox"/> Remove lock and place LCV-459 (LETDOWN STOP) control switch in CLOSE.</p> <p>B. <input type="checkbox"/> Close <u>all</u> letdown orifice stops:</p> <p><input type="checkbox"/> 200A</p> <p><input type="checkbox"/> 200B</p> <p><input type="checkbox"/> 200C</p>
<p>18.2 <input type="checkbox"/> Isolate seal injection by closing CVCS Seal Injection Filter Outlet Stops:</p> <p><input type="checkbox"/> 249A</p> <p><input type="checkbox"/> 249C</p>	<p><input type="checkbox"/> Close the following locally (PAB 67' mezzanine location of the valve operators).</p> <p><input type="checkbox"/> 250A (21 RCP Seal Wtr Injection Line Isolation)</p> <p><input type="checkbox"/> 250B (22 RCP Seal Wtr Injection Line Isolation)</p> <p><input type="checkbox"/> 250C (23 RCP Seal Wtr Injection Line Isolation)</p> <p><input type="checkbox"/> 250D (24 RCP Seal Wtr Injection Line Isolation)</p>
<p>18.3 <input type="checkbox"/> INITIATE Attachment 8 (Placing 21 OR 23 Charging Pump in Service) (Page 211).</p>	
<p>18.4 <input type="checkbox"/> De-energize MOV-789 (RCP'S Thermal Barrier CCW Return Isolation) by opening breaker 3M at MCC-26B.</p>	
<p>18.5 <input type="checkbox"/> De-energize MOV-222 (RCP Seal Return Flow Stop). by opening breaker 1MR at MCC-26A.</p>	
<p>18.6 <input type="checkbox"/> Is HCV-142 (CHARGING LINE FLOW CONTROLLER) open?</p>	<p><input type="checkbox"/> Locally open MOV-227 (CHARGING BYPASS STOP).</p>
<p>18.7 <input type="checkbox"/> MANUALLY Close MOV-789 (RCP Thermal Barrier CCW Return Isolation Valve Outside Containment).</p>	
<p>18.8 <input type="checkbox"/> MANUALLY Close MOV-222 (RCP Seal Return Flow Stop).</p>	

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 18
Loss Of CCW And Charging
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Safe Shutdown Control
Attachment 18
Loss Of CCW And Charging
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18.9 __ IAAT letdown is desired, THEN perform Attachment 27 (Placing Letdown In Service) (Page 323).	
18.10 __ INITIATE Attachment 15 (Placing 23 CCW Pump In Service On Safe Shutdown Power) (Page 263).	
18.11 __ INITIATE Attachment 14 (Placing 21 SI Pump In Service On Safe Shutdown Power) (Page 251).	
18.12 __ WHEN this procedure is NO longer applicable, THEN EXIT this attachment	

... END ...

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Safe Shutdown Control
Attachment 19
Restoration of Spent Fuel Pool Cooling
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.1 <input type="checkbox"/> IAAT a CCW pump is running, AND power is available to an SFP pump, THEN perform Steps 19.2 - 19.10.	<input type="checkbox"/> GO TO Step 19.11.
19.2 <input type="checkbox"/> Throttle 721 (SFP HEAT EXCHANGER OUTLET STOP) 1 and 1/2 turns open.	
19.3 <input type="checkbox"/> Will 21 SFP Pump be started?	<input type="checkbox"/> GO TO Step 19.7.
19.4 Are the following open: <input type="checkbox"/> 4200 (SFP PUMP 21 INLET STOP) <input type="checkbox"/> 4202 (OUTLET STOP SPENT FUEL PIT PMP 21)	<input type="checkbox"/> Open affected valve
19.5 <input type="checkbox"/> Start 21 SFP Pump.	
19.6 <input type="checkbox"/> GO TO Step 19.9.	
19.7 Are the following open: <input type="checkbox"/> 4201 (SFP PUMP 22 INLET STOP) <input type="checkbox"/> 4203 (OUTLET STOP SPENT FUEL PIT PMP 22)	<input type="checkbox"/> Open affected valve
19.8 <input type="checkbox"/> Start 22 SFP Pump.	
19.9 <input type="checkbox"/> Throttle 721 to obtain \approx 2300 gpm on FI-6947.	
19.10 <input type="checkbox"/> Throttle 803 (SPENT FUEL HEAT EXCHANGER OUTLET STOP) to maintain SFP temperature 75 - 120°F.	
19.11 <input type="checkbox"/> IAAT makeup is needed to maintain SFP level above 93' 2", THEN GO TO Step 19.13.	
19.12 <input type="checkbox"/> WHEN an SFP pump has been restored to service, THEN EXIT this attachment	

... END ...

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 19
Restoration of Spent Fuel Pool Cooling**

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IF AT ANY TIME:

(19.1) a CCW pump is running **AND** power is available to an SFP pump...

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Safe Shutdown Control
Attachment 19
Restoration of Spent Fuel Pool Cooling
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.13__ Is Primary Water available?	__ GO TO Step 19.16
19.14__ Maintain SFP level 93' 2" to 94' 2" using 723 (PRIMARY WATER MAKEUP TO SPENT FUEL PIT).	
19.15__ GO TO Step 19.18.	
19.16__ Obtain SM permission to maintain SFP level 93' 2" to 94' 2" using fire protection hose reel or city water connection.	
19.17__ Notify Chemistry to sample SFP for contaminants from source being used.	
19.18__ WHEN an SFP pump has been restored to service, THEN EXIT this attachment	

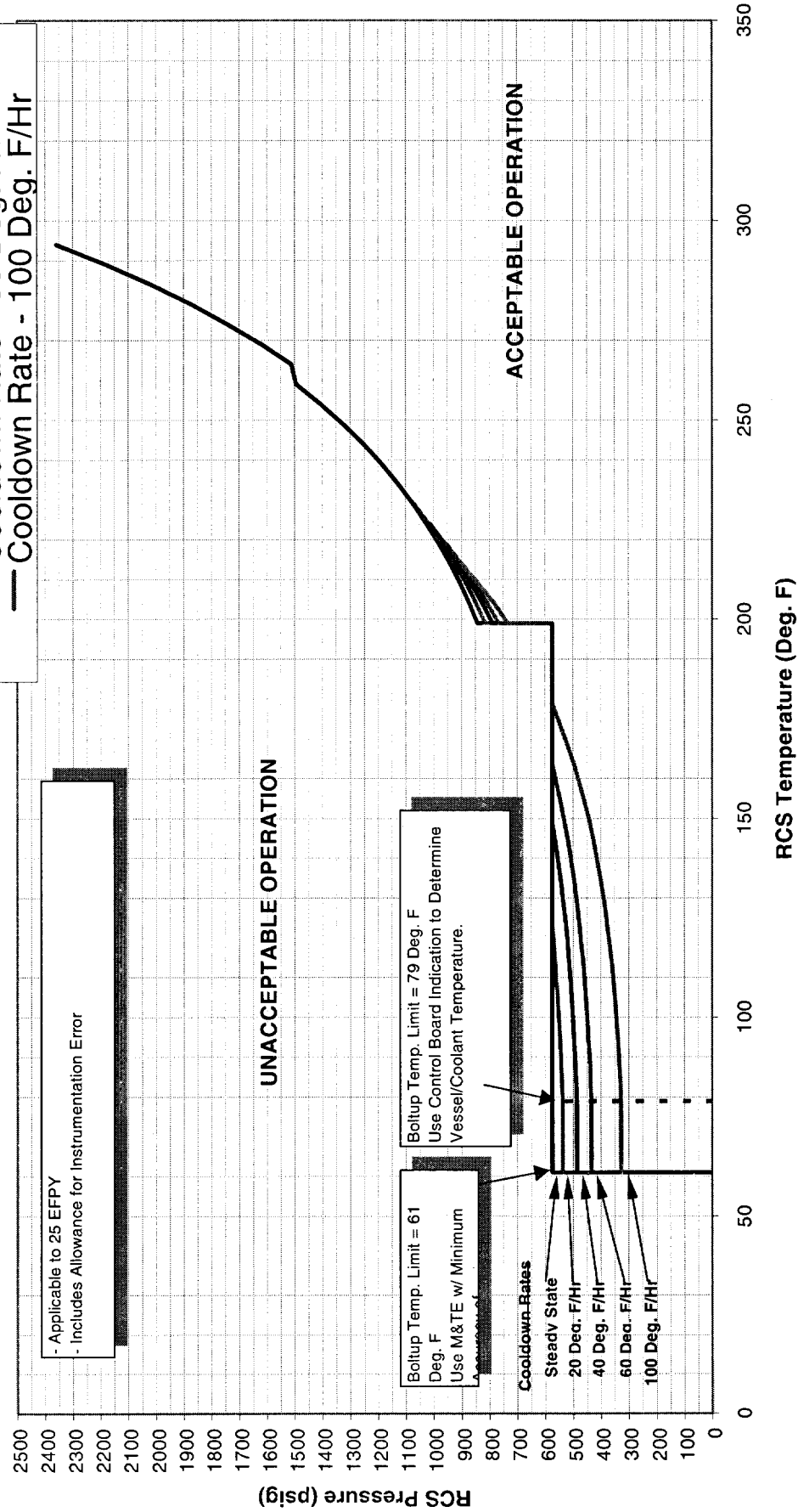
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Attachment 20
Reactor Coolant System Cooldown Curves
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GRAPH BOOK FIGURE RCS-1B

TS Figure 3.1.B-2 with Instrument Uncertainty
RCS Cooldown Limitations



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Safe Shutdown Control
Attachment 21
CST Level / Backup City Water Supply
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21.1 ___ Initiate reporting CST level to operator at ABFP at approximately 2 foot intervals until this attachment is complete or city water is supplying ABFP suction.	
21.2 ___ Close CT-7 (LCV-1128 INLET STOP).	
21.3 ___ IAAT CST level is \leq 3ft, THEN GO TO Step 21.5.	
21.4 ___ WHEN <u>all</u> ABFPs are stopped, THEN EXIT this attachment.	

... END ...

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 21
CST Level / Backup City Water Supply
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**Control Room Inaccessibility
Safe Shutdown Control
Attachment 21
CST Level / Backup City Water Supply
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED												
21.5 __ Close IA-1520 (IA STOP TO SOV-1205A).													
21.6 __ Place IA-1329 (IA ISOLATION/VENT TO SOV-1205A) in BYPASS.													
21.7 Place the following IA ISOLATION/VENT TO SOV-XXXX in BYPASS <u>for the running ABFP</u> : <table><tr><td>✓</td><td>ABFP</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>IA-1326</td></tr><tr><td></td><td>22</td><td>IA-1327</td></tr><tr><td></td><td>23</td><td>IA-1328</td></tr></table>	✓	ABFP	VALVE		21	IA-1326		22	IA-1327		23	IA-1328	
✓	ABFP	VALVE											
	21	IA-1326											
	22	IA-1327											
	23	IA-1328											
21.8 __ WHEN <u>all</u> ABFPs are stopped, THEN continue in this attachment.													
21.9 Place the following IA ISOLATION/VENT TO SOV-XXXX in NORMAL <u>for the ABFP that was running</u> : <table><tr><td>✓</td><td>ABFP</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>IA-1326</td></tr><tr><td></td><td>22</td><td>IA-1327</td></tr><tr><td></td><td>23</td><td>IA-1328</td></tr></table>	✓	ABFP	VALVE		21	IA-1326		22	IA-1327		23	IA-1328	
✓	ABFP	VALVE											
	21	IA-1326											
	22	IA-1327											
	23	IA-1328											
21.10 __ Place IA-1329 (IA ISOLATION/VENT TO SOV-1205A) in NORMAL.													
21.11 __ Open IA-1520 (IA STOP TO SOV-1205A).													
21.12 __ Open CT-7 (LCV-1128 INLET STOP).													
21.13 __ EXIT this attachment.													

... END ...

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Control Room Inaccessibility
Safe Shutdown Control
Attachment 22
480 Volt Breaker Rack-Out (DB-50)
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;"><u>NOTE</u></p> <p style="text-align: center;">PPE must be worn when racking out breakers.</p>	
22.1 ___ Is breaker to be racked out open?	___ Open breaker.
22.2 ___ Remove DC control power fuse block and reinstall in the OFF position (upper right corner, inside breaker).	
22.3 ___ Engage breaker racking lever.	
22.4 ___ Press and hold interlock lever (left side of breaker frame).	
22.5 ___ Press breaker racking lever to move breaker from CONNECT to TEST position.	
22.6 ___ Release interlock lever.	
22.7 ___ Remove breaker racking lever.	
22.8 ___ Press and hold interlock lever (left side of breaker frame).	
22.9 ___ Pull breaker forward until locking pin is in front notch.	
22.10 ___ Release interlock lever.	
22.11 ___ EXIT this attachment.	

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Control Room Inaccessibility
Safe Shutdown Control
Attachment 23
65°F Subcooling Margin Table
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RCS Pressure (psig)	Saturation Temperature	65°F Subcooling ($\nabla 1^\circ\text{F}$)
2235	653	588
2225	652	587
1880	628	563
1440	592	527
1270	576	511
1050	552	487
860	529	464
670	501	436
530	476	411
415	452	387
325	429	364
235	401	336
175	377	312
125	353	288
85	328	263
50	298	233
30	274	209
15	250	185
5	227	162

... END ...

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Control Room Inaccessibility
Safe Shutdown Control
Attachment 24
Placing RHR In Service With 21 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24.1 Notify ABFP operator to perform the following A. <input type="checkbox"/> Adjust SG level to \approx 67 - 68%. B. <input type="checkbox"/> Stop ABFP.	
24.2 <input type="checkbox"/> Is 21 ABFP running?	<input type="checkbox"/> GO TO Step 24.4.
24.3 <input type="checkbox"/> WHEN 21 ABFP is stopped, THEN continue in this attachment.	
24.4 <input type="checkbox"/> Is cooling water flow to 21 RHR Pump indicated on FIC-645	<input type="checkbox"/> GO TO Step 24.6
24.5 <input type="checkbox"/> GO TO Step 24.17.	
24.6 <input type="checkbox"/> Close 734A (SI/RHR SUPPLY HEADER STOP).	
24.7 <input type="checkbox"/> Close 734B (SI/RHR NORMAL OUTLET STOP).	
24.8 Connect a hose between the following: <input type="checkbox"/> PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP) <input type="checkbox"/> MW-746 (CITY WATER HEADER OUTLET STOP)	
24.9 <input type="checkbox"/> Connect a hose at 734F (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP) and direct to a drain.	
24.10 <input type="checkbox"/> Open 734F.	
24.11 <input type="checkbox"/> Open 734E (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP).	
24.12 <input type="checkbox"/> Is PW-114 (PW AND CCW SUPPLY ISOLATION) closed?	<input type="checkbox"/> Close PW-114.

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Attachment 24
Placing RHR In Service With 21 RHR
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Placing RHR In Service With 21 RHR
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24.13 __ Open PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP).	
24.14 __ Open MW-746 (CITY WATER HEADER OUTLET STOP).	
24.15 __ Open 733C (SI/RHR PUMPS PRIMARY WATER EMERGENCY SUPPLY STOP).	
24.16 __ Is 12FD3 Sub-Station energized?	__ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 24.17.
24.17 __ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1T in LOCAL (in control panel/box directly above 21RHR 21SIS Breaker Control Switch).	
24.18 __ Is Substation 12FD3 Breaker 1T open (33 ft el. Superheater Building next to Cold Water Deaerating Tank)?	<div style="border: 1px solid black; padding: 5px; text-align: center;"> NOTE The following step will stop 21 SI Pump. </div>
	__ Operate CLOSE/TRIP switch to open breaker.
<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> Figure 1 (PAB Transfer Switch Locations) (Page 9 of this attachment) shows location of EDC3 and EDG1. Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies </div>	
24.19 __ Is transfer switch EDC3 in NEUTRAL/MID position (inside cabinet).	__ Place EDC3 in NEUTRAL/MID position
24.20 __ Place transfer switch EDG1 to NEUTRAL/MID position (inside cabinet).	

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Safe Shutdown Control
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Placing RHR In Service With 21 RHR
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Placing RHR In Service With 21 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED									
24.21 __ Notify Maintenance to implement procedure 2-ELC-004-FIR (IP2 Casualty Cable Installation) to install casualty cables to 21 RHR Pump.										
24.22 __ WHEN 21 RHR Pump casualty cables are installed, THEN continue with this attachment.										
24.23 __ Place transfer switch EDG1 in 21 RHR PUMP positio.										
24.24 __ Place transfer switch EDC3 in EDG1 21 RHR PUMP OR 21 SIS PUMP OR 22 RHR PUMP position.										
24.25 __ Unlock and place Substation 12FD3 Breaker 1T in the vertical position.										
24.26 __ Close Substation 12FD3 Breaker 1T by operating CLOSE/TRIP switchSlowly open RHR heat exchanger flow control valve on selected heat exchanger to establish desired cooldown rate: <table border="1"><tr><td>✓</td><td>RHR HX</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>HCV-638</td></tr><tr><td></td><td>22</td><td>HCV-640</td></tr></table>	✓	RHR HX	VALVE		21	HCV-638		22	HCV-640	
✓	RHR HX	VALVE								
	21	HCV-638								
	22	HCV-640								

**Control Room Inaccessibility
Safe Shutdown Control
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Placing RHR In Service With 21 RHR
Pump
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Placing RHR In Service With 21 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED									
<p>24.27 Throttle the following to maintain CCW inlet temperature to CCW heat exchangers 70 - 125°F:</p> <p>___ SWN-35 (21 CCW HEAT EXCHANGER SERVICE WATER OUTLET STOP)</p> <p>___ SWN-35-1 (22 CCW HEAT EXCHANGER SERVICE WATER OUTLET STOP)</p>	<p>Reduce RHR flow by throttling closed RHR heat exchanger flow control valve on selected heat exchanger:</p> <table><tr><td>✓</td><td>RHR HX</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>HCV-638</td></tr><tr><td></td><td>22</td><td>HCV-640</td></tr></table>	✓	RHR HX	VALVE		21	HCV-638		22	HCV-640
✓	RHR HX	VALVE								
	21	HCV-638								
	22	HCV-640								
<p>24.28 ___ IAAT PAB ventilation is NOT available, THEN establish alternate PAB ventilation per 2-SOP-ESP-001, Local Equipment Operation and Compensatory Actions.</p>										
<p>24.29 ___ EXIT this attachment.</p>										

... END ...

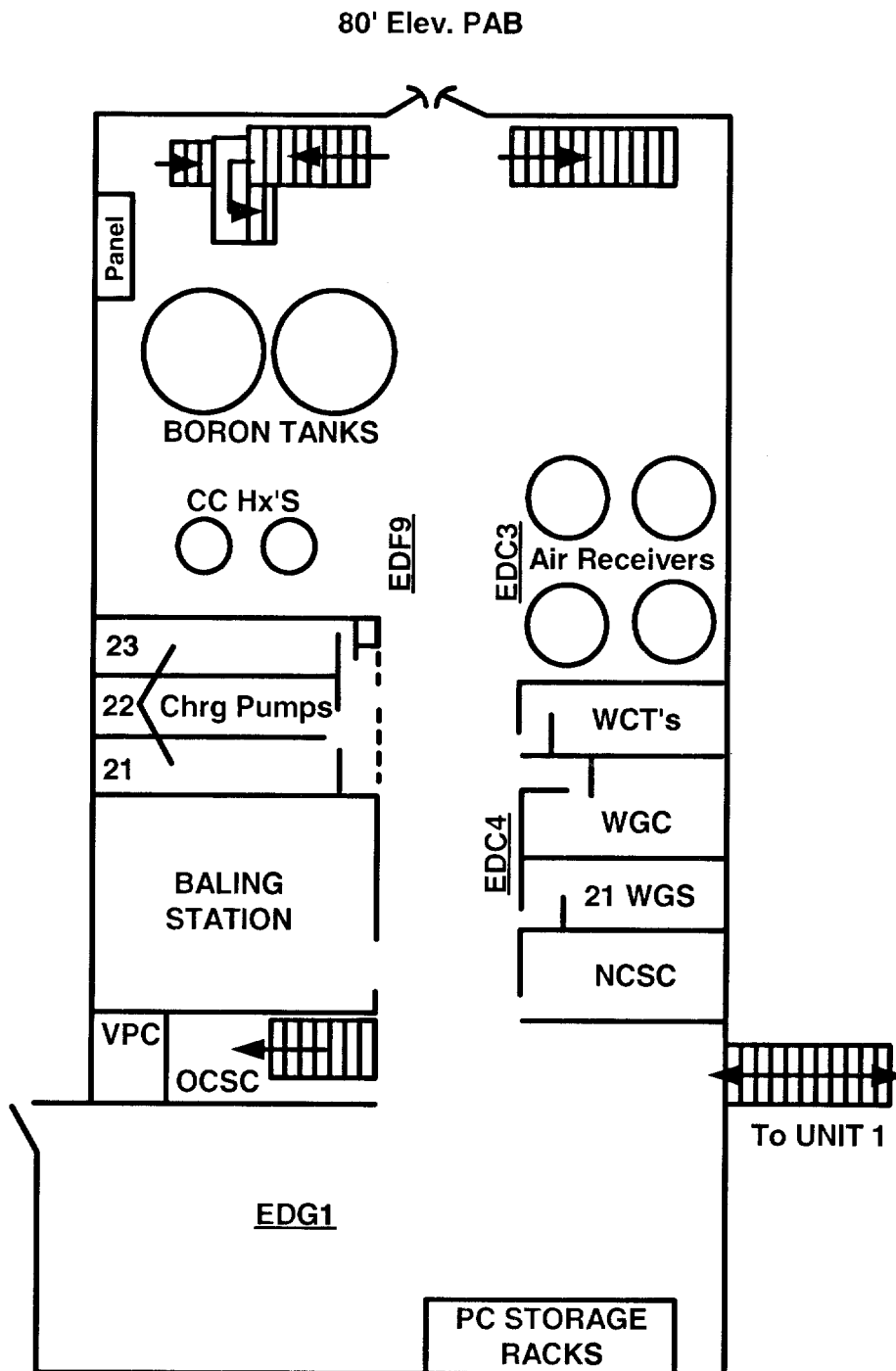
**Control Room Inaccessibility
Safe Shutdown Control
Attachment 24
Placing RHR In Service With 21 RHR
Pump
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Figure 1 - PAB Transfer Switch Locations



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Attachment 25
Placing RHR In Service With 22 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25.1 Notify ABFP operator to perform the following A. <input type="checkbox"/> Adjust SG level to \approx 67 - 68%. B. <input type="checkbox"/> Stop ABFP.	
25.2 <input type="checkbox"/> Is 21 ABFP running?	<input type="checkbox"/> GO TO Step 25.4.
25.3 <input type="checkbox"/> WHEN 21 ABFP is stopped, THEN continue in this attachment.	
25.4 <input type="checkbox"/> Is cooling water flow to 22 RHR Pump indicated on FIC-646.	<input type="checkbox"/> GO TO Step 25.6.
25.5 <input type="checkbox"/> GO TO Step 25.17.	
25.6 <input type="checkbox"/> Close 734A (SI/RHR SUPPLY HEADER STOP).	
25.7 <input type="checkbox"/> Close 734B (SI/RHR NORMAL OUTLET STOP).	
25.8 Connect a hose between the following: <input type="checkbox"/> PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP) <input type="checkbox"/> MW-746 (CITY WATER HEADER OUTLET STOP)	
25.9 <input type="checkbox"/> Connect a hose at 734F (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP) and direct to a drain.	
25.10 <input type="checkbox"/> Open 734F.	
25.11 <input type="checkbox"/> Open 734E (SI/RHR PUMPS EMERGENCY COOLING OUTLET STOP).	
25.12 <input type="checkbox"/> Is PW-114 (PW AND CCW SUPPLY ISOLATION) closed?	<input type="checkbox"/> Close PW-114.

**Control Room Inaccessibility
Safe Shutdown Control
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Placing RHR In Service With 22 RHR
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**Control Room Inaccessibility
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Attachment 25
Placing RHR In Service With 22 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25.13__ Open PW-115 (PW TO CCW SUPPLY TELLTALE DRAIN STOP).	
25.14__ Open MW-746 (CITY WATER HEADER OUTLET STOP).	
25.15__ Open 733C (SI/RHR PUMPS PRIMARY WATER EMERGENCY SUPPLY STOP).	
25.16__ Is 12FD3 Sub-Station energized?	__ WHEN 12FD3 Sub-Station is energized, THEN continue with Step 25.17.
25.17__ Place "LOCAL-REMOTE Control Switch Device 69" for Substation 12FD3 Breaker 1T in LOCAL (in control panel/box directly above 21RHR 21SIS Breaker Control Switch).	
25.18__ Is Substation 12FD3 Breaker 1T open (33 ft el. Superheater Building next to Cold Water Deaerating Tank)?	<u>NOTE</u> The following step will stop 21 SI Pump.
	__ Operate CLOSE/TRIP switch to open breaker.
<u>NOTE</u> <ul style="list-style-type: none"> Figure 1 (PAB Transfer Switch Locations) (Page 9 of this attachment) shows location of EDC3 and EDG1. Attachment 28 (Safe Shutdown Power Distribution) (Page 325) provides a simplified diagram fo Safe Shutdown Power Supplies 	
25.19__ Is transfer switch EDC3 in NEUTRAL/MID position (inside cabinet).	__ Place EDC3 in NEUTRAL/MID position
25.20__ Place transfer switch EDG1 to NEUTRAL/MID position (inside cabinet).	

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 25
Placing RHR In Service With 22 RHR
Pump
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Attachment 25
Placing RHR In Service With 22 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25.21 __ Notify Maintenance to implement procedure 2-ELC-004-FIR (IP2 Casualty Cable Installation) to install casualty cables to 22 RHR Pump.	
25.22 __ WHEN 22 RHR Pump casualty cables are installed, THEN continue with this attachment.	
25.23 __ Place transfer switch EDG1 in 21 SI PUMP OR 22 RHR PUMP position.	
25.24 __ Place transfer switch EDC3 in EDG1 21 RHR PUMP OR 21 SIS PUMP OR 22 RHR PUMP position.	
25.25 __ Unlock and place Substation 12FD3 Breaker 1T in the vertical position.	
25.26 __ Close Substation 12FD3 Breaker 1T by operating CLOSE/TRIP switch.	

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 25
Placing RHR In Service With 22 RHR
Pump
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Attachment 25
Placing RHR In Service With 22 RHR
Pump
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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED									
<p>25.27 Slowly open RHR heat exchanger flow control valve on selected heat exchanger to establish desired cooldown rate:</p> <table><tr><td>✓</td><td>RHR HX</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>HCV-638</td></tr><tr><td></td><td>22</td><td>HCV-640</td></tr></table>	✓	RHR HX	VALVE		21	HCV-638		22	HCV-640	
✓	RHR HX	VALVE								
	21	HCV-638								
	22	HCV-640								
<p>25.28 Throttle the following to maintain CCW inlet temperature to CCW heat exchangers 70 - 125°F:</p> <p>___ SWN-35 (21 CCW HEAT EXCHANGER SERVICE WATER OUTLET STOP)</p> <p>___ SWN-35-1 (22 CCW HEAT EXCHANGER SERVICE WATER OUTLET STOP)</p>	<p>Reduce RHR flow by throttling closed RHR heat exchanger flow control valve on selected heat exchanger:</p> <table><tr><td>✓</td><td>RHR HX</td><td>VALVE</td></tr><tr><td></td><td>21</td><td>HCV-638</td></tr><tr><td></td><td>22</td><td>HCV-640</td></tr></table>	✓	RHR HX	VALVE		21	HCV-638		22	HCV-640
✓	RHR HX	VALVE								
	21	HCV-638								
	22	HCV-640								
<p>25.29 ___ IAAT PAB ventilation is NOT available, THEN establish alternate PAB ventilation per 2-SOP-ESP-001, Local Equipment Operation and Compensatory Actions.</p>										
<p>25.30 ___ EXIT this attachment.</p>										

... END ...

**Control Room Inaccessibility
Safe Shutdown Control
Attachment 25
Placing RHR In Service With 22 RHR
Pump
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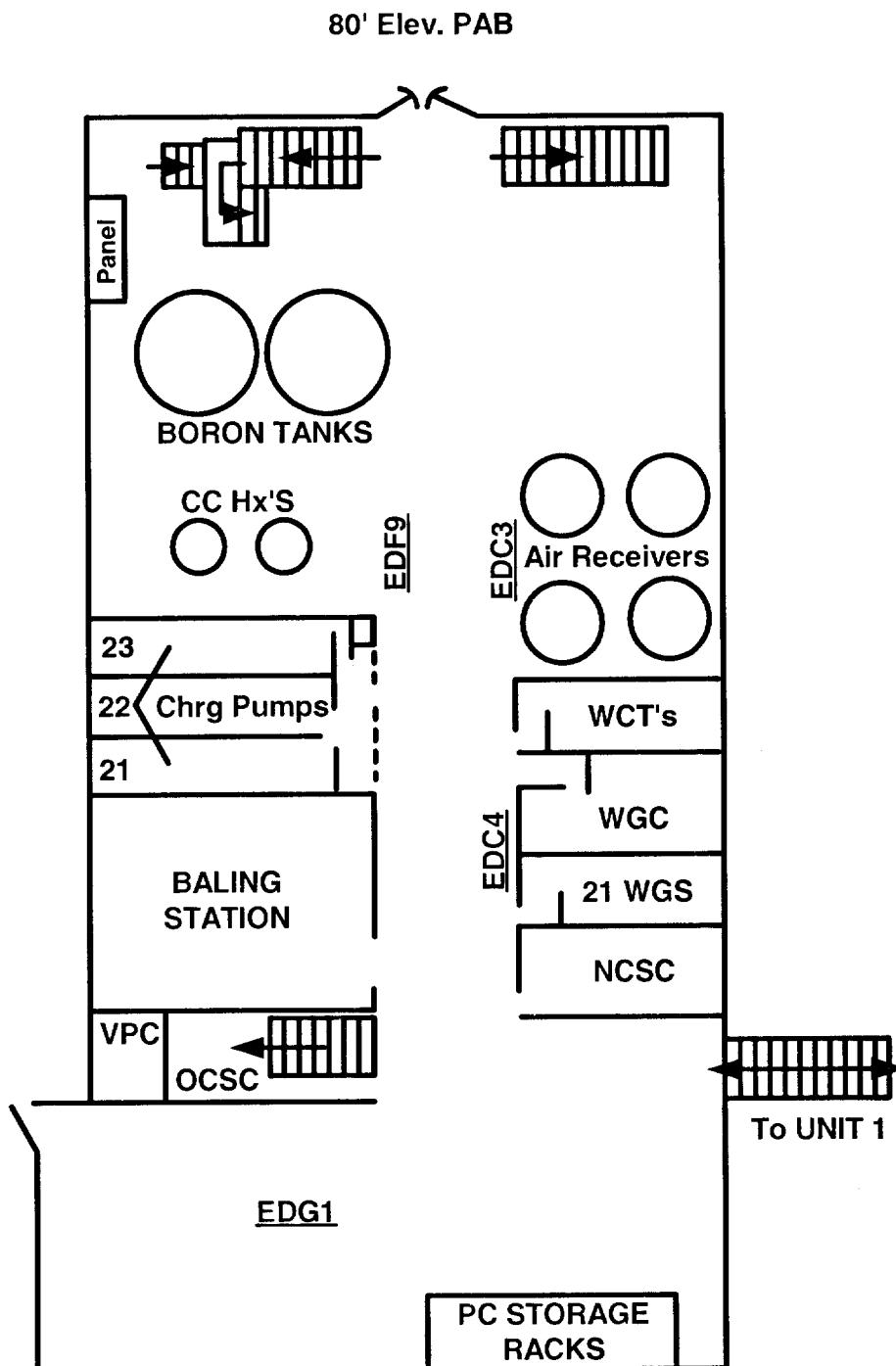
Control Room Inaccessibility
Safe Shutdown Control
Attachment 25
Placing RHR In Service With 22 RHR
Pump

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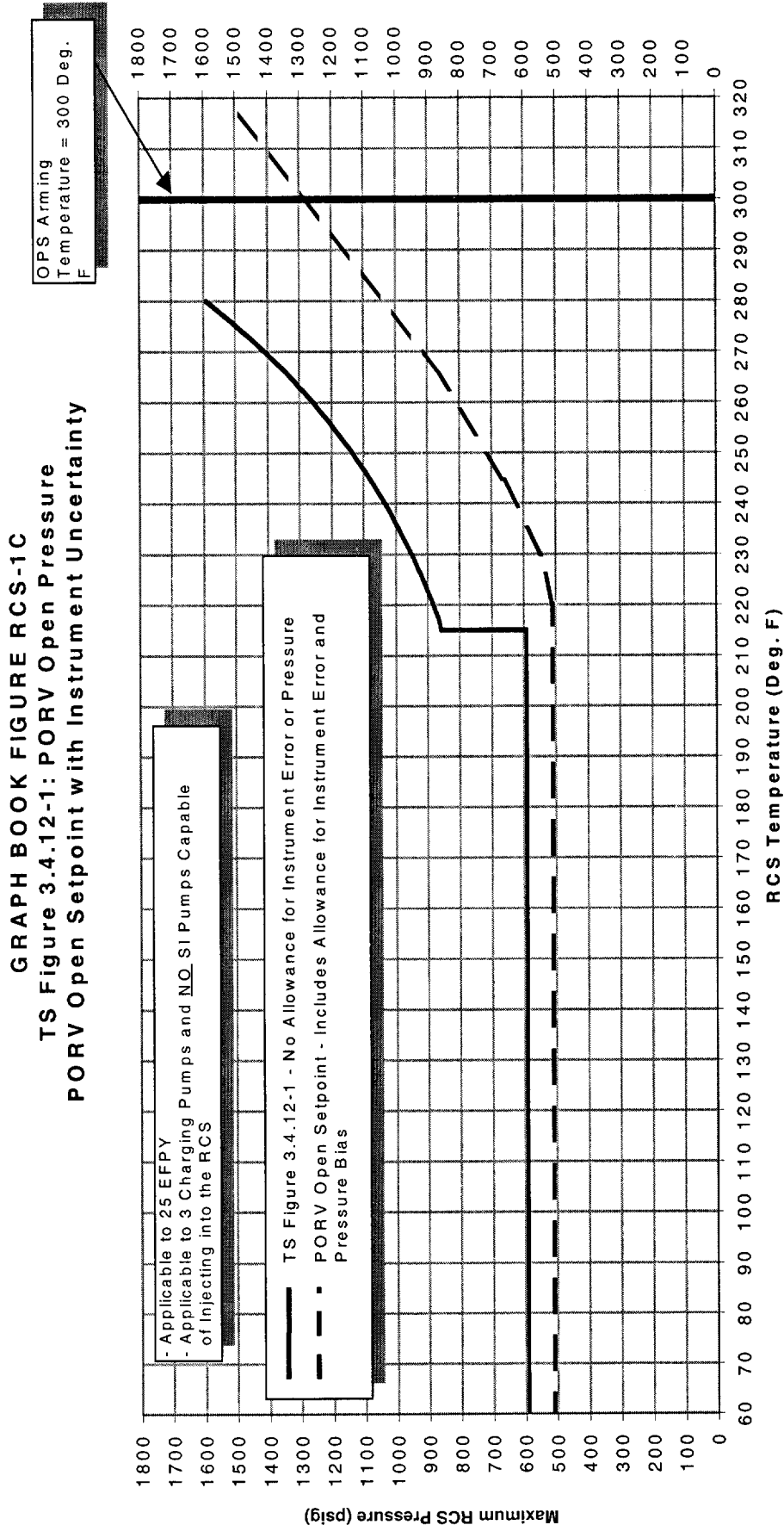
Figure 1 - PAB Transfer Switch Locations



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Attachment 26
OPS Graphs
Page 1 of 3

Figure 1 -OPS Operable - PORV Open Pressure vs Temperature With 3 Charging Pumps and No SI Pumps Running



**Control Room Inaccessibility
Safe Shutdown Control**

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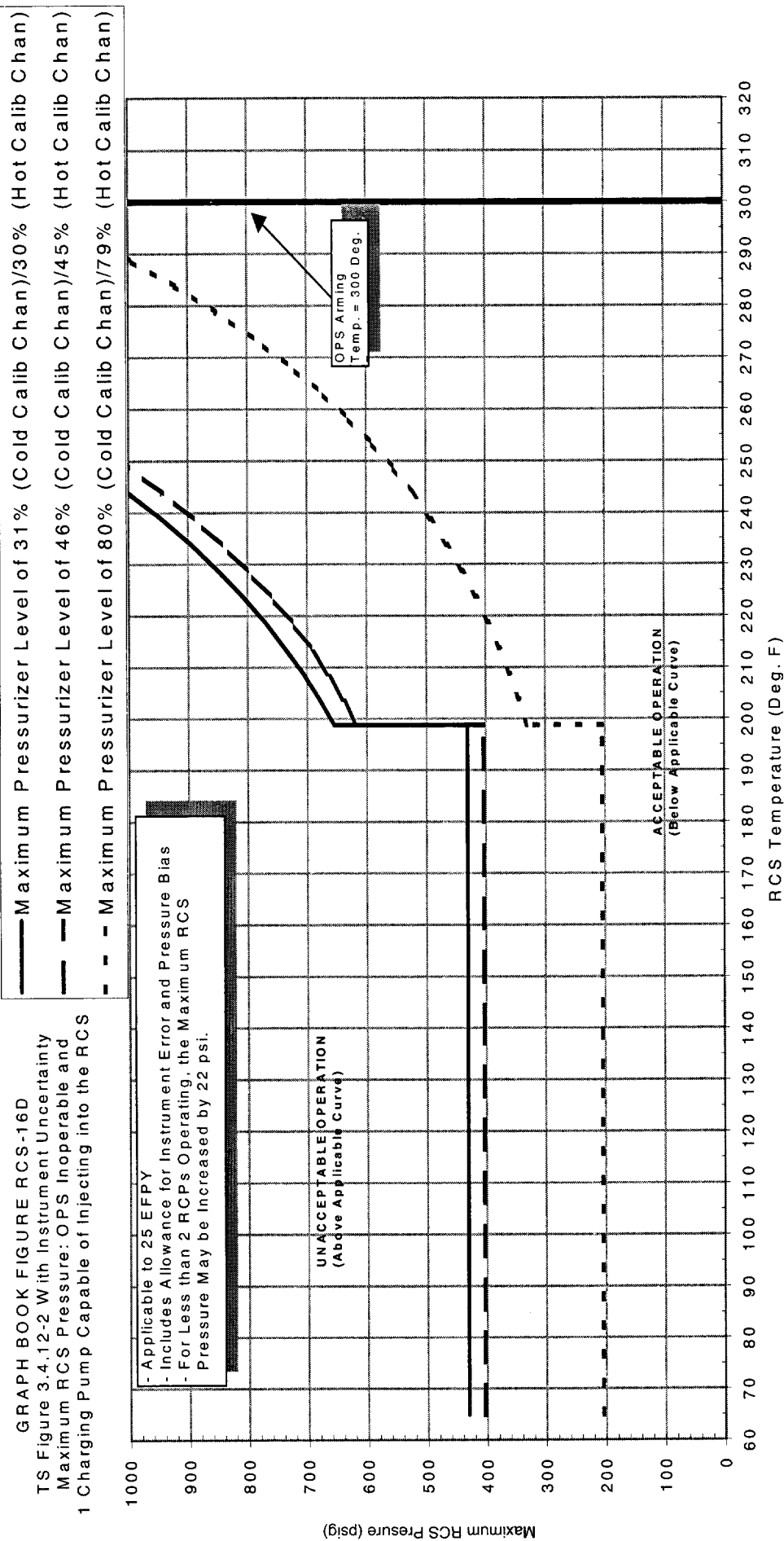
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**Attachment 26
OPS Graphs
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Attachment 26
OPS Graphs
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Figure 2 - OPS Inoperable - PORV Open Pressure vs Temperature With One Charging Pump and No SI Pumps Running



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Safe Shutdown Control
Attachment 27
Placing Letdown In Service

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ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27.1 <input type="checkbox"/> Is IA lined up to Containment?	<input type="checkbox"/> OPEN IA-501 (Pipe Pen) and IA-739 (480 Volt Room)
27.2 Are <u>all</u> letdown orifice stops closed? <input type="checkbox"/> 200A <input type="checkbox"/> 200B <input type="checkbox"/> 200C	Close <u>all</u> letdown orifice stops: <input type="checkbox"/> 200A <input type="checkbox"/> 200B <input type="checkbox"/> 200C
27.3 <input type="checkbox"/> Was LCV-459 de-energized prior to CCR evacuation (fuses/breaker)?	<input type="checkbox"/> GO TO Step 27.6.
27.4 <input type="checkbox"/> Notify the TSC that LCV-459 has to be opened locally.	
27.5 <input type="checkbox"/> WHEN LCV-459 is open, THEN GO TO Step 27.8.	
27.6 <input type="checkbox"/> Place LCV-459 (LETDOWN STOP) control switch in OPEN.	
27.7 <input type="checkbox"/> Place LCV-459 (LETDOWN STOP) control switch in REMOTE.	
27.8 <input type="checkbox"/> Slowly open instrument air bleedoff valve for PCV-135 until PCV-135 is 50-75% open (Non-regenerative HX Room).	
27.9 <input type="checkbox"/> WHEN PRZR level is ≥ 195 inH ₂ O (37%), THEN continue in this attachment.	
27.10 Open one of the following letdown orifices: <input type="checkbox"/> 200A (75 gpm) <input type="checkbox"/> 200B (45 gpm) <input type="checkbox"/> 200C (75 gpm)	
27.11 <input type="checkbox"/> Close instrument air bleedoff valve for PCV-135.	
27.12 <input type="checkbox"/> EXIT this attachment	

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**Control Room Inaccessibility
Safe Shutdown Control
Attachment 28
Safe Shutdown Power Distribution**

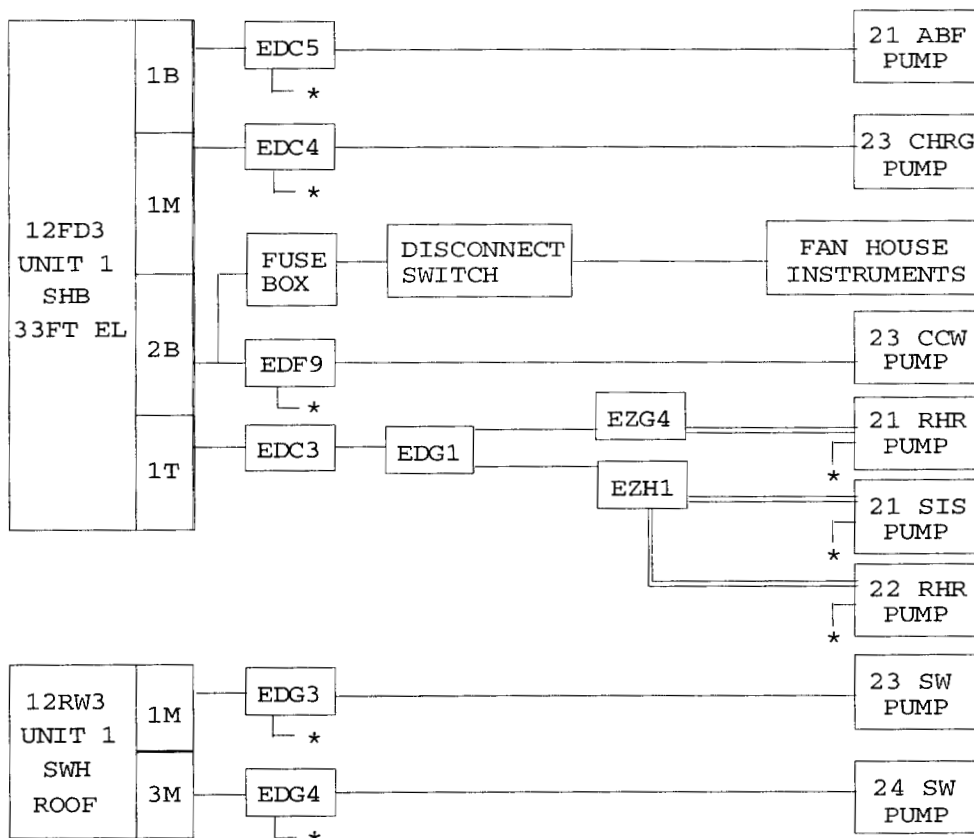
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NOTE

- The * denotes the Normal Power Supply.
- The Fan House Instrument Panel is located on the 90 ft. EL of the PAB.
- The == denotes Casualty Power Cables at:
 - ❖ 80 ft. EL PAB, Southwest of the N₂ Banks.
 - ❖ Safety Injection Pump Room.
 - ❖ 21 RHR Pump Cell.

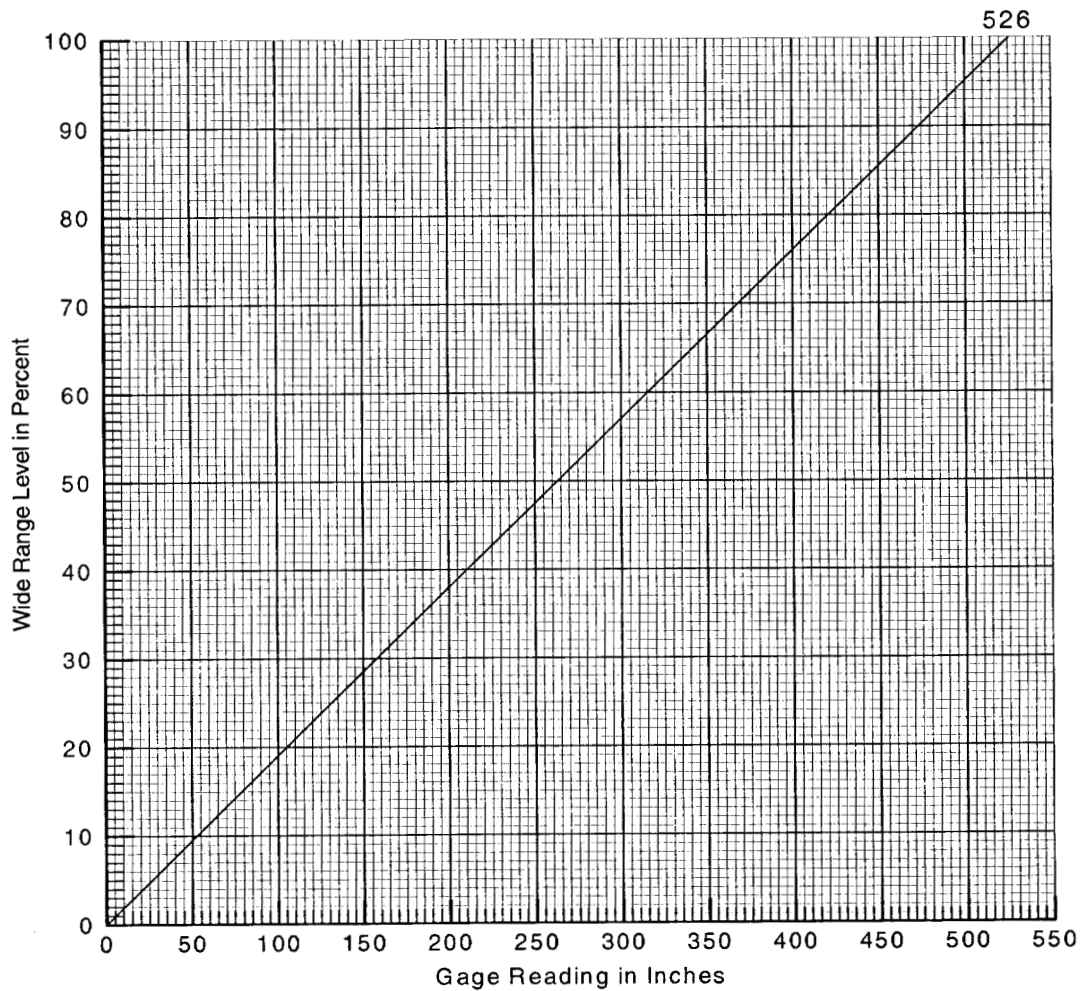


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Control Room Inaccessibility
Safe Shutdown Control
Attachment 29
Pneumatic Back-up Transmitter for
Pressurizer Level
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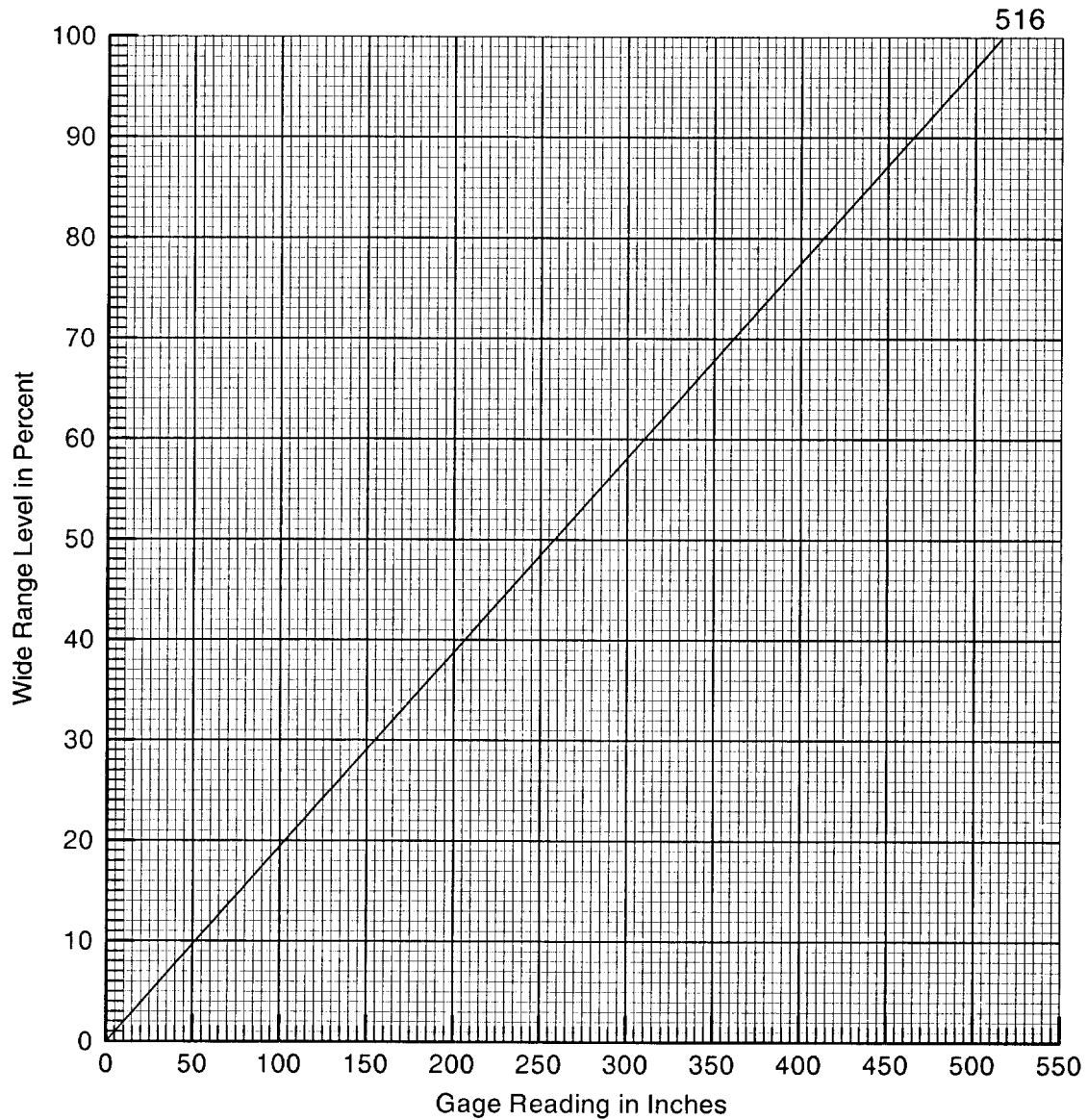
Each Percent indicated Pressurizer Level
equals 5.26 inches of water on the gage.

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Control Room Inaccessibility
Safe Shutdown Control
Attachment 30
Pneumatic Back-up Transmitter for S/G
21 & 22 Level
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Each Percent indicated Steam Generator Level
equals 5.16 inches of water on the gage.