

CNS OPERATIONS MANUAL SYSTEM OPERATING PROCEDURE 2.2.71 SERVICE WATER SYSTEM	USE: REFERENCE EFFECTIVE: 1/19/04 APPROVAL: SORC/IQA OWNER: OSG SUPV DEPARTMENT: OPS
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REVISION VERIFICATION:
(initial use + every 7 days)

REV.	DATE	CHANGES
68	11/10/03	Added guidance to crosstie gland water when strainer bypassed.
69	see above	Deleted requirement to throttle SW pump gland water supply valves.

1. PURPOSE

This procedure provides instructions for Operations personnel to operate the Service Water (SW) System.

2. PRECAUTIONS AND LIMITATIONS

- [] 2.1 Gland water flow to SW pump bearings should be maintained at ≥ 1.5 gpm at all times. Maximum water flow to bearings is 15 gpm.
- [] 2.2 Avoid pump runout; rated full load SW pump motor current is 42 amps.

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- [] 2.3 At river temperatures approaching 95°F, maintain REC HX outlet temperature below 98°F per Procedure 2.2.65.1.©
- [] 2.4 Pump motor may draw high current due to silting if pump has not been operated for an extended period, such as following a pump rebuild. In addition, inadequate clearance between pump impeller and liner may cause pump motor to draw high current. Per CR 94-0530 evaluation, pump motor may operate at a steady state current of up to 48 amps for a maximum of 10 minutes after a cold motor start. If current does not lower to ≤ 42 amps within 10 minutes from time pump motor was started, remove pump from service and wait at least 2 hours from time pump was stopped before attempting another start.
- [] 2.5 Sealed valves shall be controlled per Procedure 2.0.2.
- [] 2.6 Observe following 4160V motor starting restrictions:
 - [] **NOTE 1** - A start is closure of motor supply breaker.
 - [] **NOTE 2** - A cold motor is a motor which has been idle for at least 2 hours.
 - [] **NOTE 3** - A hot motor is a motor which has been energized within last 2 hours.
- [] 2.6.1 A motor shall be at a stop prior to a start attempt.
 - [] 2.6.1.1 A cold motor shall have no more than two initial start attempts. Each additional start shall be preceded by a 1 hour wait.
 - [] 2.6.1.2 A hot motor shall have no more than one initial start attempt. Each additional start attempt shall be preceded by a 1 hour wait.
- [] 2.7 SW-STNR-A(B), SW ZURN STRAINERS, have an administrative out of service time of 10 days. If the out of service time cannot be met, there are no specific actions required. However, increased Management involvement would be prudent to assist in swift resolution of problems which caused the out of service time to be exceeded.©
- [] 2.8 With a SW zurn strainer bypassed and SW System in its normal three pump configuration, pump rotation should be altered to keep two pumps running in subsystem with operable strainer while swapping other two pumps as required.©

- 2.9 SW zurn strainers have an OPERABILITY limit of 15 psid based upon structural integrity of the strainer basket. Before strainer D/P reaches 15 psid, the strainer shall be bypassed.

3. REQUIREMENTS

- 3.1 Following support systems are available:
 - 3.1.1 SW zurn strainer.
 - 3.1.2 Traveling Screen, Screen Wash, and Sparger Systems.
 - 3.1.3 Instrument Air System.
 - 3.1.4 Riverwell water portion of Circulation Water System.
 - 3.1.5 SW process radiation monitor.
 - 3.1.6 Seal water to SW pumps.
 - 3.1.7 Vacuum Priming System for filling of TEC HXs.
- 3.2 Procedures 2.2.71A and 2.2.71B, System Component Checklists, are complete to support system operation.

4. PLACING SYSTEM IN SERVICE

- 4.1 Ensure seal water is aligned and operating per Section 9 or 10 and check following:
 - 4.1.1 Annunciator A-4/D-6, SERVICE WATER PUMP A/C BRG WTR LOW FLOW, is clear.
 - 4.1.2 Annunciator B-3/D-6, SERVICE WATER PUMP B/D BRG WTR LOW FLOW, is clear.
- 4.2 Start first SW pump as follows:
 - 4.2.1 Remove seal and close following valve for pump to be started to 10% open:
 - 4.2.1.1 Pump A - SW-10, SW PUMP 1A DISCHARGE.
 - 4.2.1.2 Pump B - SW-11, SW PUMP 1B DISCHARGE.
 - 4.2.1.3 Pump C - SW-12, SW PUMP 1C DISCHARGE.

- 4.2.1.4 Pump D - SW-13, SW PUMP 1D DISCHARGE.
- 4.2.2 At Panel A or B, ensure selected SW pump MODE SELECTOR switch in MAN.
- 4.2.3 At Panel A or B, start SW pump that has its discharge valve throttled.
- 4.2.4 Observe starting current drops off to between 30 and 42 amps.
- 4.2.5 Slowly open and seal discharge valve for running pump.
- 4.2.6 Observe SW-PI-2715A, A HEADER PRESS, or SW-PI-2715B, B HEADER PRESS, for proper system operation.
- 4.3 If Gland Water Subsystems were cross-connected in Section 9 or 10, split Gland Water Subsystems by performing following:
 - 4.3.1 Close SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - 4.3.2 Close SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
- 4.4 Start second SW pump as required by Section 5.
- 4.5 Place Zurn Strainers A(B) in service by pushing the START button on SW STRAINER A(B) CONTROL PANEL as required by system operation.
- 4.6 Open following valves until air free water flows, then close them:
 - 4.6.1 SW-38, NON-CRITICAL SERVICES SUPPLY VENT (SW Pump Room).
 - 4.6.2 SW-128, REC HX B OUTLET VENT (R-931-N REC HX Area).
 - 4.6.3 SW-129, REC HX B INLET VENT (R-931-N REC HX Area).
 - 4.6.4 SW-137, REC HX A OUTLET VENT (R-931-N REC HX Area).
 - 4.6.5 SW-138, REC HX A INLET VENT (R-931-N REC HX Area).
 - 4.6.6 SW-58, SW SUPPLY TO TEC HX VENT (T-882-N).
 - NOTE** - If TEC HXs are supplied by CW System, Steps 4.6.7 through 4.6.10 are N/A.
 - 4.6.7 SW-60, TEC HX 1A INLET VENT (T-882-N).
 - 4.6.8 SW-59, TEC HX 1A OUTLET VENT (T-882-N).

- 4.6.9 SW-68, TEC HX 1B INLET VENT (T-882-N).
- 4.6.10 SW-67, TEC HX 1B OUTLET VENT (T-882-N).
- 4.7 Ensure switches for non-running available SW pumps are in NORMAL AFTER TRIP (green flagged).
- 4.8 At Panel A, ensure one MODE SELECTOR switch is in STBY.
- 4.9 At Panel A, ensure one MODE SELECTOR switch is in AUTO. N/A if pump OOS.
- 4.10 At Panel B, ensure one MODE SELECTOR switch is in STBY.
- 4.11 At Panel B, ensure one MODE SELECTOR switch is in AUTO. N/A if pump OOS.

5. NORMAL OPERATION

- CAUTION** - If a pump fails to start, anti-pumping circuit associated with its breaker may be picked up. Placing MODE SELECTOR switch for pump to MANUAL will cause anti-pumping circuit to drop out.
- 5.1 Ensure normal operating lineup for each SW loop as follows:
 - 5.1.1 SW Pumps A and C MODE SELECTOR switches positioned as follows:
 - 5.1.1.1 One pump selected to STDBY.
 - 5.1.1.2 One pump selected to AUTO. N/A if pump OOS.
 - 5.1.2 SW Pumps B and D MODE SELECTOR switches positioned as follows:
 - 5.1.2.1 One pump selected to STDBY.
 - 5.1.2.2 One pump selected to AUTO. N/A if pump OOS.
- 5.2 Monitor river elevation vs. pressure on SW-PI-2715A, SW LOOP A PRESSURE (Panel A), and SW-PI-2715B, SW LOOP B PRESSURE (Panel B).
 - 5.2.1 Determine operating point on applicable graph of Attachment 2.

- [] **NOTE** - When SW-MO-36 or SW-MO-37 is required to be closed, SW pump(s) in subsystem that will supply non-critical header may be started to prevent low pressure isolations.
- [] 5.2.2 If operating point is in cross-hatched area on applicable graph of Attachment 2, start or stop a SW pump per guidance contained in Step 5.5 or 5.6, as applicable.
- [] 5.3 Monitor zurn strainer Δ Ps (backwash occurs automatically for 5 minutes if Δ P > 4 psid or once per 4 hours on timer sequence).
- [] 5.4 Zurn strainers may be backwashed manually by placing local MODE SELECTOR switch to CONT.
- [] 5.5 Start SW pump(s) as follows:
 - [] 5.5.1 If time permits, locally ensure idle SW pump(s) ready for operation.
 - [] 5.5.2 Start selected SW pump.
 - [] 5.5.3 Observe SW pump ammeters and SW-PI-2715A, A HEADER PRESS, and SW-PI-2715B, B HEADER PRESS, for proper system operation.
 - [] 5.5.4 Ensure SW pumps are in Normal Lineup per Step 5.1.
 - [] 5.5.5 If Gland Water Subsystems are cross-connected and at least one SW pump is operating in each loop, split Gland Water Subsystems by performing following:
 - [] 5.5.5.1 Ensure each loop has gland water supply aligned per Section 9.2 or 10.2.
 - [] 5.5.5.2 Close SW-1479, SW GLAND CROSSTIE TO SW PUMPS (SW Pump Room).
 - [] 5.5.5.3 Close SW-1480, SW GLAND CROSSTIE TO SW PUMPS (SW Pump Room).
- [] 5.6 Secure SW pump(s) as follows:
 - [] 5.6.1 If securing SW pump will result in loss of gland water supply, cross-connect subsystems by performing following:
 - [] 5.6.1.1 Open SW-1479, SW GLAND CROSSTIE TO SW PUMPS (SW Pump Room).

- 5.6.1.2 Open SW-1480, SW GLAND CROSSTIE TO SW PUMPS (SW Pump Room).
 - 5.6.2 Stop selected SW pump.
 - 5.6.3 Observe SW pump ammeters and SW-PI-2715A, A HEADER PRESS, and SW-PI-2715B, B HEADER PRESS, for proper system operation.
 - 5.6.4 Ensure SW pumps are in Normal Lineup per Step 5.1.
6. BACKWASHING REC HXs
- 6.1 BACKWASHING REC HX A
 - 6.1.1 Notify Shift Manager to declare HX INOPERABLE.
 - 6.1.2 Ensure REC HX A is in standby per Procedure 2.2.65.1.
 - 6.1.3 Remove seal and close SW-132, REC HX 1A INLET (R-931-N REC HX Area).
 - 6.1.4 Remove seal and close SW-133, REC HX 1A OUTLET (R-931-N REC HX Area).
 - 6.1.5 Remove seal and open SW-134, REC HX 1A BACKWASH INLET (R-931-N REC HX Area).
 - 6.1.6 At VBD-M, ensure SW-TCV-451A, REC HX A SW OUTLET TEMPERATURE CONTROL, switch is in OPEN.
 - 6.1.7 If service water monitor is inoperable, inform Chemistry to manually sample.
 - 6.1.8 While monitoring average SW pump discharge pressure, perform following:
 - 6.1.8.1 Remove seal and slowly open SW-135, REC HX 1A BACKWASH OUTLET (R-931-N REC HX Area), to initiate backwash flow.
 - 6.1.8.2 Start additional SW pump as required by Section 5.
 - 6.1.9 Obtain valve seals for SW-132, SW-133, SW-134, and SW-135.
 - 6.1.10 When backwash is complete, close and seal SW-135.

- [] 6.1.11 At VBD-M, place switch for SW-TCV-451A to AUTO as directed by SM or CRS.
- [] 6.1.12 Close and seal SW-134.
- [] 6.1.13 Open and seal SW-132.
- [] 6.1.14 Open and seal SW-133.
- [] 6.1.15 Notify Shift Manager that the REC HX may be declared OPERABLE.
- [] 6.2 BACKWASHING REC HX B
 - [] 6.2.1 Notify Shift Manager to declare HX INOPERABLE.
 - [] 6.2.2 Ensure REC HX B is in standby per Procedure 2.2.65.1.
 - [] 6.2.3 Remove seal and close SW-123, REC HX 1B INLET (R-931-N REC HX Area).
 - [] 6.2.4 Remove seal and close SW-124, REC HX 1B OUTLET (R-931-N REC HX Area).
 - [] 6.2.5 Remove seal and open SW-125, REC HX 1B BACKWASH INLET (R-931-N REC HX Area).
 - [] 6.2.6 At VBD-M, ensure SW-TCV-451B, REC HX B SW OUTLET TEMPERATURE CONTROL, switch is in OPEN.
 - [] 6.2.7 If service water monitor is inoperable, inform Chemistry to manually sample.
 - [] 6.2.8 While monitoring average SW pump discharge pressure, perform following:
 - [] 6.2.8.1 Remove seal and slowly open SW-126, REC HX 1B BACKWASH OUTLET (R-931-N REC HX Area), to initiate backwash flow.
 - [] 6.2.8.2 Start additional SW pump as required by Section 5.
 - [] 6.2.9 Obtain valve seals for SW-123, SW-124, SW-125, and SW-126.
 - [] 6.2.10 When backwash is complete, close and seal SW-126.
 - [] 6.2.11 At VBD-M, place SW-TCV-451B switch to AUTO as directed by SM or CRS.

- 6.2.12 Close and seal SW-125.
- 6.2.13 Slowly open and seal SW-123.
- 6.2.14 Slowly open and seal SW-124.
- 6.2.15 Notify Shift Manager that the REC HX may be declared OPERABLE.

7. BACKWASHING TEC HXs

7.1 BACKWASHING TEC HX A

- 7.1.1 Ensure TEC HX A is in standby per Procedure 2.2.76.
- 7.1.2 Close SW-54, TEC HX 1A INLET (T-882-N).
- 7.1.3 Ensure SW-55, TEC HX 1A OUTLET (T-882-N), is closed.
- 7.1.4 Open SW-56, TEC HX 1A BACKWASH INLET (T-882-N).
- 7.1.5 While monitoring average SW pump discharge pressure, perform following:
 - 7.1.5.1 Slowly open SW-57, TEC HX 1A BACKWASH OUTLET (T-882-N), to ~ 25% open.
 - 7.1.5.2 Start additional SW pump as required by Section 5.
- 7.1.6 When backwash is complete, close SW-57.
- 7.1.7 Close SW-56.
- 7.1.8 Open SW-54.

7.2 BACKWASHING TEC HX B

- 7.2.1 Ensure TEC HX B is in standby per Procedure 2.2.76.
- 7.2.2 Close SW-63, TEC HX 1B INLET (T-882-N).
- 7.2.3 Ensure SW-64, TEC HX 1B OUTLET (T-882-N), is closed.
- 7.2.4 Open SW-65, TEC HX 1B BACKWASH INLET (T-882-N).

- 7.2.5 While monitoring average SW pump discharge pressure, perform following:
 - 7.2.5.1 Slowly open SW-66, TEC HX 1B BACKWASH OUTLET (T-882-N), to ~ 25% open.
 - 7.2.5.2 Start additional SW pump as required by Section 5.
- 7.2.6 When backwash is complete, close SW-66.
- 7.2.7 Close SW-65.
- 7.2.8 Open SW-63.

8. REMOVING SYSTEM FROM SERVICE

- 8.1 Ensure SW System is not needed for following systems:
 - 8.1.1 REC System.
 - 8.1.2 TEC System.
 - 8.1.3 RHR SWB System and its Gland Water System.
- 8.2 Ensure Tech Spec requirements and outage guidelines are satisfied for following systems:
 - 8.2.1 SW System.
 - 8.2.2 RHR SWB System.
 - 8.2.3 CSCS Equipment Area Cooling Systems.
- 8.3 At Panel A and B, place MODE SELECTOR switches to MANUAL and check Annunciator B-3/F-7, NO STANDBY SERVICE WATER PUMPS, alarms.
- 8.4 Stop all running SW pumps and check following annunciators alarm:
 - 8.4.1 A-4/A-6, SW PUMP A & C DISCH HDR LOW PRESSURE.
 - 8.4.2 B-3/A-6, SW PUMP B & D DISCH HDR LOW PRESSURE.

9. SW GLAND WATER SUBSYSTEM A OPERATION©

NOTE 1 - Steps will be performed in the SW Pump Room unless specified otherwise.

NOTE 2 - SW Loop A supplying Gland Water Subsystem A indicated by all the following:

- SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C, open.
- SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS, approximately equal to SW-PI-383A, CRITICAL SUPPLY LOOP A PRESSURE.

NOTE 3 - SW Loop B supplying Gland Water Subsystem A indicated by all the following:

- SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D, open.
- SW-1479, SW GLAND CROSSTIE TO SW PUMPS, and SW-1480, SW GLAND CROSSTIE TO SW PUMPS, open.
- SW-PI-393, approximately equal to SW-PI-383B, CRITICAL SUPPLY LOOP B PRESSURE.

NOTE 4 - Fire Protection System is supplying SW Gland Water Subsystem A indicated by all the following:

- SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS, is reading higher pressure than SW-PI-383A, CRITICAL SUPPLY LOOP A PRESSURE.
- SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is present.

9.1 PLACING RIVERWELL SUPPLY TO SW GLAND WATER SUBSYSTEM A IN SERVICE

9.1.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect of following on SW Pumps A and C OPERABILITY:

9.1.1.1 Riverwell system supply temperature.

9.1.1.2 FP system supply temperature.

9.1.2 If SW System Engineer has not determined effect on SW Pumps A and C OPERABILITY:

9.1.2.1 Declare SW Pumps A and C inoperable prior to transfer.

9.1.2.2 Initiate Notification for Engineering Evaluation.

CAUTION - SW pump must be operating before gland water is transferred to another source or pump binding may occur.

9.1.3 If SW pump discharge or FP System supplying SW Gland Water Subsystem A, ensure following pumps are running:

9.1.3.1 SW Pump A.

9.1.3.2 SW Pump C.

9.1.4 Ensure Riverwell System is in service per Procedure 2.2.3.

9.1.5 If FP supplying SW Gland Water Subsystem A, go to Step 9.1.7.

9.1.6 If SW pump discharge supplying SW Gland Water Subsystem A, perform following:

9.1.6.1 Ensure 30' hose with Chicago fitting is available.

9.1.6.2 Connect 30' hose to SW-1489, SW PUMPS A&C GLAND DRAIN, and route to floor drain.

9.1.6.3 Slowly open SW-1489.

9.1.6.4 Flush until water is clear.

9.1.6.5 Close SW-1489 and disconnect hose.

9.1.6.6 Connect 30' hose to SW-215, PCV-361A BYPASS DRAIN, and route to area floor drain.

9.1.6.7 Open SW-1484, CHECK VALVE BYPASS.

9.1.6.8 Slowly open SW-215.

9.1.6.9 Flush until water is clear.

9.1.6.10 Close SW-215.

9.1.6.11 Close SW-1484.

9.1.6.12 Close SW-19, PCV-361A INLET.

- [] 9.1.6.13 Slowly open SW-1236, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS A AND C.
- [] 9.1.6.14 Slowly open SW-20, PCV-361A BYPASS.
- [] 9.1.6.15 Slowly open SW-215.
- [] 9.1.6.16 Flush until water is clear.
- [] 9.1.6.17 Close SW-215 and disconnect hose.
- [] 9.1.6.18 Close SW-20.
- [] 9.1.6.19 Open SW-19.
- [] 9.1.6.20 Ensure pressure on SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS, is ~ 60 psig by performing following:
 - [] a. Throttle SW-1236.
 - [] b. If necessary, throttle SW-20.
- [] 9.1.6.21 Close SW-21, SW PUMPS A AND C GLAND WATER SUPPLY.
- [] 9.1.6.22 Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, is closed.
- [] 9.1.6.23 Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, is closed.
- [] 9.1.6.24 At Starter Rack LZ, ensure breaker for SW-MO-2128 is closed.
- [] 9.1.6.25 Close SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C.
- [] 9.1.6.26 Open SW-21.
- [] 9.1.6.27 **Concurrently** perform following to obtain 40 to 50 psig on SW-PI-393:
 - [] a. If SW-20 is open, slowly close.
 - [] b. Adjust SW-PIC-361A, SEAL WATER TO SW PUMPS A AND C, as necessary.

- [] 9.1.6.28 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
- [] 9.1.6.29 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- [] **NOTE** - Following ensures compliance with 10CFR50, Appendix R.
- [] 9.1.6.30 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
- [] 9.1.6.31 Open SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
- [] 9.1.6.32 Go to Step 9.1.8.
- [] 9.1.7 If FP System supplying SW Gland Water Subsystem A, perform following:
 - [] 9.1.7.1 Ensure SW-1236, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS A AND C, is throttled.
 - [] 9.1.7.2 At Distribution Panel DPIS-1A, ensure Breaker 1, SW GLAND WATER CONTROL PANEL 1A, is ON.
 - [] 9.1.7.3 Ensure SW Gland Water Subsystem B is supplied from Riverwell System and/or SW pump discharge per Section 10.
 - [] 9.1.7.4 At SW Gland Water Control Panel 1B, check SYSTEM NORMAL light is on.
 - [] **NOTE** - When RESET button depressed and SYSTEM NORMAL light turns on, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, is energized/closed.
 - [] 9.1.7.5 At SW Gland Water Control Panel 1A, press RESET button and check SYSTEM NORMAL light turns on.
 - [] 9.1.7.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is clear.
 - [] 9.1.7.7 If SW Pumps B and D gland water supplied from Riverwell, ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF (SW Pump Room), is open.

- 9.1.7.8 Perform following to obtain 40 to 50 psig on SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS:
 - a. Throttle SW-1236.
 - b. Adjust SW-PIC-361A, SEAL WATER TO SW PUMPS A AND C, as necessary.
- 9.1.7.9 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
- 9.1.7.10 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- 9.1.8 Operate SW pumps, as required, per Section 5.
- 9.2 PLACING SW DISCHARGE SUPPLY TO GLAND WATER SUBSYSTEM A IN SERVICE
 - NOTE** - Fire Protection backup supply to gland water not required in order to be in compliance with 10CFR50, Appendix R, when gland water supply is from SW pump discharge.
 - 9.2.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect on SW Pumps A and C OPERABILITY.
 - 9.2.2 If SW System Engineer has not determined effect on SW Pumps A and C OPERABILITY:
 - 9.2.2.1 Declare SW Pumps A and C inoperable prior to transfer.
 - 9.2.2.2 Initiate Notification for Engineering Evaluation.
 - 9.2.3 If SW Pumps A and C are idle and SW-FIS-361A, SEAL WATER TO SW PUMP A SEALS, and SW-FIS-361C, SEAL WATER TO SW PUMP C SEALS, indicate no flow, perform following:
 - 9.2.3.1 Ensure SW Pump B or SW Pump D is running.
 - 9.2.3.2 Cross-connect Gland Water Subsystems by opening following valves:
 - a. SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - b. SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - 9.2.3.3 Ensure flow on SW-FIS-361A \geq 1.5 gpm.

- 9.2.3.4 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- NOTE** - Following step performed in Control Room.
- 9.2.3.5 Start SW Pump A and/or C as follows:
 - a. Locally ensure SW pump(s) ready for operation.
 - b. Start selected SW pump.
 - c. Observe SW pump ammeters and SW-PI-2715A, A HEADER PRESS, and SW-PI-2715B, B HEADER PRESS, for proper system operation.
 - d. Ensure SW Pumps A and C MODE SELECTOR switches positioned as follows:
 - 1. One pump selected to STDBY.
 - 2. One pump selected to AUTO. N/A if pump OOS.
- 9.2.3.6 At Starter Rack LZ, ensure breaker for SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C, is closed.
- 9.2.3.7 At SW Gland Water Control Panel 1A, open SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C.
- 9.2.3.8 Ensure SW-21, SW PUMPS A AND C GLAND WATER SUPPLY, is open.
- 9.2.3.9 Ensure following valves are closed:
 - a. SW-1479.
 - b. SW-1480.
- 9.2.3.10 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
- 9.2.3.11 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- 9.2.3.12 Go to Step 9.2.11.

- [] **CAUTION** - SW pump must be operating before gland water is transferred to another source or pump binding may occur.
- [] 9.2.4 If Riverwell or FP System supplying SW Gland Water Subsystem A, ensure following pumps are running:
 - [] 9.2.4.1 SW Pump A.
 - [] 9.2.4.2 SW Pump C.
- [] 9.2.5 At Starter Rack LZ, ensure breaker for SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C, is closed.
- [] 9.2.6 At SW Gland Water Control Panel 1A, open SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C.
- [] 9.2.7 Ensure SW-21, SW PUMPS A AND C GLAND WATER SUPPLY, is open.
- [] 9.2.8 If FP System supplying SW Gland Water Subsystem A, go to Step 9.2.10.
- [] 9.2.9 If Riverwell System supplying SW Gland Water Subsystem A, perform following:
 - [] 9.2.9.1 Close SW-1236, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS A AND C.
 - [] 9.2.9.2 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
 - [] 9.2.9.3 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
 - [] 9.2.9.4 Close SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
 - [] 9.2.9.5 Go to Step 9.2.11.
- [] 9.2.10 If FP System supplying SW Gland Water Subsystem A, perform following:
 - [] 9.2.10.1 At Distribution Panel DPIS-1A, ensure Breaker 1, SW GLAND WATER CONTROL PANEL 1A, is ON.
 - [] 9.2.10.2 Ensure SW Gland Water Subsystem B is supplied from Riverwell System and/or SW pump discharge per Section 10.

- [] 9.2.10.3 At SW Gland Water Control Panel 1B, check SYSTEM NORMAL light is on.
- [] 9.2.10.4 At SW Gland Water Control Panel 1A, press RESET button and check SYSTEM NORMAL light turns on.
- [] 9.2.10.5 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is clear.
- [] 9.2.10.6 If SW Pumps B and D gland water supplied from Riverwell, ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF (SW Pump Room), is open.
- [] 9.2.10.7 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
- [] 9.2.10.8 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- [] 9.2.10.9 Close SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
- [] 9.2.11 Operate SW pumps, as required, per Section 5.
- [] 9.3 PLACING FIRE PROTECTION BACKUP SUPPLY TO GLAND WATER SUBSYSTEM A IN SERVICE
 - [] 9.3.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect on SW Pumps A and C OPERABILITY.
 - [] 9.3.1.1 If SW System Engineer has not determined effect on SW Pumps A and C OPERABILITY:
 - [] a. Declare SW Pumps A and C inoperable prior to transfer.
 - [] b. Initiate Notification for Engineering Evaluation.
 - []

CAUTION - SW pump must be operating before gland water is transferred to another source or pump binding may occur.

 - [] 9.3.2 Ensure following pumps are running:
 - [] 9.3.2.1 SW Pump A.
 - [] 9.3.2.2 SW Pump C.

- [] 9.3.3 If SW System supplying SW Gland Water Subsystem A, go to Step 9.3.5.
- [] 9.3.4 If Riverwell System supplying SW Gland Water Subsystem A, perform following:
 - [] 9.3.4.1 Inform Control Room power will be secured to SW Gland Water Control Panel 1A.
 - [] **NOTE** - If SW Pumps B and D gland water supplied from FP, following step is N/A.
 - [] 9.3.4.2 Ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is closed.
 - [] 9.3.4.3 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
 - [] 9.3.4.4 Ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is open.
 - [] **NOTE** - When power is removed from SW Gland Water Control Panel 1A, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, will open, if closed.
 - [] 9.3.4.5 At Distribution Panel DPIS-1A, place Breaker 1, SW GLAND WATER CONTROL PANEL 1A, to OFF.
 - [] **NOTE** - If SW Pumps B and D gland water supplied from FP, following step is N/A.
 - [] 9.3.4.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, alarms.
 - [] 9.3.4.7 Close SW-1236, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS A AND C.
 - [] 9.3.4.8 Adjust SW-PIC-361A, SEAL WATER TO SW PUMPS A AND C, as necessary, until pressure on SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS, is ~ 5 psig higher than pressure on SW-PI-365A, SW PUMPS A AND C DISCHARGE.
 - [] 9.3.4.9 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
 - [] 9.3.4.10 Ensure flow on SW-FIS-361C \geq 1.5 gpm.

- [] 9.3.4.11 Go to Step 9.3.6.
- [] 9.3.5 If SW pump discharge supplying SW Gland Water Subsystem A, perform following:
 - [] 9.3.5.1 Inform Control Room power will be secured to SW Gland Water Control Panel 1A.
 - [] **NOTE** - If SW Pumps B and D gland water supplied from FP, following step is N/A.
 - [] 9.3.5.2 Ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is closed.
 - [] 9.3.5.3 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
 - [] 9.3.5.4 Ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is open.
 - [] **NOTE** - When power is removed from SW Gland Water Control Panel 1A, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, will open, if closed.
 - [] 9.3.5.5 At Distribution Panel DPIS-1A, place Breaker 1, SW GLAND WATER CONTROL PANEL 1A, to OFF.
 - [] **NOTE** - If SW Pumps B and D gland water supplied from FP, following step is N/A.
 - [] 9.3.5.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, alarms.
 - [] 9.3.5.7 At SW Gland Water Control Panel 1A, ensure SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C, is closed.
 - [] 9.3.5.8 Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, is closed.
 - [] 9.3.5.9 Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, is closed.

- [] 9.3.5.10 Adjust SW-PIC-361A, SEAL WATER TO SW PUMPS A AND C, as necessary, until pressure on SW-PI-393, SEAL WATER TO SW PUMP A&C SEALS, is ~ 5 psig higher than pressure on SW-PI-365A, SW PUMPS A AND C DISCHARGE.
- [] 9.3.5.11 Ensure flow on SW-FIS-361A \geq 1.5 gpm.
- [] 9.3.5.12 Ensure flow on SW-FIS-361C \geq 1.5 gpm.
- [] 9.3.6 Operate SW pumps, as required, per Section 5.
- [] 9.4 REMOVING SW GLAND WATER SUBSYSTEM A FROM SERVICE
 - [] 9.4.1 Ensure SW Pumps A and C are removed from service.
 - [] 9.4.2 Inform SM to determine OPERABILITY of SW Pumps A and C.
 - [] **NOTE** - Low SW Gland Water Subsystem A pressure will cause SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, to open and FP System will supply SW Gland Water Subsystem B.
 - [] 9.4.3 Ensure following valves are closed:
 - [] 9.4.3.1 SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C (SW Gland Water Panel A).
 - [] 9.4.3.2 SW-21, SW PUMPS A AND C GLAND WATER SUPPLY.
 - [] 9.4.3.3 SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
 - [] 9.4.3.4 SW-1236, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS A AND C.
 - [] 9.4.3.5 SW-19, PCV-361A INLET.
 - [] 9.4.3.6 SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - [] 9.4.3.7 SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - [] 9.4.4 At Starter Rack LZ, open breaker for SW-MO-2128.

10. SW GLAND WATER SUBSYSTEM B OPERATION©

[] **NOTE 1** - Steps will be performed in the SW Pump Room unless specified otherwise.

[] **NOTE 2** - SW Loop B supplying Gland Water Subsystem B indicated by all the following:

- SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D, open.
- SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS, approximately equal to SW-PI-383B, CRITICAL SUPPLY LOOP B PRESSURE.

[] **NOTE 3** - SW Loop A supplying Gland Water Subsystem B indicated by all the following:

- SW-MO-2128, SW GLAND SEAL WATER FROM SW PUMPS A AND C, open.
- SW-1479, SW GLAND CROSSTIE TO SW PUMPS and SW-1480, SW GLAND CROSSTIE TO SW PUMPS, open.
- SW-PI-394 approximately equal to SW-PI-383A, CRITICAL SUPPLY LOOP A PRESSURE.

[] **NOTE 4** - Fire Protection System is supplying SW Gland Water Subsystem B indicated by all the following:

- SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS, is reading higher pressure than SW-PI-383B, CRITICAL SUPPLY LOOP B PRESSURE.
- SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is present.

[] 10.1 PLACING RIVERWELL SUPPLY TO SW GLAND WATER SUBSYSTEM B IN SERVICE

[] 10.1.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect of following on SW Pumps B and D OPERABILITY:

[] 10.1.1.1 Riverwell system supply temperature.

[] 10.1.1.2 FP system supply temperature.

[] 10.1.2 If SW System Engineer has not determined effect on SW Pumps B and D OPERABILITY:

[] 10.1.2.1 Declare SW Pumps B and D inoperable prior to transfer.

10.1.2.2 Initiate Notification for Engineering Evaluation.

CAUTION - SW pump must be operating before gland water is transferred to another source or pump binding may occur.

10.1.3 If SW pump discharge or FP System supplying SW Gland Water Subsystem B, ensure following pumps are running:

10.1.3.1 SW Pump B.

10.1.3.2 SW Pump D.

10.1.4 Ensure Riverwell System is in service per Procedure 2.2.3.

10.1.5 If FP System supplying SW Gland Water Subsystem B, go to Step 10.1.7.

10.1.6 If SW pump discharge supplying SW Gland Water Subsystem B, perform following:

10.1.6.1 Ensure 30' hose with Chicago fitting is available.

10.1.6.2 Connect 30' hose to SW-1476, SW PUMPS B&D GLAND DRAIN, and route to floor drain.

10.1.6.3 Slowly open SW-1476.

10.1.6.4 Flush until water is clear.

10.1.6.5 Close SW-1476 and disconnect hose.

10.1.6.6 Connect 30' hose to SW-197, PCV-361B BYPASS DRAIN, and route to area floor drain.

10.1.6.7 Open SW-1486, CHECK VALVE BYPASS.

10.1.6.8 Slowly open SW-197.

10.1.6.9 Flush until water is clear.

10.1.6.10 Close SW-197.

10.1.6.11 Close SW-1486.

10.1.6.12 Close SW-25, PCV-361B INLET.

- 10.1.6.13 Slowly open SW-1237, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS B AND D.
- 10.1.6.14 Slowly open SW-27, PCV-361B BYPASS.
- 10.1.6.15 Slowly open SW-197.
- 10.1.6.16 Flush until water is clear.
- 10.1.6.17 Close SW-197 and disconnect hose.
- 10.1.6.18 Close SW-27.
- 10.1.6.19 Open SW-25.
- 10.1.6.20 Ensure pressure on SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS, is ~ 60 psig by performing following, as necessary:
 - a. Throttle SW-1237.
 - b. If necessary, throttle SW-27.
- 10.1.6.21 Close SW-28, SW PUMPS B AND D GLAND SEAL SUPPLY.
- 10.1.6.22 Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, is closed.
- 10.1.6.23 Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, is closed.
- 10.1.6.24 At Starter Rack TZ, ensure breaker for SW-MO-2129 is closed.
- 10.1.6.25 Close SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D.
- 10.1.6.26 Open SW-28.
- 10.1.6.27 **Concurrently** perform following to obtain 40 to 50 psig on SW-PI-394:
 - a. If SW-27 is open, slowly close.
 - b. Adjust SW-PIC-361B, SEAL WATER TO SW PUMPS B AND D, as necessary.

- [] 10.1.6.28 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
- [] 10.1.6.29 Ensure flow on SW-FIS-361D \geq 1.5 gpm
- [] **NOTE** - Following ensures compliance with 10CFR50, Appendix R.
- [] 10.1.6.30 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
- [] 10.1.6.31 Open SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
- [] 10.1.6.32 Go to Step 10.1.8.
- [] 10.1.7 If FP System supplying SW Gland Water Subsystem B, perform following:
 - [] 10.1.7.1 Ensure SW-1237, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS B AND D, is throttled.
 - [] 10.1.7.2 At Distribution Panel DPIS-1B, ensure Breaker 1, SW GLAND WATER CONTROL PANEL 1B, is ON.
 - [] 10.1.7.3 Ensure SW Gland Water Subsystem A is supplied from Riverwell System and/or SW pump discharge per Section 9.
 - [] 10.1.7.4 At SW Gland Water Control Panel 1A, check SYSTEM NORMAL light is on.
 - [] **NOTE** - When RESET button depressed and SYSTEM NORMAL light turns on, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, is energized/closed.
 - [] 10.1.7.5 At SW Gland Water Control Panel 1B, press RESET button and check SYSTEM NORMAL light turns on.
 - [] 10.1.7.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is clear.
 - [] 10.1.7.7 If SW Pumps A and C gland water supplied from Riverwell, ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF (SW Pump Room), is open.

- [] 10.1.7.8 Perform following to obtain 40 to 50 psig on SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS.
 - [] a. Throttle SW-1237.
 - [] b. Adjust SW-PIC-361B, SEAL WATER TO SW PUMPS B AND D, as necessary.
- [] 10.1.7.9 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
- [] 10.1.7.10 Ensure flow on SW-FIS-361D \geq 1.5 gpm.
- [] 10.1.8 Operate SW pumps, as required, per Section 5.
- [] 10.2 PLACING SW DISCHARGE SUPPLY TO GLAND WATER SUBSYSTEM B IN SERVICE
 - [] **NOTE** - Fire Protection backup supply to gland water not required in order to be in compliance with 10CFR50, Appendix R, when gland water supply is from SW pump discharge.
 - [] 10.2.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect on SW Pumps B and D OPERABILITY.
 - [] 10.2.2 If SW System Engineer has not determined effect on SW Pumps B and D OPERABILITY:
 - [] 10.2.2.1 Declare SW Pumps B and D inoperable prior to transfer.
 - [] 10.2.2.2 Initiate Notification for Engineering Evaluation.
 - [] 10.2.3 If SW Pumps B and D are idle and SW-FIS-361B, SEAL WATER TO SW PUMP B SEALS, and SW-FIS-361D, SEAL WATER TO SW PUMP D SEALS, indicate no flow, perform following:
 - [] 10.2.3.1 Ensure SW Pump A or SW Pump C is running.
 - [] 10.2.3.2 Cross-connect Gland Water Subsystems by opening following valves:
 - [] a. SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - [] b. SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - [] 10.2.3.3 Ensure flow on SW-FIS-361B \geq 1.5 gpm.

- 10.2.3.4 Ensure flow on SW-FIS-361D \geq 1.5 gpm
- NOTE** - Following step performed in Control Room.
- 10.2.3.5 Start SW Pump B and/or D as follows:
 - a. Locally ensure SW pump(s) ready for operation.
 - b. Start selected SW pump.
 - c. Observe SW pump ammeters and SW-PI-2715A, A HEADER PRESS, and SW-PI-2715B, B HEADER PRESS, for proper system operation.
 - d. Ensure SW Pumps B and D MODE SELECTOR switches positioned as follows:
 - 1. One pump selected to STDBY.
 - 2. One pump selected to AUTO. N/A if pump OOS.
- 10.2.3.6 At Starter Rack TZ, ensure breaker for SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D, is closed.
- 10.2.3.7 At SW Gland Water Control Panel 1B, open SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D.
- 10.2.3.8 Ensure SW-28, SW PUMPS B AND D GLAND WATER SUPPLY, is open.
- 10.2.3.9 Ensure following valves are closed:
 - a. SW-1479.
 - b. SW-1480.
- 10.2.3.10 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
- 10.2.3.11 Ensure flow on SW-FIS-361D \geq 1.5 gpm
- 10.2.3.12 Go to Step 10.2.11.

- CAUTION** - SW pump must be operating before gland water is transferred to another source or pump binding may occur.
- 10.2.4 If Riverwell or FP System supplying SW Gland Water Subsystem B, ensure following pumps are running:
- 10.2.4.1 SW Pump B.
 - 10.2.4.2 SW Pump D.
- 10.2.5 At Starter Rack TZ, ensure breaker for SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D, is closed.
- 10.2.6 At SW Gland Water Control Panel 1B, open SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D.
- 10.2.7 Ensure SW-28, SW PUMPS B AND D GLAND WATER SUPPLY, is open.
- 10.2.8 If FP System supplying SW Gland Water Subsystem B, go to Step 10.2.10.
- 10.2.9 If Riverwell System supplying SW Gland Water Subsystem B, perform following:
- 10.2.9.1 Close SW-1237, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS B AND D.
 - 10.2.9.2 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
 - 10.2.9.3 Ensure flow on SW-FIS-361D \geq 1.5 gpm.
 - 10.2.9.4 Close SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
 - 10.2.9.5 Go to Step 10.2.11.
- 10.2.10 If FP System supplying SW Gland Water Subsystem B, perform following:
- 10.2.10.1 At Distribution Panel DPIS-1B, ensure Breaker 1, SW GLAND WATER CONTROL PANEL 1B, is ON.
 - 10.2.10.2 Ensure SW Gland Water Subsystem A is supplied from Riverwell System and/or SW pump discharge per Section 9.

- 10.2.10.3 At SW Gland Water Control Panel 1A, check SYSTEM NORMAL light is on.
- 10.2.10.4 At SW Gland Water Control Panel 1B, press RESET button and check SYSTEM NORMAL light turns on.
- 10.2.10.5 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, is clear.
- 10.2.10.6 If SW Pumps A and C gland water supplied from Riverwell, ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF (SW Pump Room), is open.
- 10.2.10.7 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
- 10.2.10.8 Ensure flow on SW-FIS-361D \geq 1.5 gpm.
- 10.2.10.9 Close SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
- 10.2.11 Operate SW pumps, as required, per Section 5.
- 10.3 PLACING FIRE PROTECTION BACKUP SUPPLY TO GLAND WATER SUBSYSTEM B IN SERVICE
 - 10.3.1 If gland water supply transfer is a planned evolution, have SW System Engineer determine effect on SW Pumps B and D OPERABILITY.
 - 10.3.1.1 If SW System Engineer has not determined effect on SW Pumps B and D OPERABILITY:
 - a. Declare SW Pumps B and D inoperable prior to transfer.
 - b. Initiate Notification for Engineering Evaluation.
 - CAUTION** - SW pump must be operating before gland water is transferred to another source or pump binding may occur.
 - 10.3.2 Ensure following pumps are running:
 - 10.3.2.1 SW Pump B.
 - 10.3.2.2 SW Pump D.

- [] 10.3.3 If SW System supplying SW Gland Water Subsystem B, go to Step 10.3.5.
- [] 10.3.4 If Riverwell System supplying SW Gland Water Subsystem B, perform following:
 - [] 10.3.4.1 Inform Control Room power will be secured to SW Gland Water Control Panel 1B.
 - [] **NOTE** - If SW Pumps A and C gland water supplied from FP, following step is N/A.
 - [] 10.3.4.2 Ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is closed.
 - [] 10.3.4.3 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
 - [] 10.3.4.4 Ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is open.
 - [] **NOTE** - When power is removed from SW Gland Water Control Panel 1B, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, will open, if closed.
 - [] 10.3.4.5 At Distribution Panel DPIS-1B, place Breaker 1, SW GLAND WATER CONTROL PANEL 1B, to OFF.
 - [] **NOTE** - If SW Pumps A and C gland water supplied from FP, following step is N/A.
 - [] 10.3.4.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, alarms.
 - [] 10.3.4.7 Close 1237, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS B AND D.
 - [] 10.3.4.8 Adjust SW-PIC-361B, SEAL WATER TO SW PUMPS B AND D, as necessary, until pressure on SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS, is ~ 5 psig higher than pressure on SW-PI-365B, SW PUMPS B AND D DISCHARGE.
 - [] 10.3.4.9 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
 - [] 10.3.4.10 Ensure flow on SW-FIS-361D \geq 1.5 gpm.

- [] 10.3.4.11 Go to Step 10.3.6.
- [] 10.3.5 If SW pump discharge supplying SW Gland Water Subsystem B, perform following:
 - [] 10.3.5.1 Inform Control Room power will be secured to SW Gland Water Control Panel 1B.
 - [] **NOTE** - If SW Pumps A and C gland water supplied from FP, following step is N/A.
 - [] 10.3.5.2 Ensure SW-1336, SW PUMPS A AND C GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is closed.
 - [] 10.3.5.3 Ensure FP-508, EMERGENCY SW GLAND WATER SUPPLY FROM FP SHUTOFF, is open.
 - [] 10.3.5.4 Ensure SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF, is open.
 - [] **NOTE** - When power is removed from SW Gland Water Control Panel 1B, SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, will open, if closed.
 - [] 10.3.5.5 At Distribution Panel DPIS-1B, place Breaker 1, SW GLAND WATER CONTROL PANEL 1B, to OFF.
 - [] **NOTE** - If SW Pumps A and C gland water supplied from FP, following step is N/A.
 - [] 10.3.5.6 Check SW Gland Water Panel B, Annunciator 1B/C-3, FP FLOW TO GLAND SYSTEM, alarms.
 - [] 10.3.5.7 At SW Gland Water Control Panel 1B, ensure SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D, is closed.
 - [] 10.3.5.8 Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, is closed.
 - [] 10.3.5.9 Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, is closed.

- [] 10.3.5.10 Adjust SW-PIC-361B, SEAL WATER TO SW PUMPS B AND D, as necessary, until pressure on SW-PI-394, SEAL WATER TO SW PUMP B&D SEALS, is ~ 5 psig higher than pressure on SW-PI-365B, SW PUMPS B AND D DISCHARGE.
- [] 10.3.5.11 Ensure flow on SW-FIS-361B \geq 1.5 gpm.
- [] 10.3.5.12 Ensure flow on SW-FIS-361D \geq 1.5 gpm.
- [] 10.3.6 Operate SW pumps, as required, per Section 5.
- [] 10.4 REMOVING SW GLAND WATER SUBSYSTEM B FROM SERVICE
 - [] 10.4.1 Ensure SW Pumps B and D are removed from service.
 - [] 10.4.2 Inform SM to determine OPERABILITY of SW Pumps B and D.
 - [] **NOTE** - Low SW Gland Water Subsystem B pressure will cause SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, to open and FP System will supply SW Gland Water Subsystem A.
 - [] 10.4.3 Ensure following valves are closed:
 - [] 10.4.3.1 SW-MO-2129, SW GLAND SEAL WATER FROM SW PUMPS B AND D (SW Gland Water Panel B).
 - [] 10.4.3.2 SW-28, SW PUMPS B AND D GLAND WATER SUPPLY.
 - [] 10.4.3.3 SW-198, SW PUMPS B AND D GLAND SEAL BACKUP FROM FIRE PROTECTION SHUTOFF.
 - [] 10.4.3.4 SW-1237, RIVERWELL SEAL WATER SUPPLY TO SW PUMPS B AND D.
 - [] 10.4.3.5 SW-25, PCV-361B INLET.
 - [] 10.4.3.6 SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - [] 10.4.3.7 SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - [] 10.4.4 At Starter Rack TZ, open breaker for SW-MO-2129.

11. VENTING SW SYSTEM

- NOTE 1** - A wrench is needed to open and close zurn strainer vent cock.
- NOTE 2** - Only zurn strainer associated with failed SW-AOV-857AV or SW-AOV-858AV is required to be vented.
- 11.1 If SW System is being vented due to failure of bladder in SW-AOV-857AV or SW-AOV-858AV, IA supply to valve shall remain isolated until valve is repaired.
- 11.2 Open vent cock on top of applicable zurn strainer (SW Pump Room) until air free water flows, then close it.
- 11.3 Open following valves until air free water flows, then close them:
 - 11.3.1 SW-38, NON-CRITICAL SERVICES SUPPLY VENT (SW Pump Room).
 - 11.3.2 SW-58, SW SUPPLY TO TEC HX VENT (T-882-N).
 - 11.3.3 SW-60, TEC HX A INLET VENT (T-882-N).
 - 11.3.4 SW-68, TEC HX B INLET VENT (T-882-N).
 - 11.3.5 SW-59, TEC HX A OUTLET VENT (T-882-N).
 - 11.3.6 SW-67, TEC HX B OUTLET VENT (T-882-N).
 - 11.3.7 SW-138, REC HX A INLET VENT (R-931-N REC HX Area).
 - 11.3.8 SW-129, REC HX B INLET VENT (R-931-N REC HX Area).
 - 11.3.9 SW-137, REC HX A OUTLET VENT (R-931-N REC HX Area).
 - 11.3.10 SW-128, REC HX B OUTLET VENT (R-931-N REC HX Area).

12. STARTING SW ZURN STRAINER

- 12.1 Place SW Zurn Strainer A in service as follows:
 - 12.1.1 Ensure SW-191, SW STRAINER A INLET, is open and sealed.
 - 12.1.2 Ensure SW-16, SW STRAINER A OUTLET, is open and sealed.
 - 12.1.3 At SW STRAINER A CONTROL PANEL, place Zurn Strainer A control switch to INTERMITTENT.

- 12.1.4 At SW STRAINER A CONTROL PANEL, push START button.
- 12.1.5 If SW-193, STRAINER A BYPASS, closed, check SW-DPIS-363A, SW PUMPS A AND C STRAINER DIFFERENTIAL PRESSURE, is indicating < 6 psid.
- 12.1.6 If SW-193, STRAINER A BYPASS, open:
 - 12.1.6.1 Perform following concurrently:
 - a. Monitor SW-DPIS-363A, SW PUMPS A AND C STRAINER DIFFERENTIAL PRESSURE.
 - b. Slowly close SW-193.
 - 12.1.6.2 If Service Water supplying Gland Water Subsystem A, perform following:
 - a. Ensure SW-21, SW PUMPS A AND C GLAND WATER SUPPLY, open.
 - b. Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, closed.
 - c. Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, closed.
- 12.1.7 Check Control Room alarm A-4/D-7 clear.
- 12.1.8 Inform Shift Manager that SW Zurn Strainer A has been returned to service.
- 12.2 Place SW Zurn Strainer B in service as follows:
 - 12.2.1 Ensure SW-192, SW STRAINER B INLET, is open and sealed.
 - 12.2.2 Ensure SW-17, SW STRAINER B OUTLET, is open and sealed.
 - 12.2.3 At SW STRAINER B CONTROL PANEL, place Zurn Strainer B control switch to INTERMITTENT.
 - 12.2.4 At SW STRAINER B CONTROL PANEL, push START button.
 - 12.2.5 If SW-194, STRAINER B BYPASS, closed, check SW-DPIS-363B, SW PUMPS B AND D STRAINER DIFFERENTIAL PRESSURE, is indicating < 6 psid.

- 12.2.6 If SW-194, STRAINER B BYPASS, open:
 - 12.2.6.1 Perform following concurrently:
 - a. Monitor SW-DPIS-363B, SW PUMPS B AND D STRAINER DIFFERENTIAL PRESSURE.
 - b. Slowly close SW-194.
 - 12.2.6.2 If Service Water supplying Gland Water Subsystem B, perform following:
 - a. Ensure SW-28, SW PUMPS B AND D GLAND WATER SUPPLY, open.
 - b. Ensure SW-1479, SW GLAND CROSSTIE TO SW PUMPS, closed.
 - c. Ensure SW-1480, SW GLAND CROSSTIE TO SW PUMPS, closed.
- 12.2.7 Check Control Room alarm B-3/D-7 clear.
- 12.2.8 Inform Shift Manager that SW Zurn Strainer B has been returned to service.

13. SECURING SW ZURN STRAINER

- NOTE 1** - SW-STNR-A(B), SW ZURN STRAINERS, have an administrative out of service time of 10 days.
- NOTE 2** - In normal three pump configuration, maintain two pumps running in subsystem with operable strainer.
- NOTE 3** - In normal two pump configuration, maintain one pump running in each subsystem.
- 13.1 Secure SW Zurn Strainer A as follows:
 - 13.1.1 If isolating SW Zurn Strainer A, perform following:
 - 13.1.1.1 Inform Shift Manager that SW Subsystem A is inoperable and to enter the appropriate Condition and Required Action of LCO 3.7.2, Service Water (SW) System and Ultimate Heat Sink (UHS).

- 13.1.1.2 If Service Water supplying Gland Water Subsystem A, perform following:
 - a. Open SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - b. Open SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - c. Close SW-21, SW PUMPS A AND C GLAND WATER SUPPLY.
- 13.1.1.3 Open SW-193, SW STRAINER A BYPASS.
- 13.1.1.4 Remove seal and close SW-16, SW STRAINER A OUTLET.
- 13.1.1.5 Remove seal and close SW-191, SW STRAINER A INLET.
- 13.1.2 At SW STRAINER A CONTROL PANEL, push STOP button.
- 13.1.3 Initiate Notification for the condition.
- 13.1.4 Notify SW System Engineer strainer is bypassed.
- 13.2 Secure SW Zurn Strainer B as follows:
 - 13.2.1 If isolating SW Zurn Strainer B, perform following:
 - 13.2.1.1 Inform Shift Manager that SW Subsystem B is inoperable and to enter the appropriate Condition and Required Action of LCO 3.7.2, Service Water (SW) System and Ultimate Heat Sink (UHS).
 - 13.2.1.2 If Service Water supplying Gland Water Subsystem B, perform following:
 - a. Open SW-1479, SW GLAND CROSSTIE TO SW PUMPS.
 - b. Open SW-1480, SW GLAND CROSSTIE TO SW PUMPS.
 - c. Close SW-28, SW PUMPS B AND D GLAND WATER SUPPLY.
 - 13.2.1.3 Open SW-194, SW STRAINER B BYPASS.
 - 13.2.1.4 Remove seal and close SW-17, SW STRAINER B OUTLET.

- 13.2.1.5 Remove seal and close SW-192, SW STRAINER B INLET.
- 13.2.2 At SW STRAINER B CONTROL PANEL, push STOP button.
- 13.2.3 Initiate Notification for the condition.
- 13.2.4 Notify SW System Engineer strainer is bypassed.

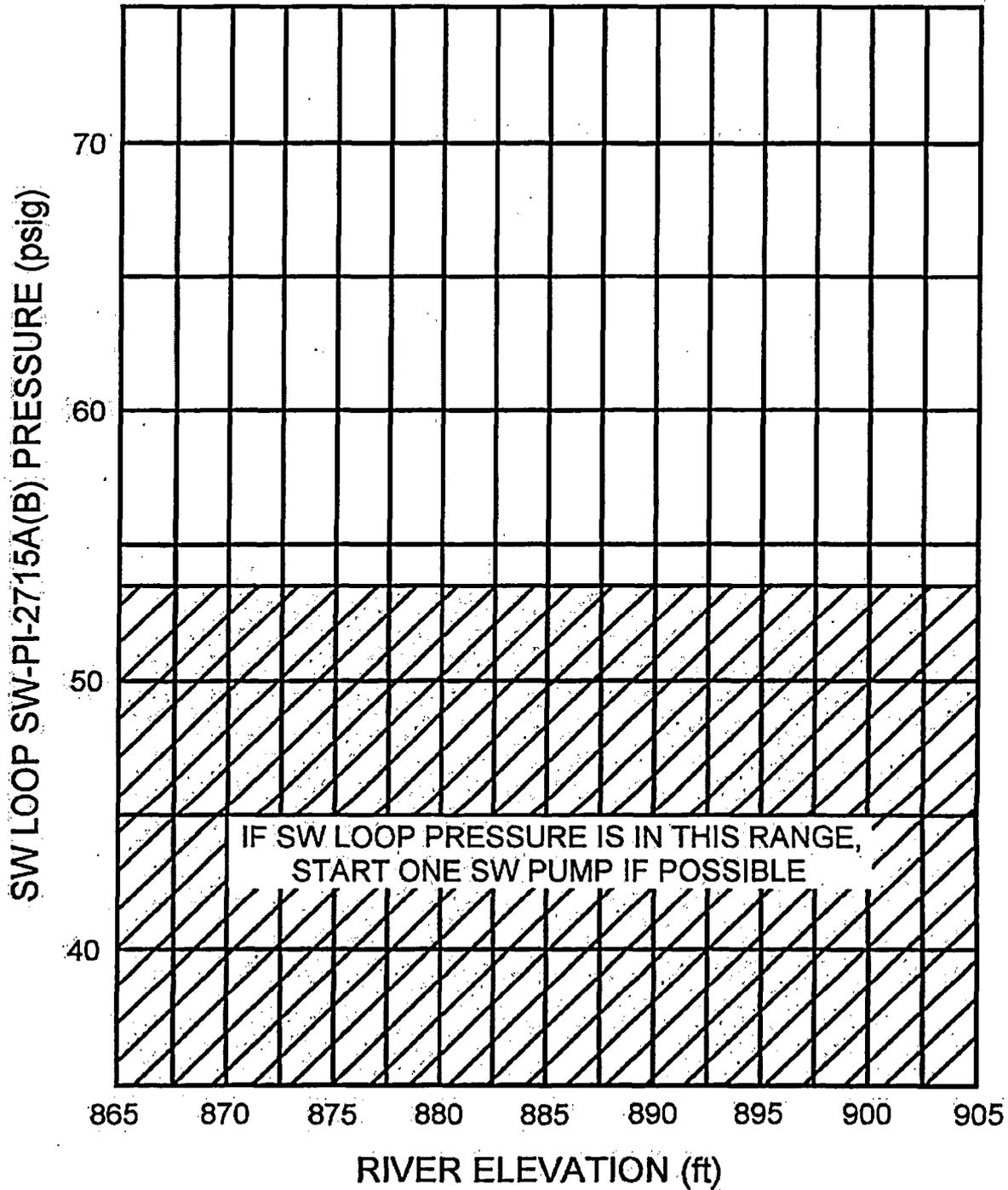
14. SHIFTING SERVICE WATER PUMPS

- 14.1 If time permits, locally ensure selected SW pump(s) ready for operation.
- 14.2 Start selected pump(s).
- 14.3 Stop selected pump(s).
- 14.4 Observe SW pump ammeters and SW-PI-2715A, A HEADER PRESS, and SW-PI-2751B, B HEADER PRESS, for proper system operation.
- 14.5 Ensure normal operating lineup for each SW loop as follows:
 - 14.5.1 SW Pumps A and C MODE SELECTOR switches positioned as follows:
 - 14.5.1.1 One pump selected to STDBY.
 - 14.5.1.2 One pump selected to AUTO. N/A if pump OOS.
 - 14.5.2 SW Pumps B and D MODE SELECTOR switches positioned as follows:
 - 14.5.2.1 One pump selected to STDBY.
 - 14.5.2.2 One pump selected to AUTO. N/A if pump OOS.

15. RECORDS

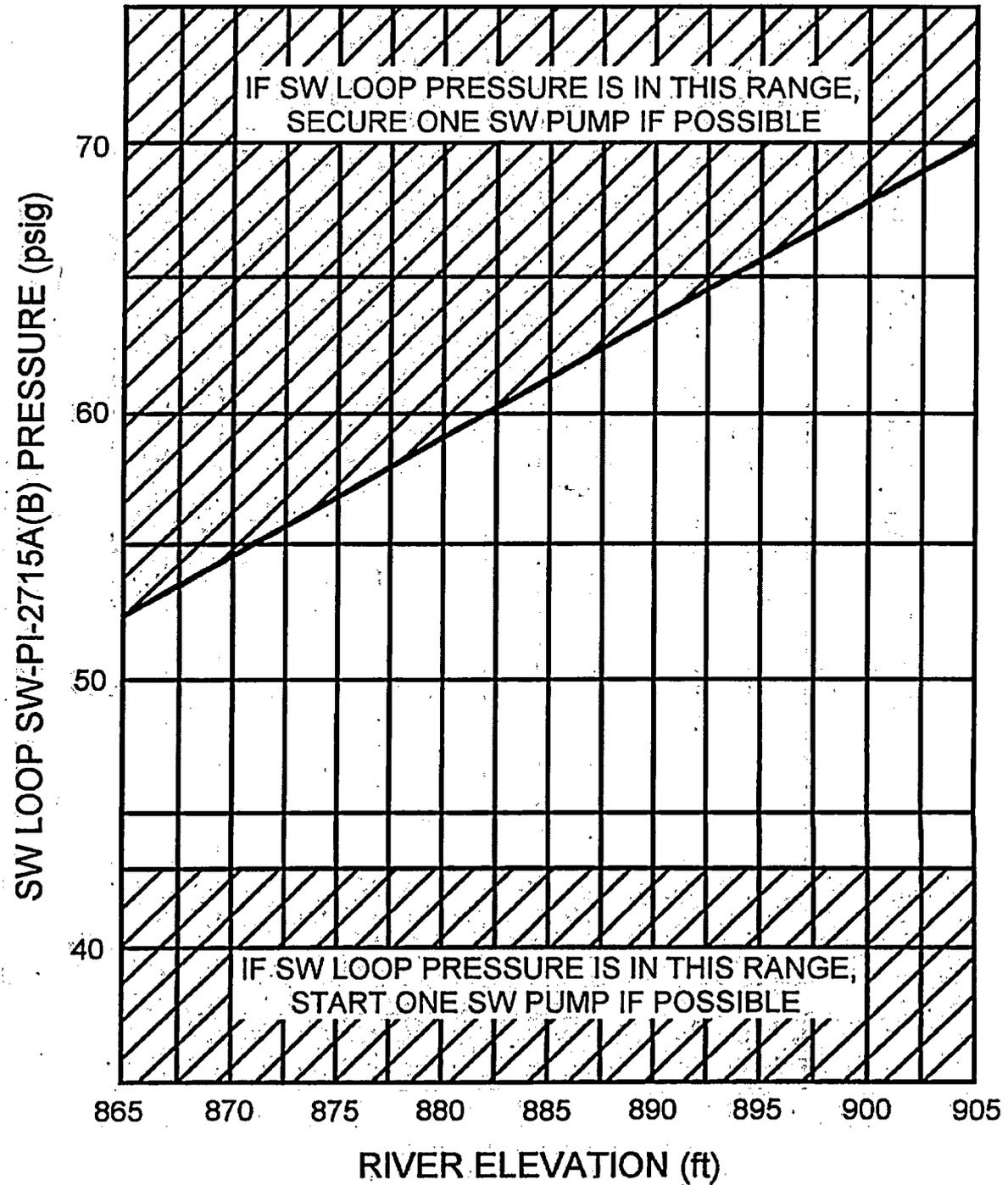
- 15.1 No quality records are generated by this procedure.

ATTACHMENT 1 RIVER ELEVATION VS. SW LOOP SW-PI-2715A(B) PRESSURE GRAPHS



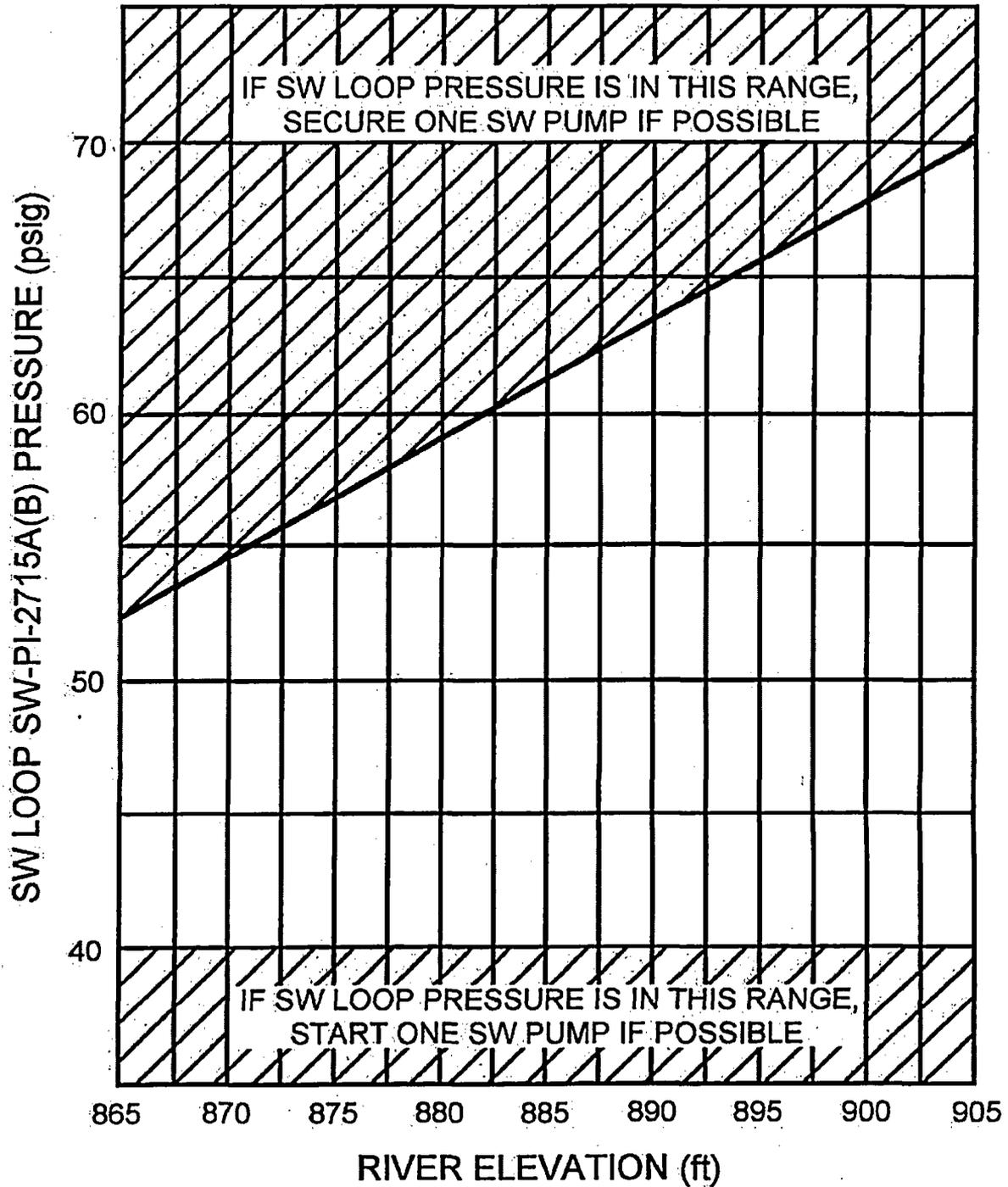
2-2-71B.SCAN
Figure 1 - GRAPH 1 - ONE SW PUMP OPERATING GRAPH

ATTACHMENT 1 RIVER ELEVATION VS. SW LOOP SW-PI-2715A(B)
PRESSURE GRAPHS

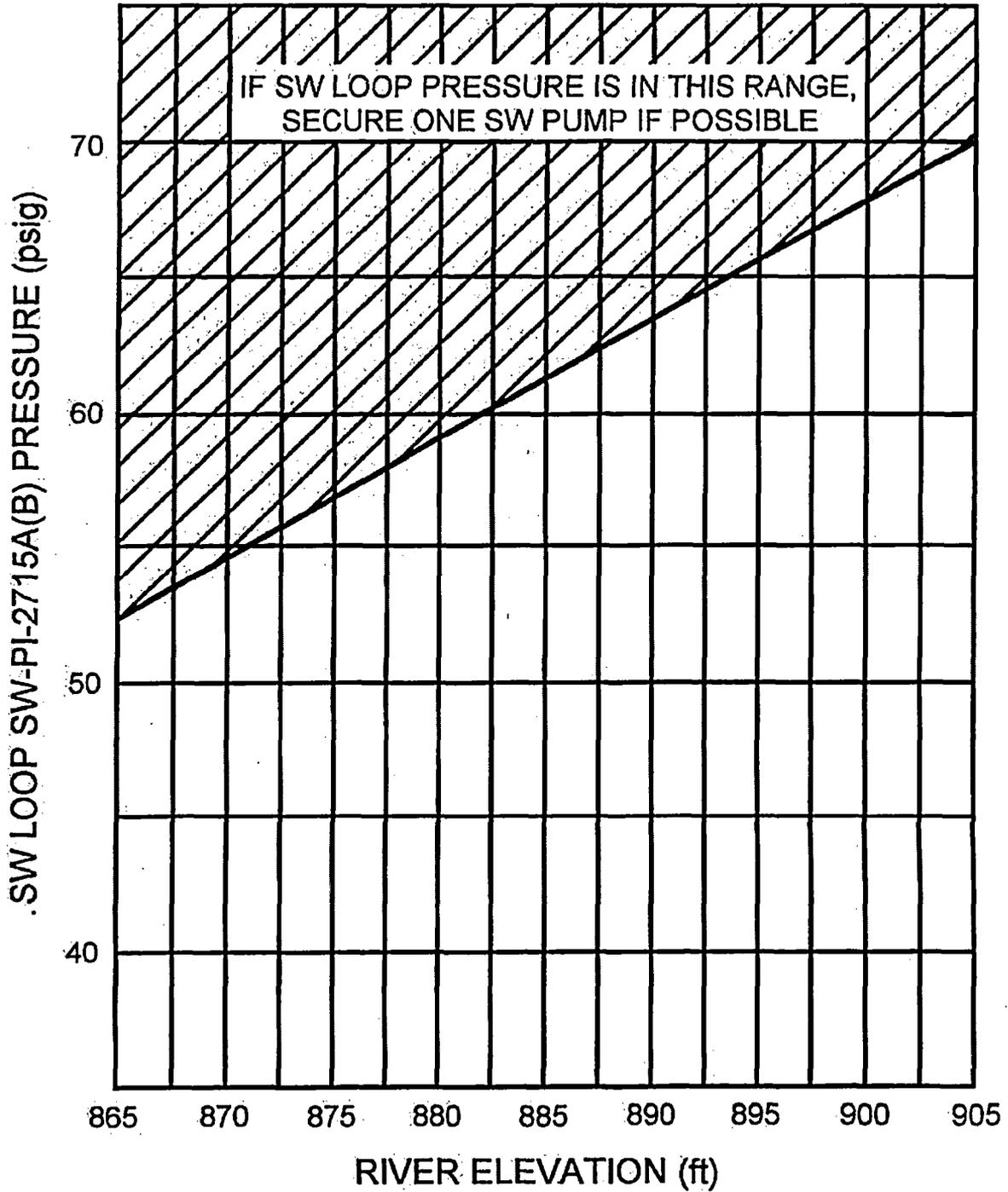


2-2-71C.SCAN
Figure 2 - GRAPH 2 - TWO SW PUMPS OPERATING GRAPH

ATTACHMENT 1 RIVER ELEVATION VS. SW LOOP SW-PI-2715A(B) PRESSURE GRAPHS



2-2-71D.SCAN
Figure 3 - GRAPH 3 - THREE SW PUMPS OPERATING GRAPH



2-2-71E.SCAN
Figure 4 - GRAPH 4 - FOUR SW PUMPS OPERATING GRAPH

1. DISCUSSION

1.1 FUNCTION

1.1.1 The SW System provides the ultimate heat sink for equipment throughout the plant.

1.2 OPERATING CHARACTERISTICS

1.2.1 The SW System consists of four vertical SW pumps located in the Intake Structure with associated strainers, piping, valving, and instrumentation. The pumps discharge to a common header from which independent piping supplies two Essential subsystems and one Non-Essential subsystem. Automatic valving is provided to shut off all supply to the Non-Essential subsystem on a drop in header pressure; thus, ensuring supply to the essential subsystems. Valves are included in the common discharge header to permit the SW System to be operated as two independent Essential subsystems. Either subsystem can supply normal cooling water to the Non-Essential subsystem. Automatic valving also exists to split the Essential subsystems when high water level is sensed in the Control Building Basement. The HXs and their valves are arranged such that they can be individually backwashed without interrupting system operation.

1.2.2 The Essential subsystems supply the Control Room air conditioner backup supply, Control Building Basement FCU backup supply, core flooding supply, DGs, REC HXs, SWBPs for the RHR HXs, SW Gland Water System backup supply, and SWBP Gland Water System backup supply. The Non-Essential subsystem supplies CW System fill, CW Gland Water System backup supply, Main Condenser bypass valve sparging, screen wash pumps, sparger pumps, and TEC HXs.

- 1.2.3 The SW Gland Water System consists of two subsystems, each serving a pair of SW pumps, with provisions for manually cross-connecting the subsystems. The normal supply to each subsystem is from Service Water System downstream of the SW strainers. A backup from the FP System will supply the Gland Water Subsystems if low pressure is sensed in either subsystem and a time delay has timed out. To be in compliance with 10CFR50, Appendix R, FP backup must be available to automatically supply the Gland Water Subsystems when the Riverwell System is supplying the Gland Water Subsystems. FP backup is not required to be in compliance with 10CFR50, Appendix R, when SW is supplying the Gland Water Subsystems. The Riverwell System can also supply the Gland Water Subsystems but must be manually aligned.
- 1.2.4 The SW pump lift settings are dependent upon gland water temperature. If SW pump gland water supply is transferred to another source, the SW System Engineer must determine if pump lift settings are affected and lift adjustments need to be made. If pump lift settings cannot be verified to be correct for the temperature of the gland water supply, the affected SW pumps must be declared inoperable.
- 1.2.5 Gland water flow to the SW pump bearings should be maintained at 3 to 15 gpm, preferably in the high end of the band. Higher flows will help prevent sediment buildup in the Gland Water System.
- 1.2.6 The following number of pumps (rated at 8000 gpm at 125' TDH) will be used during each of the indicated operating modes:
- 1.2.6.1 Normal Operation; one to four (depending upon the TEC HX cooling requirements).
 - 1.2.6.2 Accident Conditions (LOCA); two (one from each critical bus).
 - 1.2.6.3 Shutdown Conditions (normal); three.
- 1.2.7 To ensure that sufficient river flow is maintained through the REC HXs under all conditions, a balancing orifice is provided in the TEC HX inlet header upstream of the circulating water fill connection.

- 1.2.8 Loss of all AC power will trip all operating SW pumps. The DGs will start and the SW pumps selected to STDBY will start during the emergency equipment starting sequence.

2. INTERLOCKS AND SETPOINTS

NOTE - Procedure 2.2.65 describes interlocks associated with the REC HX motor operated outlet valves and the SW to REC backup valves.

- 2.1 SW Pump A or C (B or D) will auto start when SW Subsystem A (B) pressure < 17 psig and its MODE SELECTOR switch is in AUTO and 4160V Bus F (G) is being supplied by 4160V Bus A (B).
- 2.2 SW Pump A or C (B or D) will auto start when its MODE SELECTOR switch is in STDBY 13 seconds after power is restored to the 4160V Bus F (G) by the Emergency Transformer or DG1 (DG2).
- 2.3 SW Pump A or C (B or D) will trip when SW Subsystem A (B) pressure > 75 psig and its MODE SELECTOR switch is in AUTO.
- 2.4 The white light above the MODE SELECTOR switch for a SW pump turns on when the breaker for the pump is racked in and open, and the MODE SELECTOR switch for that pump is in STDBY.
- 2.5 SW-MO-36, LOOP CROSSTIE VLV, closes when SW Subsystem A pressure < 20 psig.
- 2.6 SW-MO-37, LOOP CROSSTIE VLV, closes when SW Subsystem B pressure < 20 psig or when Control Building Basement water level reaches 2" or 5".
- 2.7 SW-AO-857 (SW-AO-858), A AND C (B AND D) SW STRAINER BACKWASH OUTLET, opens when any of following conditions are satisfied:
- 2.7.1 High ΔP is sensed across the strainer.
- 2.7.2 A time delay since the last backwash has timed out with the strainer switch in INTER.
- 2.7.3 Strainer switch is in CONT.
- 2.7.4 Power to the strainer panel is lost.

- 2.8 SW-MO-2128 (SW-MO-2129), GLD WTR FROM SW PUMPS A & C (B & D), opens, if closed, when SW Gland Water Subsystem A (B) pressure < 14 psig or when power to SW Gland Water A (B) Panel is lost.
- 2.9 SW-SSV-10, FIRE PROTECTION BACKUP TO SW PUMPS GLAND SEAL, opens when any of following conditions is satisfied:
 - 2.9.1 SW Gland Water Subsystem A or B pressure < 14 psig and an 18 second time delay has timed out.
 - 2.9.2 Power to SW Gland Water A (B) Panel is lost.

3. REFERENCES

3.1 TECHNICAL SPECIFICATIONS

- 3.1.1 LCO 3.7.2, Service Water (SW) and Ultimate Heat Sink (UHS).

3.2 UPDATED SAFETY ANALYSIS REPORT

- 3.2.1 Section X-8.1, Service Water System.

3.3 DRAWINGS

- 3.3.1 B&R Drawing 2006.
- 3.3.2 B&R Drawing 2036, Reactor Building SW System.
- 3.3.3 B&R Drawing 2077, Building SW, Starting Air, Fuel Oil, Sump Systems, and Roof Drains.
- 3.3.4 B&R Drawing 3002, Auxiliary One Line Diagram.
- 3.3.5 B&R Drawing 3004, Auxiliary One Line Diagram.
- 3.3.6 B&R Drawing 3006, Auxiliary One Line Diagram.
- 3.3.7 B&R Drawing 3007, Auxiliary One Line Diagram.
- 3.3.8 B&R Drawing 3020, 4160V Switchgear Elementary Diagram.
- 3.3.9 B&R Drawing 3026, 4160V Switchgear Elementary Diagram.
- 3.3.10 B&R Drawing 3027, 4160V Switchgear Elementary Diagram.

- 3.3.11 B&R Drawing 3040, Control Elementary Diagram.
- 3.3.12 B&R Drawing 3045, Control Elementary Diagram.
- 3.3.13 B&R Drawing 3068, Control Elementary Diagram.
- 3.3.14 B&R Drawing 3168, Intake Structure Lighting Plan.
- 3.3.15 CNS-SW-24.

3.4 VENDOR MANUALS

- 3.4.1 CNS Number 0179, SW Pump.
- 3.4.2 CNS Number 0180, SW Pump Motor.
- 3.4.3 CNS Number 1722, Toshiba/Houston Flowmeter Composite Manual.

3.5 PROCEDURES

- 3.5.1 Conduct of Operations Procedure 2.0.2, Operations Logs and Reports.
- 3.5.2 System Operating Procedure 2.2.3, Circulating Water System.
- 3.5.3 System Operating Procedure 2.2.65, Reactor Equipment Cooling Water System.
- 3.5.4 System Operating Procedure 2.2.65.1, REC System Operation.
- 3.5.5 System Operating Procedure 2.2.71A, Service Water System Valve Checklist.
- 3.5.6 System Operating Procedure 2.2.71B, Service Water System Instrument Valve Checklist.
- 3.5.7 System Operating Procedure 2.2.76, Turbine Equipment Cooling System.

3.6 MISCELLANEOUS

- 3.6.1 Condition Report 94-0530, SW Pump Motor Drawing High Amps after Lift Adjustment.
- 3.6.2 EE 2000-0010, Service Water Pump Amp Limitation Evaluation.

- 3.6.3 EE 02-001, Evaluation of Operating the Service Water Pumps with the Essential Gland Water System in Lieu of the Riverwell Supply System for Longer than 30 Days.
- 3.6.4 EE 02-014, Evaluation for the Use of Either Service Water Pump Discharge or Riverwell Pump Discharge as the Normal Supply for the Gland Water System for the Service Water Pumps.
- 3.6.5 EE 02-014, Revision 2, Evaluation for the Use of Either Service Water Pump Discharge or Riverwell Pump Discharge as the Normal Supply for the Gland Water System for the Service Water Pumps.
- 3.6.6 © Engineering Evaluation EE 02-033, Revision 0, Increase in Ultimate Heat Sink (UHS) Temperature Limit from 90°F to 95°F. Affects Step 2.3.
- 3.6.7 NEDC 94-271.
- 3.6.8 NEDC 99-054, REC HX Discharge Header Temperature.
- 3.6.9 NPPD Design Calculation 94-022, Calculation of SW Loop Pressure Ranges for One to Four Operating SW Pumps During Normal Operation.
- 3.6.10 NRC Information Notice 88-75, Disabling of Diesel Generator Output Breakers by Anti-Pumping Circuit.
- 3.6.11 NRC Information Notice 89-008, Pump Damage Caused by Low Flow Operation.
- 3.6.12 RCR 2000-1208, Add Mode Selector Switch Requirements for Starting and Stopping Additional Pumps.

3.7 NRC COMMITMENTS

- 3.7.1 © Inspection Report 94-04, SWSOPI. Commitment affects Steps 2.7 and 2.8.
- 3.7.2 © TIP Action Plan 5.3.1.2.a, Revision 2a, Action 2b (Commitment Number NLS2002141-02), Convert Normal Gland Water Supply from River Well to Service Water. Commitment affects Sections 9 and 10.