Facility:	Turkey Point	Task No:	01028016300
Task Title:	JPM: Recover Misaligned Control Rod	JPM No:	01028016303
K/A Reference:	001 A2.03 RO 3.5 SRO 4.2		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X
Classroom		Simulator X	Plant

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- While raising power to 100%, a rod misalignment is discovered.
- Reactor Power is 50% and stable
- There has been no rod motion within the last 20 minutes.
- RCC Control Bank D is at 165 steps withdrawn, with the RPI for Control Rod M8 indicating 145 steps.
- The movable gripper fuse for Control Rod M8 has blown.

Initiating Cue:

- The moveable gripper fuse has been replaced.
- The US directs you as the Unit 3 Reactor Operator to align Control Rod M8 using 3-ONOP-028.1, starting at Step 5.9.1.
- Reactor Engineering Supervisor's recommends 1) Borate as required to maintain Tavg within 1°F of Tref.
  2) Rod withdrawal rate should be 10 —15 steps per minute (per Step 5.9.8.3).

Task Standard:

- The operator will recover Control Rod M8 and return to required bank alignment.

Required Materials:

- 3-ONOP-028.1, *RCC Misalignment*
- Key for Rod Disconnect Switch Cabinet

General References:

- 3-ONOP-028.1, *RCC Misalignment*
- Technical Specifications

Time Critical Task: No

Validation Time: 20 minutes

SIMULATOR SETUP

_____ 1. Reset to IC 191 or equivalent IC.

_____ 2. Place Simulator in RUN.

_____ 3. Place Rod Selector in Manual.

_____ 4. Ensure Simulator Operator Checklist is complete.

_____ 5. Check Control Key Log to ensure information is removed from previous JPMs.

_____ 6. Acknowledge alarms and place Simulator in FREEZE.

_____ 7. Provide a copy of 3-ONOP-028.1, *RCC Misalignment*, marked-up through Step 5.8.3.

_____ 8. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

_____ 9. When ready to begin, then place Simulator in RUN.

Denote critical steps with a check mark (√) **Start Time** ______

EVALUATOR NOTE	If the applicant desires to borate prior to the withdrawl of the misaligned rod, then inform the applicant that the Unit Supervisor has directed the Admin Reactor Operator to calculate for a boration following the rod pull.	
STEP 1	Obtain 3-ONOP-028.1, *RCC Misalignment.*	SAT ______ UNSAT ______
STANDARD	Applicant obtains 3-ONOP-028.1, *RCC Misalignment.*	
CUE	Provide Applicant with a copy of 3-ONOP-028.1, *RCC Misalignment.*	
COMMENT		

STEP 2	Obtain permission from the Reactor Engineering Supervisor or designee. (3-ONOP-028.1 Step 5.9.1)	SAT ______ UNSAT ______
STANDARD	Applicant obtains permission from Reactor Engineering and the Shift Manager to align the RCC to its associated bank.	
CUE	Inform the applicant that the Reactor Engineering Supervisor and the Shift Manager have granted permission to realign Control Rod M8.	
COMMENT		

STEP 3	**IF** reactor power has been reduced as per Technical Specification 3.1.3.6, **THEN** do not increase power until the RCCs has been realigned. (3-ONOP-028.1 Step 5.9.2)	SAT ______ UNSAT ______
STANDARD	Applicant determines that Reactor Power has not been reduced per T.S. 3.1.3.6.	
CUE		
COMMENT		

STEP 4 √	Position the Rod Motion Control Selector switch to the RCC bank which has the misaligned RCC. (3-ONOP-028.1 Step 5.9.3)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the Rod Motion Control Selector switch in the clockwise direction to the CBD position.	
CUE		
COMMENT		

STEP 5 √	Place all the lift coil disconnect switches for the misaligned rod bank to the disconnect position (toggle switch down) **EXCEPT** the misaligned RCC switch which is left in the connect position (toggle switch up). (3-ONOP-028.1 Step 5.9.4)	SAT ______ UNSAT ______
STANDARD	Applicant obtains the key to the Lift Coil Disconnect Box from the SM/US/FS. Applicant then places the lift disconnect switches for Bank D to the disconnect position (down), EXCEPT for RCC M8.	
CUE		
COMMENT	Applicant may sign out key from Locker in Key Log. It is acceptable to simulate or perform. If performed, replace the page from the key log for exam security purposes.	

STEP 6	Record the step position for the misaligned RCC group demand step counter in the Unit Narrative Log as follows: 1. Bank ____ 2. Group ____ 3. Position ____ steps (3-ONOP-028.1 Step 5.9.5)	SAT ______ UNSAT ______
STANDARD	Applicant records the information as follows: 1. Bank D 2. Group 1 3. Position steps 165	
CUE	**EVALUATOR CUE:** US records supplied information in the Unit Narrative Log.	
COMMENT		

STEP 7 √	Manually set the associated group demand step counter to the position the misaligned RCC is determined to be in. (3-ONOP-028.1 Step 5.9.6)	SAT ______ UNSAT ______
STANDARD	Applicant depresses the middle pushbutton on BANK D, GROUP 1 step counter to set the counter to 145 steps.	
CUE		
COMMENT	May use a pointy device to push buttons (Example-pen/pencil).	
NOTE	**EVALUATOR NOTE:** There are three pushbuttons on the Group Step Demand Counters. UPPER: Raises indication MIDDLE: Lowers indication LOWER: Resets indication to ZERO (0)	

STEP 8 √	**IF** the misaligned RCC is in a control bank, **THEN** reset the bank demand step counters from the DCS as follows: 1. Navigate to the RPI BANK DEMAND ALIGNMENT screen. 2. Select INITIATE ALIGNMENT for the affected control bank. 3. Select NEW VALUE in the overlay. 4. Type in the desired bank demand step value, using the keyboard. 5. Press ENTER. 6. Select INITIATE RE ALIGNMENT in the overlay. 7. Select YES in the save changes overlay. 8. Select CLOSE OVERLAY. (3-ONOP-028.1 Step 5.9.7)	SAT ______ UNSAT ______
STANDARD	Applicant determines that RCC M8 is in a control bank and proceeds as follows: 1. Navigates to the RPI BANK DEMAND ALIGNMENT screen. 2. Selects INITIATE ALIGNMENT for the affected control bank. 3. Selects NEW VALUE in the overlay. 4. Type in 145 steps, using the keyboard. 5. Presses Enter. 6. Selects INITIATE RE ALIGNMENT in the overlay. 7. Selects YES in the save changes overlay. 8. Selects CLOSE	
CUE		
COMMENT		

NOTE	**CAUTION** ***Failure to follow instructions provided by the Reactor Engineering Supervisor could affect fuel integrity caused by power peaking.*** **NOTE** *Annunciator B9/4, ROD CONTROL URGENT FAILURE, and the RCC power cabinet URGENT FAILURE will alarm for the group with the lift coils disconnected.*	
STEP 9 √	Place the Rod Motion Lever to the IN/OUT position, as applicable. (3-ONOP-028.1 Step 5.9.8.1)	SAT ______ UNSAT ______
STANDARD	Applicant places the Rod Motion Lever in the OUT position, withdraws Control Rod M8 to match the rest of Control Bank D (165 Steps).	
CUE		
COMMENT		
NOTE	**EVALUATOR NOTE:** Annunciator SHUTDOWN ROD OFF TOP DEVIATION (B 9/3) may actuate. This is due to the Difference in RPI between any two rods in the same bank greater than 12 steps or 24 steps while moving.	
TERMINATING CUE:	**Evaluator informs Applicant that another operator will complete the remaining steps of this procedure. This completes the JPM.**	

Stop Time ________

Verification of Completion:

Job Performance Measure No.: 01028016303 - JPM: Recover Misaligned Control Rod

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

____

____

____

____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ______________

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- While raising power to 100%, a rod misalignment is discovered.
- Reactor Power is 50% and stable
- There has been no rod motion within the last 20 minutes.
- RCC Control Bank D is at 165 steps withdrawn, with the RPI for Control Rod M8 indicating 145 steps.
- The movable gripper fuse for Control Rod M8 has blown.

Initiating Cue:

- The moveable gripper fuse has been replaced.
- The US directs you as the Unit 3 Reactor Operator to align Control Rod M8 using 3-ONOP-028.1, starting at Step 5.9.1.
- Reactor Engineering Supervisor's recommends 1) Borate as required to maintain Tavg within 1°F of Tref.
  2) Rod withdrawal rate should be 10 —15 steps per minute (per Step 5.9.8.3).

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- While raising power to 100%, a rod misalignment is discovered.
- Reactor Power is 50% and stable
- There has been no rod motion within the last 20 minutes.
- RCC Control Bank D is at 165 steps withdrawn, with the RPI for Control Rod M8 indicating 145 steps.
- The movable gripper fuse for Control Rod M8 has blown.

Initiating Cue:

- The moveable gripper fuse has been replaced.
- The US directs you as the Unit 3 Reactor Operator to align Control Rod M8 using 3-ONOP-028.1, starting at Step 5.9.1.
- Reactor Engineering Supervisor's recommends 1) Borate as required to maintain Tavg within 1°F of Tref.
  2) Rod withdrawal rate should be 10 —15 steps per minute (per Step 5.9.8.3).

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

Florida Power & Light Company

Turkey Point Nuclear Plant

Unit 3

3-ONOP-028.1

CAUTION
Performance of this procedure may affect core reactivity.

Title:

RCC Misalignment

(Continuous Use)

Safety Related Procedure	
Responsible Department:	Operations
Revision Number:	1
Issue Date:	10/27/10
Revision Approval Date:	8/2/10

PCRs *08-1972, 09-0987, 10-0929*
PC/Ms *92-031, 93-005, 01-0796P, 09-006*

W97/JWB/emc/cls/nw

LIST OF EFFECTIVE PAGES
(Rev. 1)

Page	Revision Date
1	08/02/10
2	08/02/10
3	04/07/09
4	04/07/09
5	04/07/09
6	04/07/09
7	04/07/09
8	04/07/09
9	08/02/10
10	04/07/09
11	04/07/09
12	08/02/10
13	04/07/09

TABLE OF CONTENTS

1.0 PURPOSE

1.1 This procedure provides instructions to be followed in the event one or more RCC is misaligned with the associated bank. This procedure is also initially used for an RCC position indication malfunction to verify the RCCs are aligned with the associated bank.

2.0 SYMPTOMS

2.1 Power range nuclear instrumentation variation of greater than 3 percent difference between any two detectors at the same elevation.

2.2 Axial flux difference indicators difference of 3 percent between any two channels.

2.3 Significant axial power shape difference from symmetric assemblies, as determined by the Reactor Engineering Supervisor.

NOTE

After RCC motion, one hour is provided to allow time for thermal soak, so that proper RCC indication is obtained.

2.4 With no RCC motion within the last hour, an individual RPI indicates greater than the Allowed Rod Misalignment of Technical Specification 3.1.3.1.

2.5 Difference of greater than 2 steps between group step counters in the same bank.

2.6 Core exit thermocouple difference of 10°F relative to symmetric thermocouples.

2.7 Nuclear Instrumentation Detector Current Comparator Drawer UPPER SECTION DEVIATION or LOWER SECTION DEVIATION light on above 50 percent power.

2.8 Nuclear Instrumentation Comparator and Rate Drawer CHANNEL DEVIATION Light on.

2.9 Annunciators

2.9.1 B 2/2, POWER RANGE UPPER DET HI FLUX DEV/AUTO DEFEAT (Normally lit less than 50 percent power)

2.9.2 B 2/3, POWER RANGE LOWER DET HI FLUX DEV/AUTO DEFEAT (Normally lit less than 50 percent power)

2.9.3 B 6/4, POWER RANGE CHANNEL DEVIATION

2.9.4 B 9/2, AXIAL FLUX TILT

2.9.5 B 9/3, SHUTDOWN ROD OFF TOP/DEVIATION

3.0 AUTOMATIC ACTIONS

3.1 **IF** the axial flux difference exceeds +2 percent, **THEN** the OTΔT trip setpoint will be lowered.

4.0 IMMEDIATE ACTIONS

4.1 None

5.0 SUBSEQUENT ACTIONS

5.1 Place the Rod Motion Control Selector to the MAN position.

5.2 Proceed as follows:

5.2.1 **IF** reactor power is greater than 75 percent **OR** more than one RCC is misaligned, **THEN**:

N/A

N/A 1. Borate/dilute AND/OR change Turbine load to maintain Tavg within 3°F of Tref.

N/A 2. Use RCC motion only to control axial flux within the target band.

> **NOTE**
>
> *If increasing Reactor power to approximately 3 percent (stay in Mode 2) for a flux map, rod motion may be used.*

N/A 3. Do **NOT** withdraw control rods to increase power until the affected RCCs have been aligned, except as noted above.

5.2.2 **IF** reactor power is less than 75 percent **AND** one RCC is misaligned, **THEN** at the discretion of the Reactor Engineering Supervisor, use rod motion **OR** boration/dilution to limit reactor power to less than 75 percent.

5.3 Notify the Reactor Engineering Supervisor or designee **AND** provide the following information:

5.3.1 Amount of time the RCCs has (have) been misaligned.

5.3.2 Degree of misalignment.

5.3.3 Current reactor status (i.e., rods in manual, reactor power, and RCC position).

> **NOTE**
>
> *RPI gain adjustments should be delayed until 0-OSP-059.14 Rod Position Indication (RPI) verification is performed.*

5.4 Notify the I&C Supervisor to verify RPI indication **AND** to investigate CRDM System for possible failure.

CAUTION

When more than one RCCA in the same bank is suspected of being misaligned from its step demand counter, flux traces are required to be performed separately for each RCCA. Upon declaring the RCCA not misaligned, the associated RPI must be declared operable prior to performing the next flux trace to prevent an unnecessary entry into Tech Spec action 3.0.3.

5.5 Have the Reactor Engineering Supervisor perform one or more of the following, at the discretion of the Reactor Engineering Supervisor, to confirm RCC misalignment or RCC position indication malfunction:

5.5.1 Perform 3-OSP-059.10, Determination of Quadrant Power Tilt Ratio.

5.5.2 Check Δ Flux meters.

5.5.3 Check core exit thermocouples.

5.5.4 Two Thimble Flux Map for symmetry check **OR** to estimate RCC position

1. Visual

2. Computer check of digital data

5.5.5 Full Core Flux Map for verification of core power distribution.

5.5.6 Stepping of RCCs that are nearly or fully withdrawn.

5.5.7 Rod Deviation/Axial Flux Panel

NA 5.6 **IF** the RCC is determined to be aligned with the associated bank **AND** an RCC position indicator is failed, **THEN** go to 3-ONOP-028.2, RCC Position Indication Malfunction.

NA 5.7 **IF** more than one RCC is inoperable or misaligned from the group demand step counter position by more than the Allowed Rod Misalignment of Technical Specification 3.1.3.1, **THEN** comply with the actions of Technical Specification 3.1.3.1.

5.8 **IF** one RCC is misaligned from the associated group demand step counter height by more than the Allowed Rod Misalignment of Specification 3.1.3.1, **THEN** power operation may continue provided within 1 hour:

N/A 5.8.1 The RCC is restored to operable status within the Allowed Rod Misalignment of Technical Specification 3.1.3.1,

OR

5.8.2 The RCC is declared inoperable and the remainder of the RCCs in the bank with the inoperable RCC are aligned to within the Allowed Rod Misalignment of Technical Specification 3.1.3.1 of the inoperable RCC while **NOT** exceeding the RCC insertion limits in accordance with the Plant Curve Book, Section VII Figure 3, **AND**

1. The thermal power level shall be restricted in accordance with Technical Specification 3.1.3.6 during subsequent operation,

OR

N/A 5.8.3 The RCC is declared inoperable **AND** the shutdown margin requirement of Technical Specification 3.1.1.1 is satisfied. Power operation may then continue provided that:

1. The thermal power level is reduced to less than or equal to 75 percent within the next hour, and within the following 4 hours the high neutron flux trip setpoint is reduced to less than or equal to 85 percent of rated thermal power **AND**
2. The shutdown margin requirement of Technical Specification 3.1.1.1 is determined at least once per 12 hours **AND**
3. A power distribution map is obtained from movable incore detectors and $F_Q(Z)$ and $F_{\Delta}H^N$ are verified to be within the limits within 72 hours **AND**
4. A re-evaluation of each accident analysis listed in Enclosure 1 is performed within 5 days, to confirm that the previously analyzed results of the accidents listed in Enclosure 1 remain valid under the present conditions **AND**
5. The rod worth of the inoperable RCC is determined within 4 weeks.
   a. **IF** the RCC is determined to have a potential reactivity insertion of greater than 300 PCM upon ejection at rated power, **THEN** be in Mode 3, Hot Standby within 6 hours.
6. **AFTER** performing re-evaluation of each accident analysis (Substep 5.8.3.4) and verification of the Hot Channel Factors to be within the limits (Substep 5.8.3.3), **THEN** maintain reactor power less than the high neutron flux trip setpoint (85 percent).

5.9 Align one RCC at a time with the associated bank as follows:

5.9.1 Obtain permission from the Reactor Engineering Supervisor or designee.

5.9.2 **IF** reactor power has been reduced as per Technical Specification 3.1.3.6, **THEN** do not increase power until the RCCs has been realigned.

5.9.3 Position the Rod Motion Control Selector switch to the RCC bank which has the misaligned RCC.

5.9.4 Place all the lift coil disconnect switches for the misaligned rod bank to the disconnect position (toggle switch down) **EXCEPT** the misaligned RCC switch which is left in the connect position (toggle switch up).

5.9.5 Record the step position for the misaligned RCC group demand step counter in the Unit Narrative Log as follows:

1. Bank _______________
2. Group _______________
3. Position _______________steps

5.9.6 Manually set the associated group demand step counter to the position the misaligned RCC is determined to be in.

5.9.7 **IF** the misaligned RCC is in a control bank, **THEN** reset the bank demand step counters from the DCS as follows:

1. Navigate to the RPI BANK DEMAND ALIGNMENT screen.
2. Select INITIATE ALIGNMENT for the affected control bank.
3. Select NEW VALUE in the overlay.
4. Type in the desired bank demand step value, using the keyboard.
5. Press Enter.
6. Select INITIATE RE ALIGNMENT in the overlay.
7. Select YES in the save changes overlay.
8. Select CLOSE OVERLAY.

CAUTION

Failure to follow instructions provided by the Reactor Engineering Supervisor could affect fuel integrity caused by power peaking.

NOTE

Annunciator B9/4, ROD CONTROL URGENT FAILURE, and the RCC power cabinet URGENT FAILURE will alarm for the group with the lift coils disconnected.

5.9.8 Align the misaligned RCC using guidance provided by the Reactor Engineering Supervisor as follows:

1. Place the Rod Motion Lever to the IN/OUT position, as applicable.

2. Maintain Reactor Power at the level determined by the Reactor Engineering Supervisor as follows:

   a. **IF** misaligned RCC must be inserted, **THEN** adjust Turbine load to maintain Tref equal to Tavg.

   b. **IF** misaligned RCC must be withdrawn, **THEN** borate at less than or equal to 10 gpm, as directed by the Reactor Engineering Supervisor.

3. Withdraw or insert the misaligned RCC at 10 to 15 steps per minute to align the control rod.

4. Monitor Power Range Nuclear Instrumentation for abnormal flux tilts (greater than 3 percent difference between any two detectors at the same elevation).

5. **DO NOT** increase reactor power without permission from the Reactor Engineering Supervisor **AND** the Shift Manager.

6. Continue to move the misaligned RCC until the group step counter indicates the position recorded in Step 5.9.5.

5.9.9 Place all lift coil disconnect switches to the connect position (toggle switch up).

5.9.10 Depress the Rod Control Alarm Reset **AND** verify the following:

1. Annunciator B 9/4, ROD CONTROL URGENT FAILURE, clears.
2. The RCC power cabinet URGENT FAILURE light is off.

5.9.11 **IF** other RCCs are misaligned, **THEN** return to Steps 5.9.1 through 5.9.10.

5.10 **AFTER** the malfunction has been corrected **AND** before increasing power, **THEN** monitor the following parameters to ensure the flux distribution is normal:

5.10.1 Power range nuclear instrumentation - less than 3 percent difference between any two detectors at the same elevation

5.10.2 Core exit thermocouples - less than 10°F difference between any two channels at like symmetric locations

NOTE

An Incore Flux Map is optional, at the discretion of the Reactor Engineering Supervisor.

5.10.3 No significant axial power shape difference from symmetric assemblies as determined by the Reactor Engineering Supervisor

5.10.4 Axial flux indicators - less than 3 percent difference between any two channels

5.11 Place Rod Control Selector Switch to MANUAL or AUTOMATIC position.

6.0 REFERENCES/RECORDS REQUIRED/ COMMITMENT DOCUMENTS

6.1 References

6.1.1 Technical Specifications:

1. Section 3.2, Power Distribution Limits
2. Section 3/4.1.3, Reactivity Control Systems

6.1.2 Procedures

1. 3-ONOP-028.2, Control Rod Position Indication Malfunction
2. 3-OSP-059.10, Determination of Quadrant Power Tilt Ratio
3. 3-PMI-028.3, RPI Hot Calibration, CRDM Stepping Test and Rod Drop Test

6.1.3 Plant Curve Book, Unit 3

1. Section VII, Figure 3, Rod Insertion Limits vs Thermal Power

6.1.4 INPO SOERs

1. SOER 84-2 (1, 2 and 8) Control Rod Mispositioning
2. SOER 84-2, Control Rod Mispositioning-Addendum

6.1.5 Miscellaneous Documents (i.e., PC/M, Correspondence)

1. PC/M 93-005, Elimination of Turbine Runback
2. PC/M 09-006, Rod Position Indication System Replacement

6.2 Records Required

6.2.1 None

6.3 Commitment Documents

6.3.1 None

END OF TEXT

ENCLOSURE 1
(Page 1 of 1)

ACCIDENT ANALYSES REQUIRING RE-EVALUATION IN THE EVENT OF AN INOPERABLE RCC

Rod Cluster Control Assembly Insertion Characteristics

Rod Cluster Control Assembly Misalignment

Loss of Reactor Coolant from Small Ruptured Pipes or from Cracks in Large Pipes Which Actuates the Emergency Core Cooling System

Single Rod Cluster Control Assembly Withdrawal at Full Power

Major Reactor Coolant System Pipe Ruptures (Loss of Coolant Accident)

Major Secondary Coolant System Pipe Rupture

Rupture of a Control Rod Drive Mechanism Housing (Rod Cluster Control Assembly Ejection)

FINAL PAGE

Facility:	Turkey Point	Task No:	01005014300
Task Title:	JPM: Recover from a Loss of Offsite Power	JPM No:	01005014303
K/A Reference:	062 A4.07 RO 3.1 SRO 3.1		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X

Classroom		Simulator	X	Plant	

HAND J PM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- A loss of offsite power has occurred.
- The 3A and 3B Emergency Diesel Generators are supplying their respective buses.
- Notification has been received that the System is stable and offsite power is available to the Unit 3 Startup Transformer.
- The SM has determined that offsite power should be restored to the 3A 4KV Bus.

Initiating Cues:

- 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*, has been completed up through Step 7.
- The Unit Supervisor directs you to restore offsite power to the 3A 4KV Bus and shutdown the 3A EDG per 3-ONOP-004.1, starting with Step 8.

Task Standard:

- The 3A 4KV Bus is energized from offsite power and the 3A EDG is shutdown.

Required Materials:

- 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*
- SYNC PLUG

References:

- 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*

General References:

- None

Time Critical Task: No

Validation Time: 10 minutes

SIMULATOR SETUP

_____ 1. Reset to IC-192, or equivalent IC.

_____ 2. Place Simulator in RUN.

_____ 3. Ensure Simulator Operator Checklist is complete.

_____ 4. Acknowledge alarms and place simulator in FREEZE.

_____ 5. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

_____ 6. When ready to begin, then place the Simulator in RUN.

Denote critical steps with a check mark (√)

Start Time: ______

STEP 1	Obtain required materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*, and a Sync Plug.	
CUE	Provide Applicant with a copy of 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*, marked up through Step 7, and a Sync Plug.	
COMMENT		

NOTE	**CAUTION** *When the Startup Transformer breaker is closed, the EDG load will drop to zero. To prevent potential damage to the EDG, the EDG output breaker should be opened as soon as the Startup Transformer is verified to be carrying 4KV bus load.*	
STEP 2 √	**Synchronize Unit 3 Startup Transformer To 3A 4KV Bus.** Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to ON. (3-ONOP-004.1, Step 8 and Step 8.a)	SAT ______ UNSAT ______
STANDARD	Applicant inserts the sync plug in S/U TRANSFORMER SYNC TO 3A KV BUS 3AA05 and rotates the control switch clockwise to the ON position.	
CUE		
COMMENT	**EVLAUATOR NOTE:** Applicant may check voltage on all three phases.	

STEP 3	Verify running voltage matched incoming voltage. (3-ONOP-004.1, Step 8.b)	SAT ______ UNSAT ______
STANDARD	Applicant observes the RUNNING VOLTS and INCOMING VOLTS meters and notes that they are approximately equal.	
CUE		
COMMENT		

STEP 4	Verify synchroscope – ROTATING SLOWLY IN FAST DIRECTION. (3-ONOP-004.1, Step 8.c)	SAT ______ UNSAT ______
STANDARD	Applicant may adjust EDG speed using the 3A Diesel Generator Speed Changer to achieve a satisfactory rate of rotation in the FAST direction.	
CUE		
COMMENT		

STEP 5 √	**WHEN** synchroscope pointer reaches 12 o'clock position, **THEN** close Startup Transformer 3A 4KV Bus Supply, 3AA05 (3-ONOP-004.1, Step 8.d)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for START-UP XFMR 3A 4KV BUS SUPPLY 3AA05, to the CLOSE position and releases the switch. Observes the green OPEN light is OFF and the red CLOSE light is LIT. Also observes that the red flag is showing.	
CUE		
COMMENT	**EVALUATOR NOTE:**	
EVALUATOR NOTE	• SEQUENCER 3A TROUBLE (X 1/3) will actuate. • The applicant may exercise the Caution prior to 3-ONOP-004.1, Step 8 and open the 3A Emergency Diesel Bkr to 3A 4KV Bus, 3AA20, prior to performing Step 8.e.	

STEP 6	Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to OFF **AND** remove handle. (3-ONOP-004.1, Step 8.e)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the S/U TRANSFORMER SYNC TO 3A KV BUS 3AA05 control switch counterclockwise to the OFF position Applicant removes the sync plug.	
CUE		
COMMENT		

STEP 7 √	**Shutdown 3A Emergency Diesel Generator** Open 3A Emergency Diesel to 3A 4KV Bus, 3AA20. (3-ONOP-004.1, Step 9 and Step 9.a)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the A EDG TO 3A 4KV BUS control switch counterclockwise to the TRIP position. Note the green OPEN light is ON and the red CLOSE light is OFF.	
CUE		
COMMENT		

STEP 8 √	Adjust 3A Emergency Diesel Generator frequency to 60 Hz using Diesel Generator Speed Changer. (3-ONOP-004.1, Step 9.b)	SAT ______ UNSAT ______
STANDARD	Applicant positions the A DIESEL GEN SPEED CHANGER to adjust the 3A EDG frequency to between 59.4 and 60.6 Hz on the A DIESEL HERTZ meter.	
CUE		
COMMENT	**EVALUATOR NOTE:** Tolerance based on 3-OSP-023 allowances.	

STEP 9 √	Adjust 3A Emergency Diesel Generator voltage to 4160 volts using Diesel Generator Voltage Regulator. (3-ONOP-004.1, Step 9.c)	SAT ______ UNSAT ______
STANDARD	Applicant positions the A DIESEL GEN VOLTAGE REGULATOR switch to adjust the 3A EDG voltage to approximately between 3950 and 4370 volts on the A DIESEL KILOVOLTS meter.	
CUE		
COMMENT	**EVALUATOR NOTE:** Tolerance based on 3-OSP-023 allowances.	

STEP 10 √	Stop 3A Emergency Diesel Generator by placing the Diesel Generator 3A Normal Start/Normal Stop switch in NORMAL STOP (3-ONOP-004.1, Step 9.d)	SAT ______ UNSAT ______
STANDARD	Applicant positions the 3A DIESEL GENERATOR NORMAL STOP/NORMAL START switch counterclockwise to the NORMAL STOP position and allows the switch to spring-return to the mid position. Applicant notes that 3A EDG frequency and voltage drop to zero.	
TERMINATING CUE	**Inform the Applicant that another operator will restore the EDG to a normal lineup. This completes the JPM.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01005014303 - JPM: Recover from a Loss of Offsite Power

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

____

____

____

____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ______________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- A loss of offsite power has occurred.
- The 3A and 3B Emergency Diesel Generators are supplying their respective buses.
- Notification has been received that the System is stable and offsite power is available to the Unit 3 Startup Transformer.
- The SM has determined that offsite power should be restored to the 3A 4KV Bus.

Initiating Cues:

- 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*, has been completed up through Step 7.
- The Unit Supervisor directs you to restore offsite power to the 3A 4KV Bus and shutdown the 3A EDG per 3-ONOP-004.1, starting with Step 8.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- A loss of offsite power has occurred.
- The 3A and 3B Emergency Diesel Generators are supplying their respective buses.
- Notification has been received that the System is stable and offsite power is available to the Unit 3 Startup Transformer.
- The SM has determined that offsite power should be restored to the 3A 4KV Bus.

Initiating Cues:

- 3-ONOP-004.1, *System Restoration Following a Loss of Offsite Power*, has been completed up through Step 7.
- The Unit Supervisor directs you to restore offsite power to the 3A 4KV Bus and shutdown the 3A EDG per 3-ONOP-004.1, starting with Step 8.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

Florida Power & Light Company

Turkey Point Nuclear Plant

Unit 3

3-ONOP-004.1

Title:

System Restoration Following Loss of Offsite Power

(Continuous Use)

Safety Related Procedure	
Responsible Department:	Operations
Revision Approval Date:	9/4/07

RTSs *91-1561P, 91-2743P, 93-0173P, 93-1679P, 95-0234P, 95-0498P, 95-0918P, 97-1375P, 01-0529P, 01-0695P, 03-0204P, 04-0967P, 07-0478P*
PC/M *87-258, 87-263, 87-264, 87-265, 94-059, 01-009*

W97:DH/ev/mrg/ln

LIST OF EFFECTIVE PAGES

1.0 PURPOSE

This procedure provides instructions to be followed in order to restore electrical systems to a normal configuration when offsite power has been lost and subsequently restored.

2.0 SYMPTOMS OR ENTRY CONDITIONS

2.1 System Dispatcher has notified Operations personnel that offsite power is stable and the Unit 3 Startup Transformer has been reenergized by offsite power.

2.2 System Dispatcher has notified Operations personnel that offsite power is stable and the 3C Transformer has been reenergized by offsite power.

3.0 REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS

3.1 References

3.1.1 Technical Specifications

1. Section 3/4.8.1, AC Sources
2. Section 3/4.8.3, Onsite Power Distribution

3.1.2 FSAR

1. Section 8.2, Emergency Power
2. Section 14.1.12, Loss of A.C. Power

3.1.3 Plant Drawings

1. 5610-E-855, Breaker List
2. 5610-T-E-1591, Sheet 1 - Electrical Distribution
3. 5610-T-L1, Sheet 2 - Reactor Trip Signals
4. 5610-T-L1, Sheet 6C - Generator Details
5. 5610-T-L1, Sheet 12A - Emergency Load Sequencer
6. 5613-T-L1, Sheet 13 - Bus 3A Loss of Voltage and Bus Stripping
7. 5613-T-L1, Sheet 13A - Bus 3B Loss of Voltage and Bus Stripping

3.1.4 Plant Procedures

1. 3-ONOP-004.2, LOSS OF 3A 4KV BUS
2. 3-ONOP-004.3, LOSS OF 3B 4KV BUS
3. 3-ONOP-004.4, LOSS OF 3C 4KV BUS
4. 3-ONOP-004.5, LOSS OF 3D 4KV BUS
5. 3-ONOP-041.7, SHUTDOWN LOCA [MODE 3 (LESS THAN 1000 PSIG) OR 4]
6. 3-ONOP-041.8, SHUTDOWN LOCA [MODE 5 OR 6]
7. 3-ONOP-092.3, STARTUP TRANSFORMER MALFUNCTION
8. 3-ONOP-092.4, C BUS TRANSFORMER MALFUNCTION
9. 3-OP-005, 4160 VOLT BUSES A, B AND D
10. 3-OP-006, 480 VOLT SWITCHGEAR SYSTEM
11. 3-OP-007, 480 VOLT MOTOR CONTROL CENTER
12. 3-OP-023, EMERGENCY DIESEL GENERATOR
13. 3-OP-030, COMPONENT COOLING WATER SYSTEM

3.1.5 Plant Change/Modifications

1. PC/M 87-258, Load Center 3H, MCC 3D and Transfer of Loads
2. PC/M 87-263, New EDG Installation
3. PC/M 87-264, EDG 3B/4B, EDG 3A/4A and New EDG Building Tie-Ins
4. PC/M 87-265, Swing Switchgear 3D and Transfer of ICW & CCW 3C Pumps
5. PC/M 94-059, Diesel Engine Driver for Standby Steam Generator Feedwater Pump P82B

3.1.6 Miscellaneous

1. JPN-PTN-SEMP-93-010, Turkey Point Units 3 & 4 Safety Evaluation for Control Building Annex Cooling

2. JPN-PTN-SENP-95-026, Safety Evaluation for CCW Flow Balance and Post–Accident Alignment Requirements to Support Thermal Up-Rate. (LER 250/95-006)

3.2 Records Required

3.2.1 None

3.3 Commitment Documents

3.3.1 JPN-PTN-SENP-95-026, Safety Evaluation for CCW Flow Balance and Post–Accident Alignment Requirements to Support Thermal Up-Rate. (LER 250/95-006)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

CCW System load requirements for the EOP network, 3-ONOP-041.7, SHUTDOWN LOCA [MODE 3 (LESS THAN 1000PSIG) OR MODE 4] and 3–ONOP–041.8, SHUTDOWN LOCA [MODE 5 OR 6], SHALL NOT exceed the limits specified in 3–OP–030, COMPONENT COOLING WATER SYSTEM.

NOTE

Momentary High Flow due to swapping CCW Pumps is acceptable.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	**Verify SI - RESET**	
2	**Check Unit 3 Startup Transformer Potential White Light On VPA - ON**	Go to Step 65.
3	**Check Unit 3 Startup Transformer Lockout Relay - RESET**	Perform the following: a. Try to determine and correct cause of Unit 3 startup transformer lockout relay actuation using 3-ONOP-092.3, STARTUP TRANSFORMER MALFUNCTION. b. <u>WHEN</u> the Unit 3 Startup Transformer Lockout Relay is reset, <u>THEN</u> return to Step 4. c. Go to Step 65.
4	**Check Startup Transformer 3A 4KV Bus Supply, 3AA05 - OPEN**	Go to Step 35.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	**Check If Offsite Power Should Be Restored To 3A 4KV Bus At This Time**	
	a. Consult with the Shift Manager to determine desired order of offsite power restoration * 3A 4KV bus followed by 3B 4KV bus **OR** * 3B 4KV bus followed by 3A 4KV bus	
	b. Check desired order of offsite power restoration - 3A 4KV BUS FOLLOWED BY 3B 4KV BUS	b. Go to Step 35.
6	**Check 3A 4KV Bus - ENERGIZED**	Go to Step 28.
7	**Check 3A 4KV Bus - ENERGIZED BY 3A EMERGENCY DIESEL GENERATOR**	Go to Step 11.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

When the Startup Transformer breaker is closed, the EDG load will drop to zero. To prevent potential damage to the EDG, the EDG output breaker should be opened as soon as the Startup Transformer is verified to be carrying 4KV bus load.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	**Synchronize Unit 3 Startup Transformer To 3A 4KV Bus**	
	a. Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to ON	
	b. Verify running voltage matched incoming voltage	b. Adjust 3A Diesel Generator Voltage Regulator.
	c. Verify synchroscope - ROTATING SLOWLY IN FAST DIRECTION	c. Adjust 3A Diesel Generator Speed Changer.
	d. **WHEN** synchroscope pointer reaches 12 o'clock position, **THEN** close Startup Transformer 3A 4KV Bus Supply, 3AA05	d. **IF** Startup Transformer 3A 4KV Bus Supply, 3AA05, can **NOT** be closed, **THEN** perform the following: 1) Place Startup Transformer Sync To 3A 4KV Bus 3AA05 to OFF **AND** remove handle. 2) Direct Electrical Maintenance to determine cause of breaker failure. 3) Go to Step 35.
	e. Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to OFF **AND** remove handle	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	**Shutdown 3A Emergency Diesel Generator**	
	a. Open 3A Emergency Diesel to 3A 4KV Bus, 3AA20	a. Locally open breaker.
	b. Adjust 3A Emergency Diesel Generator frequency to 60 Hz using Diesel Generator Speed Changer	b. Locally adjust frequency.
	c. Adjust 3A Emergency Diesel Generator voltage to 4160 volts using Diesel Generator Voltage Regulator	c. Locally adjust voltage.
	d. Stop 3A Emergency Diesel Generator by placing the Diesel Generator 3A Normal Start/Normal Stop switch in NORMAL STOP	d. Locally stop 3A Emergency Diesel Generator.
	e. Place 3A Emergency Diesel Generator in normal standby alignment using 3–OP–023, Emergency Diesel Generator	
10	**Go To Step 35**	
11	**Check 3B 4KV Bus - ENERGIZED**	Perform the following: a. Try to energize 3B 4KV bus using one of the following: * 3-ONOP-004.3, LOSS OF 3 4KV BUS **OR** * 3-OP-005, 4160 VOLT BUSES A, B, AND D b. **IF** 3B 4KV bus can **NOT** be energized, **THEN** go to Step 65.
12	**Check Intake Cooling Water Headers - TIED TOGETHER**	Perform the following: a. **IF** both Intake Cooling Water Headers are intact, **THEN** tie headers together. b. **IF** Intake Cooling Water Headers can **NOT** be tied together, **THEN** go to Step 35.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	**Check CCW Headers - TIED TOGETHER**	Perform the following: a. IF both CCW headers are intact, THEN tie headers together. b. IF CCW headers can NOT be tied together, THEN go to Step 35.
14	**Direct Operator To Place 3A Emergency Diesel Master Control Switch To OFF**	
15	**Check 3D 4KV Bus - ALIGNED TO 3A 4KV BUS** • Supply From 4KV Bus 3A, 3AD01 - CLOSED • Feeder To 4KV Bus 3D, 3AA17 - CLOSED	Go to Step 20.
16	**Check Station Blackout Breaker, 3AD07 - OPEN**	Perform the following: a. IF Unit 3 is supplying power to Unit 4 4KV buses using station blackout tie line, THEN go to Step 33. b. Start 3B Intake Cooling Water Pump. c. Start 3B Component Cooling Water Pump. d. IF either pump can NOT be started, THEN go to Step 33.
17	**Check 3C Intake Cooling Water Pump - STOPPED**	Perform the following: a. Start 3B Intake Cooling Water Pump. b. IF 3B Intake Cooling Water Pump can NOT be started, THEN start 3A Intake Cooling Water Pump. IF neither pump can be started, THEN go to Step 33. c. Stop 3C Intake Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

When only one component cooling water pump is running, a MAXIMUM of TWO emergency containment coolers are allowed to be running.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18	**Check 3C Component Cooling Water Pump - STOPPED**	Perform the following: a. Start 3B Component Cooling Water Pump. b. <u>IF</u> 3B Component Cooling Water Pump can <u>NOT</u> be started, <u>THEN</u> start 3A Component Cooling Water Pump. <u>IF</u> neither pump can be started, <u>THEN</u> go to Step 33. c. Stop 3C Component Cooling Water Pump.
19	**Check If 3D 4KV Bus Should Be Aligned To 3B 4KV Bus**	
	a. Check Station Blackout Breaker, 3AD07 – OPEN	a. Go to Step 20.
	b. Open Feeder To 4KV Bus 3D, 3AA17	
	c. Open Supply From 4KV Bus 3A, 3AD01	
	d. Close Supply From 4KV Bus 3B, 3AD06	
	e. Close Feeder To 4KV Bus 3D, 3AB19	
20	**Check 3A Intake Cooling Water Pump - STOPPED**	Perform the following: a. Start 3B Intake Cooling Water Pump. b. <u>IF</u> 3B Intake Cooling Water Pump can <u>NOT</u> be started, <u>THEN</u> start 3C Intake Cooling Water Pump. <u>IF</u> neither pump can be started, <u>THEN</u> go to Step 33. c. Stop 3A Intake Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

When only one Component Cooling Water Pump is running, a MAXIMUM of TWO Emergency Containment Coolers are allowed to be running.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	**Check 3A Component Cooling Water Pump - STOPPED**	Perform the following: a. Start 3B Component Cooling Water Pump. b. **IF** 3B Component Cooling Water Pump can **NOT** be started, **THEN** start 3C Component Cooling Water Pump. **IF** neither pump can be started, **THEN** go to Step 33. c. Stop 3A Component Cooling Water Pump.
22	**Check Charging Pumps** • 3B Charging Pump – RUNNING • 3A Charging Pump – STOPPED • 3C Charging Pump - STOPPED	Perform the following: a. Start 3B Charging Pump. b. **IF** 3B Charging Pump can **NOT** be started, **THEN** go to Step 33. c. Stop 3A Charging Pump. d. Stop 3C Charging Pump.
23	**Check 3A RHR Pump - STOPPED**	Perform the following: a. Start 3B RHR pump and align valves as directed by the Shift Manager to allow stopping of 3A RHR pump. b. Consult with the Shift Manager to determine if 3A RHR pump can be stopped. c. **IF** 3A RHR pump can **NOT** be stopped, **THEN** go to Step 33. d. Stop 3A RHR pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

<u>CAUTION</u>

Injection to the RCS from at least two High-Head SI Pumps is required to be maintained during the injection phase of a large loss of reactor coolant accident.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	**Check 3A High-Head SI Pump - STOPPED**	Perform the following: a. Start 3B, 4A, or 4B High-Head SI Pump(s) **<u>AND</u>** align valves as directed by the Shift Manager to allow stopping of 3A High-Head SI Pump. b. Consult with the Shift Manager to determine if 3A High-Head SI Pump can be stopped. c. **<u>IF</u>** 3A High-Head SI Pump can **<u>NOT</u>** be stopped, **<u>THEN</u>** go to Step 33. d. Stop 3A High-Head SI Pump.
25	**Check 3A Turbine Plant Cooling Water Pump - STOPPED**	Perform the following: a. Start 3B Turbine Plant Cooling Water Pump. b. **<u>IF</u>** 3B Turbine Plant Cooling Water Pump can **<u>NOT</u>** be started, **<u>THEN</u>** consult with the Shift Manager to determine if 3A Turbine Plant Cooling Water Pump can be stopped. c. **<u>IF</u>** 3A Turbine Plant Cooling Water Pump can **<u>NOT</u>** be stopped, **<u>THEN</u>** go to Step 33. d. Stop 3A Turbine Plant Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

When 3A 4KV bus is deenergized, the bearing oil lift pump will stop.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	**Check Main Turbine Components**	
	a. Check seal oil system - IN SERVICE	a. Go to Step 26e.
	b. Locally start Backup Air Side Seal Oil Pump	
	c. Check Auxiliary Oil Pump - STOPPED	c. Perform the following: 1) Start Emergency Bearing Oil Pump. 2) Stop Auxiliary Oil Pump.
	d. Check turning gear - STOPPED	d. Determine if main turbine turning gear can be stopped.
	e. Verify main turbine - READY FOR LOSS OF 3A 4KV BUS	e. <u>IF</u> loss of power to 3A 4KV bus will result in damage to main turbine, <u>THEN</u> go to Step 33.

CAUTIONS

- ***Continuing with this procedure without defeating the 3A Emergency Diesel Auto Start capability by placing the Master Control Switch to OFF (Step 14) will result in a restart of the EDG.***
- ***Steps 27 and 28 will deenergize 3A 4KV bus.***

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	**Check Station Blackout Breaker, 3AD07 - OPEN**	<u>IF</u> 3A 4KV bus is being energized using station blackout tie line, <u>THEN</u> perform the following: a. Open Station Blackout Breaker, 3AD07. b. Direct Unit 4 Reactor Operator to open Station Blackout Breaker, 4AD07.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
28	**Transfer 3A 4KV Bus To Unit 3 Startup Transformer**	
	a. Open or verify open all alternate supply breakers to 3A 4KV bus • 3AA02, Auxiliary Transformer 3A 4KV Bus Supply • 3AA09, 3A 4KV Bus Tie to 3B or 3C 4KV Bus • 3AA20, 3A Emergency Diesel to 3A 4KV Bus • 3AA22, 3A 4KV Bus Emergency Tie to Unit 4 Startup Transformer	
	b. Verify 3A 4KV bus stripping using ATTACHMENT 1	
	c. Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to ON	
	d. Close Startup Transformer 3A 4KV Bus Supply, 3AA05	d. **IF** Startup Transformer 3A 4KV Bus Supply, 3AA05, can **NOT** be closed, **THEN** perform the following: 1) Place Startup Transformer Sync To 3A 4KV Bus 3AA05 to OFF **AND** remove handle. 2) Direct Electrical Maintenance to determine cause of breaker failure. 3) Try to reenergize 3A 4KV bus using 3-ONOP-004.2, LOSS OF 3A 4KV BUS, while continuing with this procedure. 4) Go to Step 33.
	e. Place Startup Transformer Sync to 3A 4KV Bus 3AA05 to OFF **AND** remove handle	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	**Reenergize 3A Load Center**	
	a. Close 3A Load Center breaker, 3AA08	
	b. Check 3A Load Center - ENERGIZED	b. Perform the following: 1) Locally verify 3A Feed From 3A 4KV Bus breaker, 30102 - CLOSED. 2) **IF** 3A Load Center can **NOT** be reenergized, **THEN** consult with the Shift Manager to determine if 3A Load Center should be reenergized from opposite train source using 3 OP-006, 480 Volt Switchgear System.
30	**Reenergize 3C Load Center**	
	a. Close 3C Load Center breaker, 3AA14	
	b. Check 3C Load Center - ENERGIZED	b. Perform the following: 1) Locally verify 3C Feed From 3A 4KV Bus breaker, 30302 - CLOSED. 2) **IF** 3C Load Center can **NOT** be reenergized, **THEN** consult with the Shift Manager to determine if 3C Load Center should be reenergized from opposite train source using 3-OP-006, 480 Volt Switchgear System.
31	**Check 3H Load Center - ALIGNED TO AN ENERGIZED LOAD CENTER**	Manually align 3H Load Center to an energized load center.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTIONS

- ***CCW System loads for the EOP network, 3-ONOP-041.7, Shutdown LOCA [Mode 3 (Less than 1000 PSIG) or Mode 4] and 3-ONOP-041.8, Shutdown LOCA [Mode 5 or 6], shall not exceed the limits specified in 3–OP–030, COMPONENT COOLING WATER SYSTEM.***
- ***Ensuring the operation of Spent Fuel Pit cooling should be given a high priority during restoration from a Loss of Offsite Power.***

NOTE

If any component powered from a deenergized motor control center must be started, the affected motor control center needs to be reenergized using 3-OP-007, 480 VOLT MOTOR CONTROL CENTERS.

32 **Restart Components Supplied By 3A 4KV Bus As Directed By The Shift Manager**

* 3A Intake Cooling Water Pump
* 3A Component Cooling Water Pump
* 3A High-head SI Pump
* 3A Residual Heat Removal Pump
* 3A Turbine Plant Cooling Water Pump
* Auxiliary Oil Pump
* Bearing Oil Lift Pumps
* Main Turbine Turning Gear
* SFP Cooling Water Pump
* SFP Exhaust Fan
* Notify Chemistry to verify proper operation of the plant SPING units
* Other plant equipment required to stabilize unit operation as determined by the Shift Manager

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
33	**Locally Verify The Following Breakers - OPEN, RACKED OUT, AND LOCKED** * 3A 4KV Bus Emergency Tie to Unit 4 Startup Transformer, 3AA22 * 3A 4KV Bus Tie to 3B or 3C 4KV Bus, 3AA09	
34	**Direct Operator To Place 3A Emergency Diesel Master Control Switch To NORMAL**	
35	**Check Startup Transformer 3B 4KV Bus Supply, 3AB05 - OPEN**	Go to Step 64.
36	**Check 3B 4KV Bus - ENERGIZED**	Go to Step 57.
37	**Check 3B 4KV Bus - ENERGIZED BY 3B EMERGENCY DIESEL GENERATOR**	Go to Step 41.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

When the Startup Transformer breaker is closed, the EDG load will drop to zero. To prevent potential damage to the EDG, the EDG output breaker should be opened as soon as the Startup Transformer is verified to be carrying 4KV bus load.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
38	**Synchronize Unit 3 Startup Transformer To 3B 4KV Bus**	
	a. Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to ON	
	b. Verify running voltage matched incoming voltage	b. Adjust 3B Diesel Generator Voltage Regulator.
	c. Verify synchroscope - ROTATING SLOWLY IN FAST DIRECTION	c. Adjust 3B Diesel Generator Speed Changer.
	d. **WHEN** synchroscope pointer reaches 12 o'clock position, **THEN** close Startup Transformer 3B 4KV Bus Supply, 3AB05	d. **IF** Startup Transformer 3B 4KV Bus Supply, 3AB05, can **NOT** be closed, **THEN** perform the following: 1) Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to OFF **AND** remove handle. 2) Direct Electrical Maintenance to determine cause of breaker failure. 3) Go to Step 64.
	e. Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to OFF **AND** remove handle	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39	**Shutdown 3B Emergency Diesel Generator**	
	a. Open 3B Emergency Diesel to 3B 4KV Bus, 3AB20	a. Locally open breaker.
	b. Adjust 3B Emergency Diesel Generator frequency to 60 Hz using Diesel Generator Speed Changer	b. Locally adjust frequency.
	c. Adjust 3B Emergency Diesel Generator voltage to 4160 volts using Diesel Generator Voltage Regulator	c. Locally adjust voltage.
	d. Stop 3B Emergency Diesel Generator by placing the Diesel Generator 3B Normal Start/Normal Stop switch in NORMAL STOP	d. Locally stop 3B Emergency Diesel Generator.
	e. Place 3B Emergency Diesel Generator in normal standby alignment using 3–OP–023, Emergency Diesel Generator	
40	**Go To Step 64**	
41	**Check 3A 4KV Bus - ENERGIZED**	Perform the following: a. Try to energize 3A 4KV bus using one of the following: * 3-ONOP-004.2, LOSS OF 3A 4KV BUS OR * 3-OP-005, 4160 Volt Buses A, B, and D b. IF 3A 4KV bus can NOT be energized, THEN go to Step 64.
42	**Check Intake Cooling Water Headers- TIED TOGETHER**	Perform the following: a. IF both intake cooling water headers are intact, THEN tie headers together. b. IF intake cooling water headers can NOT be tied together, THEN go to Step 64.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
43	**Check CCW Headers - TIED TOGETHER**	Perform the following: a. IF both CCW headers are intact, THEN tie headers together. b. IF CCW headers can NOT be tied together, THEN go to Step 64.
44	**Direct Operator To Place 3B Emergency Diesel Master Control Switch To OFF**	
45	**Check 3D 4KV Bus - ALIGNED TO 3B 4KV BUS** • Supply from 4KV Bus 3B, 3AD06 - CLOSED • Feeder to 4KV Bus 3D, 3AB19 - CLOSED	Go to Step 50.
46	**Check Station Blackout Breaker, 3AD07 - OPEN**	Perform the following: a. IF Unit 4 4KV buses are being supplied from Unit 3 using station blackout tie line, THEN go to Step 62. b. Start 3A Intake Cooling Water Pump. c. Start 3A Component Cooling Water Pump. d. IF either pump can NOT be started, THEN go to Step 62.
47	**Check 3C Intake Cooling Water Pump-STOPPED**	Perform the following: a. Start 3A Intake Cooling Water Pump. b. IF 3A Intake Cooling Water Pump can NOT be started, THEN start 3B Intake Cooling Water Pump. IF neither pump can be started, THEN go to Step 62. c. Stop 3C Intake Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

When only one Component Cooling Water Pump is running, a MAXIMUM of TWO Emergency Containment Coolers are allowed to be running.

48	**Check 3C Component Cooling Water Pump - STOPPED**	Perform the following: a. Start 3A Component Cooling Water Pump. b. IF 3A Component Cooling Water Pump can NOT be started, THEN start 3B Component Cooling Water Pump. IF neither pump can be started, THEN go to Step 62. c. Stop 3C Component Cooling Water Pump.
49	**Check If 3D 4KV Bus Should Be Aligned To 3A 4KV Bus**	
	a. Check Station Blackout Breaker, 3AD07 - OPEN	a. Go to Step 50.
	b. Open Feeder to 4KV Bus 3D, 3AB19	
	c. Open Supply from 4KV Bus 3B, 3AD06	
	d. Close Supply from 4KV Bus 3A, 3AD01	
	e. Close Feeder to 4KV Bus 3D, 3AA17	
50	**Check 3B Intake Cooling Water Pump - STOPPED**	Perform the following: a. Start 3A Intake Cooling Water Pump. b. IF 3A Intake Cooling Water Pump can NOT be started, THEN start 3C Intake Cooling Water Pump. IF neither pump can be started, THEN go to Step 62. c. Stop 3B Intake Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

When only one Component Cooling Water Pump is running, a MAXIMUM of TWO Emergency Containment Coolers are allowed to be running.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
51	**Check 3B Component Cooling Water Pump - STOPPED**	Perform the following: a. Start 3A Component Cooling Water Pump. b. **IF** 3A Component Cooling Water Pump can **NOT** be started, **THEN** start 3C Component Cooling Water Pump. **IF** neither pump can be started, **THEN** go to Step 62. c. Stop 3B Component Cooling Water Pump.
52	**Check Charging Pumps** • 3A Charging Pump – RUNNING • 3B Charging Pump – STOPPED • 3C Charging Pump - STOPPED	Perform the following: a. Start 3A Charging Pump. b. **IF** 3A Charging Pump can **NOT** be started, **THEN** go to Step 62. c. Stop 3B Charging Pump. d. Stop 3C Charging Pump.
53	**Check 3B RHR Pump - STOPPED**	Perform the following: a. Start 3A RHR pump and align valves as directed by the Shift Manager to allow stopping of 3B RHR pump. b. Consult with the Shift Manager to determine if 3B RHR pump can be stopped. c. **IF** 3B RHR pump can **NOT** be stopped, **THEN** go to Step 62. d. Stop 3B RHR pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Injection into the RCS from at least two High-Head SI Pumps is required to be maintained during the injection phase of a large loss of reactor coolant accident.

54 **Check 3B High-Head SI Pump - STOPPED**

Perform the following:

a. Start 3A, 4A, or 4B High-Head SI Pump(s) **AND** align valves as directed by the Shift Manager to allow stopping of 3B High-Head SI Pump.

b. Consult with the Shift Manager to determine if 3B High-Head SI Pump can be stopped.

c. **IF** 3B High-Head SI Pump can **NOT** be stopped, **THEN** go to Step 62.

d. Stop 3B High-Head SI Pump.

55 **Check 3B Turbine Plant Cooling Water Pump - STOPPED**

Perform the following:

a. Start 3A Turbine Plant Cooling Water Pump.

b. **IF** 3A Turbine Plant Cooling Water Pump can **NOT** be started, **THEN** consult with the Shift Manager to determine if 3B Turbine Plant Cooling Water Pump can be stopped.

c. **IF** 3B Turbine Plant Cooling Water Pump can **NOT** be stopped, **THEN** go to Step 62.

d. Stop 3B Turbine Plant Cooling Water Pump.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTIONS

- ***Continuing with this procedure without defeating 3B Emergency Diesel Auto Start capability as outlined in Step 44 will result in a restart of the EDG.***
- ***Steps 56 and 57 will deenergize 3B 4KV bus.***

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
56	**Check Station Blackout Breaker, 3AD07 - OPEN**	IF 3B 4KV bus is being energized using station blackout tie line, THEN perform the following: a. Open Station Blackout Breaker, 3AD07. b. Direct Unit 4 Reactor Operator to open Station Blackout Breaker, 4AD07.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
57	**Transfer 3B 4KV Bus To Unit 3 Startup Transformer**	
	a. Open or verify open all alternate supply breakers to 3B 4KV bus • 3AB02, Auxiliary Transformer 3A 4KV Bus Supply • 3AB20, 3B Emergency Diesel to 3B 4KV Bus • 3AB22, 3B 4KV Bus Tie to 3A or 3C 4KV Bus	
	b. Verify 3B 4KV bus stripping using ATTACHMENT 2	
	c. Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to ON	
	d. Close Startup Transformer 3B 4KV Bus Supply, 3AB05	d. **IF** Startup Transformer 3B 4KV Bus Supply, 3AB05, can **NOT** be closed, **THEN** perform the following: 1) Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to OFF **AND** remove handle. 2) Direct Electrical Maintenance to determine cause of breaker failure. 3) Try to energize 3B 4KV bus using 3-ONOP-004.3, LOSS OF 3B 4KV BUS, while continuing with this procedure. 4) Go to Step 62.
	e. Place Startup Transformer Sync to 3B 4KV Bus 3AB05 to OFF **AND** remove handle	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
58	**Reenergize 3B Load Center**	
	a. Close 3B Load Center Breaker, 3AB09	
	b. Check 3B Load Center - ENERGIZED	b. Perform the following: 1) Locally verify 3B Feed from 3B 4KV Bus breaker, 30210 - CLOSED. 2) **IF** 3B Load Center can **NOT** be reenergized, **THEN** consult with the Shift Manager to determine if 3B Load Center should be reenergized from opposite train source using 3–OP–006, 480 VOLT SWITCHGEAR SYSTEM.
59	**Reenergize 3D Load Center**	
	a. Close 3D Load Center Breaker, 3AB14	
	b. Check 3D Load Center - ENERGIZED	b. Perform the following: 1) Locally verify 3D Feed from 3B 4KV Bus breaker, 30410 - CLOSED. 2) **IF** 3D Load Center can **NOT** be reenergized, **THEN** consult with the Shift Manager to determine if 3D Load Center should be reenergized from opposite train source using 3–OP–006, 480 VOLT SWITCHGEAR SYSTEM.
60	**Check 3H Load Center - ALIGNED TO AN ENERGIZED LOAD CENTER**	Manually align 3H Load Center to an energized load center.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

CCW System load requirements for the EOP network, 3-ONOP-041.7, SHUTDOWN LOCA [MODE 3 (LESS THAN 1000 PSIG] OR MODE 4] and 3-ONOP-041.8, SHUTDOWN LOCA [MODE 5 OR 6], SHALL NOT exceed the limits specified in 3–OP–030, COMPONENT COOLING WATER SYSTEM.

NOTE

If any component powered from a deenergized motor control center must be started, the affected motor control center needs to be reenergized using 3-OP-007, 480 VOLT MOTOR CONTROL CENTERS.

61 **Restart Components Supplied By 3B 4KV Bus As Directed By The Shift Manager**

a. Safety Related Components
- 3B Intake Cooling Water Pump
- 3B Component Cooling Water Pump
- 3B High-head SI Pump
- 3B Residual Heat Removal Pump
- 3B Turbine Plant Cooling Water Pump
- Verify one Auxiliary Building Exhaust Fan - RUNNING
- SFP Exhaust Fan

Response Not Obtained:

a. Sequencer failure may have occurred; perform the following:

1) Place the Sequencer XS-1 Enable key switch to OFF.

2) Attempt to close the breaker.

b. HVAC Equipment
- Computer Room Chiller
- Battery Room Air Conditioner - E16E (30609)

c. Other plant equipment required to stabilize unit operation as determined by the Shift Manager

d. Notify Chemistry to verify proper operation of the plant SPING units

62 **Locally Verify 3B 4KV Bus Tie To 3A Or 3C 4KV Bus 3AB22 -OPEN, RACKED OUT, AND LOCKED**

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
63	**Direct Operator To Place 3B Emergency Diesel Master Control Switch To NORMAL**	
64	**Check Startup Transformer 3A 4KV Bus Supply, 3AA05 - CLOSED**	Perform the following: a. IF previous attempts to close Startup Transformer 3A 4KV Bus Supply, 3AA05, in Steps 8 or 28 were NOT successful, THEN go to Step 65. b. IF 3A 4KV bus is deenergized, THEN return to Step 28. c. IF 3A 4KV bus is energized by a source other than 3A Emergency Diesel, THEN return to Step 11. d. IF 3A 4KV bus is energized by 3A Emergency Diesel, THEN return to Step 8.
65	**Check 3C Bus Supply From 3C Transformer, 3AC16 - OPEN**	Go to Step 76.
66	**Check Tie Breakers To 3A and 3B 4KV Buses - OPEN** • 3A 4KV Bus Tie to 3B or 3C 4KV Bus, 3AA09 • 3B 4KV Bus Tie to 3A or 3C 4KV Bus, 3AB22	Go to Step 76.
67	**Check 3C 4KV Bus Lockout Relay – Reset**	Perform the following: a. Direct Electrical Maintenance to determine and correct cause of 3C 4KV Bus Lockout Relay actuation. b. WHEN cause of 3C 4KV Bus Lockout Relay actuation has been determined and corrected, THEN locally reset Bus Lockout Relay. c. WHEN 3C 4KV Bus Lockout Relay has been reset, THEN do Steps 68 through 76. d. Continue with Step 76.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
68	**Check 3C Transformer Lockout Relay - RESET**	Perform the following: a. Try to determine and correct cause of 3C 4KV transformer lockout relay using 3-ONOP-092.4, C BUS TRANSFORMER MALFUNCTION b. **WHEN** cause of 3C 4KV transformer lockout relay actuation has been determined and corrected, **THEN** locally reset lockout relay. c. **WHEN** 3C 4KV transformer lockout relay has been reset, **THEN** do Steps 69 through 76. d. Continue with Step 76.
69	**Check 3C Transformer Supply Breakers - AT LEAST ONE CLOSED** • 8W118 OR • 8W154	Perform the following: a. **IF** offsite power is **NOT** available, **THEN** go to Step 76. b. **IF** offsite power is available, **THEN** locally close at least one 3C Transformer Supply Breaker: • 8W118 OR • 8W154 c. **IF** at least one 3C Transformer Supply Breaker can not be closed, **THEN** go to Step 76.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
70	**Stop Components Supplied By 3C 4KV Bus** • 3B Steam Generator Feedwater Pump • 3C Condensate Pump • A Standby Steam Generator Feedwater Pump • 3B RCP Oil Lift Pump • 3C RCP Oil Lift Pump • Water Treatment Plant • Traveling Screens	IF any component supplied by 3C 4KV bus can **NOT** be stopped, **THEN** go to Step 76.
71	**Deenergize Load Centers Supplied By 3C 4KV** • Open 3E Load Center Supply Breaker (Polishing Area), 3AC04 • Open 3F/3G Load Center Supply Breaker (Intake Area), 3AC11	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
72	**Transfer 3C 4KV Bus To 3C Transformer**	
	a. Open 3C Bus Alternate Supply from 4C Transformer, 3AC01	
	b. Open 3C 4KV Bus Tie to 3A or 3B 4KV Bus, 3AC13	
	c. Locally verify all breakers on 3C 4KV Bus - OPEN	
	d. Place 3C Bus Sync from 3C Transformer, 3AC16 to ON	
	e. Close 3C Bus Supply from 3C Transformer, 3AC16	e. **IF** 3C Bus Supply from 3C Transformer, 3AC16, can **NOT** be closed, **THEN** perform the following: 1) Place 3C Bus Sync from 3C Transformer, 3AC16 to OFF **AND** remove handle. 2) Direct Electrical Maintenance to determine cause of breaker failure. 3) Try to reenergize 3C 4KV Bus using 3-ONOP-004.4, LOSS OF 3C 4KV BUS, while continuing with this procedure. 4) Go to Step 76.
	f. Place 3C Bus Sync from 3C Transformer, 3AC16 to OFF **AND** remove handle	
73	**Locally Verify No Breaker Targets Exist On 3C 4KV Bus Breakers**	**IF** any 3C 4KV bus breaker target is in, **THEN** do **NOT** energize the associated component until cause of breaker target has been determined and corrected.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
74	**Reenergize Load Centers Supplied By 3C 4KV Bus** • Close 3E Load Center Supply Breaker (Polishing Area), 3AC04 • Close 3F/3G Load Center Supply Breaker (Intake Area), 3AC11	Perform the following: a. Restore affected load center(s) to normal alignment using 3-OP-006, 480 VOLT SWITCHGEAR SYSTEM. b. **IF** any load center can **NOT** be reenergized from 3C 4KV bus, **THEN** reenergize affected load center(s) from Unit 4 using 3-OP-006, 480 VOLT SWITCHGEAR SYSTEM.

NOTE

If any component powered from a deenergize motor control center must be started, the affected motor control center needs to be reenergized using 3-OP-007, 480 VOLT MOTOR CONTROL CENTER.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
75	**Restart Components Supplied By 3C 4KV Bus As Directed By The Shift Manager** • 3C Condensate Pump • 3B Steam Generator Feedwater Pump • A Standby Steam Generator Feedwater Pump • 3B RCP Oil Lift Pump • 3C RCP Oil Lift Pump • Water Treatment Plant • Other Plant equipment required to stabilize unit operation as determined by the Shift Manager	
76	**Check 3D 4KV Bus - ALIGNED TO AN ENERGIZED BUS** • 3A 4KV bus **OR** • 3B 4KV bus	Try to reenergize 3D 4KV bus using 3–ONOP-004.5, LOSS OF 3D 4KV BUS, while continuing with this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
77	**Verify All 4KV Buses - ENERGIZED BY OFFSITE POWER** • A 4KV bus • B 4KV bus • D 4KV bus • C 4KV bus	Perform the following: a. Direct System Dispatcher to continue efforts to restore offsite power to Unit 3 Startup Transformer and 3C Transformer. b. **WHEN** offsite power has been restored to Unit 3 Startup Transformer, **THEN** return to 3-ONOP-004.1, SYSTEM RESTORATION FOLLOWING LOSS OF OFFSITE POWER. c. **WHEN** offsite power has been restored to 3C Bus Transformer, **THEN** return to 3-ONOP-004.1, SYSTEM RESTORATION FOLLOWING LOSS OF OFFSITE POWER.
78	**Return To Procedure And Step In Effect**	

END OF TEXT

ATTACHMENT 1
(Page 1 of 1)

3A 4KV BUS STRIPPING

1. Verify the following breakers open:

   - 3AA22, 3A 4KV Bus Emergency Tie To Unit 4 Startup Transformer
   - 3AA09, 3A 4KV Bus Tie To 3B Or 3C 4KV Bus
   - 3AA05, Startup Transformer 3A 4KV Bus Supply
   - 3AA02, Auxiliary Transformer 3A Bus Supply
   - 3AA03, Steam Generator Feed Pump 3A
   - 3AA07, Heater Drain Pump 3A
   - 3AA21, Condensate Pump 3A
   - 3AA13, Safety Injection Pump 3A
   - 3AA15, Residual Heat Removal Pump 3A
   - 3AA12, Component Cooling Water Pump 3A
   - 3AA01, Reactor Coolant Pump 3A
   - 3AA19, Intake Cooling Water Pump 3A
   - 3AA11, Turbine Plant Cooling Water Pump 3A
   - 3AA16, Circulating Water Pump 3A1
   - 3AA18, Circulating Water Pump 3A2
   - 3AA08, 3A Load Center
   - 3AA14, 3C Load Center

2. IF Supply From 4KV Bus 3A, 3AD01, is open, **THEN** verify Feeder To 4KV Bus 3D, 3AA17, is open.

3. IF Supply From 4KV Bus 3A, 3AD01, is closed, **THEN** perform the following:

   a. IF Station Blackout Breaker, 3AD07, is closed, **THEN** perform the following:

      1) Open Station Blackout Breaker, 3AD07.

      2) Direct Unit 4 RCO to open Station Blackout Breaker, 4AD07.

   b. Verify breaker for Intake Cooling Water Pump 3C, 3AD05, is open.

   c. Verify breaker for Component Cooling Water Pump 3C, 3AD04, is open.

   d. IF breaker for Intake Cooling Water Pump 3C, 3AD05, **OR** breaker for Component Cooling Water Pump 3C, 3AD04, can **NOT** be opened, **THEN** open Feeder To 4KV Bus 3D, 3AA17, **AND** Supply From 4KV Bus 3A. 3AD01.

4. Notify Unit 3 Reactor Operator that 3A 4KV bus stripping has been completed.

ATTACHMENT 2
(Page 1 of 1)

3B 4KV BUS STRIPPING

1. Verify the following breakers open:

   - 3AB22, 3B 4KV Bus Tie To 3A Or 3C 4KV Bus
   - 3AB05, Startup Transformer 3B 4KV Bus Supply
   - 3AB02, Auxiliary Transformer 3B Bus Supply
   - 3AB10, Heater Drain Pump 3B
   - 3AB21, Condensate Pump 3B
   - 3AB12, Safety Injection Pump 3B
   - 3AB15, Residual Heat Removal Pump 3B
   - 3AB13, Component Cooling Water Pump 3B
   - 3AB01, Reactor Coolant Pump 3B
   - 3AB06, Reactor Coolant Pump 3C
   - 3AB17, Intake Cooling Water Pump 3B
   - 3AB11, Turbine Plant Cooling Water Pump 3B
   - 3AB16, Circulating Water Pump 3B1
   - 3AB18, Circulating Water Pump 3B2
   - 3AB09, 3B Load Center
   - 3AB14, 3D Load Center

2. **IF** Supply From 4KV Bus 3B, 3AD06, is open, **THEN** verify Feeder To 4KV Bus 3D, 3AA19, is open.

3. **IF** Supply From 4KV Bus 3B, 3AD06, is closed, **THEN** perform the following:

   a. **IF** Station Blackout Breaker, 3AD07, is closed, **THEN** perform the following:

      1) Open Station Blackout Breaker, 3AD07.

      2) Direct Unit 4 RCO to open Station Blackout Breaker, 4AD07.

   b. Verify breaker for Intake Cooling Water Pump 3C, 3AD05, is open.

   c. Verify breaker for Component Cooling Water Pump 3C, 3AD04, is open.

   d. **IF** breaker for Intake Cooling Water Pump 3C, 3AD05, **OR** breaker for Component Cooling Water Pump 3C, 3AD04, can **NOT** be opened, **THEN** open Feeder To 4KV Bus 3D, 3AB19, **AND** Supply From 4KV Bus 3B, 3AD06.

4. Notify Unit 3 Reactor Operator that 3B 4KV bus stripping has been completed.

FINAL PAGE

Facility:	Turkey Point	Task No:	01041003200
Task Title:	JPM: Preparation for OMS Operation	JPM No:	01041003201
K/A Reference:	010 A4.03 RO 4.0 SRO 3.8		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X

Classroom ______ Simulator X Plant ______

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- The plant is being shut down to Cold Shutdown.
- 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, is complete up through Step 4.1.1.6.E.
- Attachment 1, OMS Valve Alignment, of 3-NOP-041.04 has been completed.
- 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test, has been completed within the past 31 days.
- 3-OSP-206.2, Quarterly Inservice Valve Testing, has been performed within the last 31 days.

Initiating Cue:

- You have been directed to complete 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, starting with Step 4.1.1.7.

Task Standard:

- Applicant cycles MOV-3-535 and PCV-3-456 in accordance with 3-NOP-041.04, Section 4.1.1.B-E.
- Applicant actuates a manual Safety Injection within 16 minutes (see ADM-232, Time Critical Action Program, Attachment 2, Time Critical Operator Actions in the PTN PSA Model, Event ID RHFPACTSIM, Page 6 of 7) after the automatic SI setpoint of 1730 psig has been exceeded.

Required Materials:

- 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, marked up through Step 4.1.1.6.E.

General References:

- 3-NOP-041.04, Overpressure Mitigating System
- 3-GOP-305, Hot Standby to Cold Shutdown

Time Critical Task: Yes*

Validation Time: 10 minutes

* Time critical portion of this JPM is after the automatic SI setpoint of 1730 psig has been exceeded. The applicant has 16 minutes to actuate a Manual SI.

SIMULATOR SETUP

_____ 1. Reset to IC 193 for JPM or equivalent IC.

_____ 2. Place Simulator in RUN.

_____ 3. Open Lesson JPM - 01041003201 and Execute.

_____ 4. Ensure Simulator Operator Checklist is complete.

_____ 5. Acknowledge alarms and place Simulator in FREEZE.

_____ 6. Provide the Applicant with a copy of 3-NOP-041.04, Overpressure Mitigating System.

_____ 7. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

_____ 8. When ready to begin, then place Simulator in RUN.

Denote critical steps with a check mark (√) **Start Time** ______

STEP 1	Obtain required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 3-NOP-041.04, Overpressure Mitigating System.	
CUE	Provide the Applicant with a copy of 3-NOP-041.04, Overpressure Mitigating System, marked up through Step 4.1.1.6.E.	
COMMENT		

NOTE	**NOTE** • OMS Loop Operability Test is required to be completed prior to placing OMS in service if **NOT** done within the last 31 days. • Only one loop of OMS shall be tested at a time.	
STEP 2	**PERFORM** the following in the Control Room IF OMS N2 Backup leak and functional testing was **NOT** performed within the last 31 days, THEN **PERFORM** 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test. (3-NOP-041.04, Step 4.1.1.7 and 4.1.1.7.A)	SAT ______ UNSAT ______
STANDARD	Applicant notes that, per the Initial Conditions, 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test, has been performed within 31 days.	
CUE		
COMMENT		

STEP 3	**CYCLE** MOV-3-535, PRZ PORV BLOCK VALVE, as follows: IF OMS IST Valve testing **NOT** performed within the last 31 days, THEN **PERFORM** 3-OSP-206.2, Quarterly Inservice Valve Testing. (3-NOP-041.04, Step 4.1.1.7.B and 4.1.1.7.B.(1)	SAT ______ UNSAT ______
STANDARD	Applicant notes that, per the Initial Conditions, 3-OSP-206.2, Quarterly Inservice Valve Testing, has been performed within the last 31 days.	
CUE		
COMMENT		

STEP 4 √	**CLOSE** MOV-3-535, PRZ PORV BLOCK VALVE. (3-NOP-041.04, Step 4.1.1.7.B.(2)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for MOV-3-535, PRZ PORV BLOCK VALVE, to the CLOSE position. Notes that the green CLOSE light is ON and the red OPEN light is OFF.	
CUE		
COMMENT		

NOTE	**NOTE** UNSAT results should be recorded in the Unit Narrative Log.	
STEP 5 √	**CYCLE** PCV-3-456, PRZ PORV, full OPEN then CLOSED. (3-NOP-041.04, Step 4.1.1.7.C.)	SAT ______ UNSAT ______
STANDARD	1) Applicant places the control switch for PCV-3-456, PRZ PORV, to the OPEN position. Notes that the green CLOSE light is OFF and the red OPEN light is ON. 2) Applicant places the control switch for PCV-3-456, PRZ PORV, to the AUTO or CLOSE position. Notes that the green CLOSE light is ON and the red OPEN light is OFF. 3) Applicant marks SAT in the table.	
CUE		
COMMENT		

STEP 6 √	**ENSURE** PCV-3-456, PRZ PORV, is in AUTO. (3-NOP-041.04, Step 4.1.1.7.D.)	SAT ______ UNSAT ______
STANDARD	Applicant checks that the control switch for PCV-3-456, PRZ PORV is in the AUTO (mid) position.	
EXAMINER NOTE	**If PCV-3-456, PRZ PORV, is placed in AUTO during STEP 5 of this JPM, then this step becomes non-critical.**	
CUE		
COMMENT		

STEP 7 √	**OPEN** MOV-3-535, PRZ PORV BLOCK VALVE. (3-NOP-041.04, Step 4.1.1.7.E.)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for MOV-3-535, PRZ PORV BLOCK VALVE, to the OPEN position. Notes that the green CLOSE light is OFF and the red OPEN light is ON.	
CUE		
COMMENT		

STEP 8	**CYCLE** MOV-3-536, PRZ PORV BLOCK VALVE, as follows: IF OMS IST Valve testing **NOT** performed within the last 31 days, THEN **PERFORM** 3-OSP-206.2, Quarterly Inservice Valve Testing. (3-NOP-041.04, Step 4.1.1.7.F and 4.1.1.F.(1)	SAT ______ UNSAT ______
STANDARD	Applicant notes that, per the Initial Conditions, 3-OSP-206.2, Quarterly Inservice Valve Testing, has been performed within the last 31 days.	
CUE		
COMMENT		

STEP 9 √	**CLOSE** MOV-3-536, PRZ PORV BLOCK VALVE. (3-NOP-041.04, Step 4.1.1.7.F.(2)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for MOV-3-536, PRZ PORV BLOCK VALVE, to the CLOSE position. Notes that the green CLOSE light is ON and the red OPEN light is OFF.	
CUE		
COMMENT		

NOTE	NOTE UNSAT results should be recorded in the Unit Narrative Log.	
STEP 10 √	**CYCLE** PCV-3-455C, PRZ PORV, full OPEN then CLOSED. (3-NOP-041.04, Step 4.1.1.7.G.)	SAT ______ UNSAT ______
STANDARD	1) Applicant places the control switch for PCV-3-455C, PRZ PORV, to the OPEN position. Notes that the green CLOSE light is OFF and the red OPEN light is ON. Applicant notes: • PZR/RCS pressure decreasing • PZR level decreasing • Annunciators: ○ A 4/1 PORV/SAFETY VALVE OPEN ○ A 9/2 PRZ CONTROL HI/LOW PRESSURE ○ A 7/2 PZR PORV HI TEMP 2) Applicant places the control switch for PCV-3-456, PRZ PORV, to the CLOSE position. Notes that the green CLOSE light remains OFF and the red OPEN light remains ON. (Valve does NOT close) _______ Time at 1730 psig Pzr Pressure **[TIME CRITICAL]**. _______ Time of Manual Safety Injection **[TIME CRITICAL]**. **NOTE: Within 16 minutes (per PSA), Applicant actuates a manual SI by depressing at least one of the two SAFETY INJECTION INITIATION pushbuttons.** Manual SI is required by • 0-ADM-211, Emergency and Off-Normal Procedure Usage, 3-EOP-E-0 Reactor Trip or Safety Injection, or annunciator C 3/6 PZR LO PRESS SI	
TERMINATING CUE	**Evaluator informs the Applicant that another operator will perform subsequent actions. The JPM is complete.**	

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01041003201 - JPM: Preparation for OMS Operation

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

____

____

____

____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ____________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- The plant is being shut down to Cold Shutdown.
- 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, is complete up through Step 4.1.1.6.E.
- Attachment 1, OMS Valve Alignment, of 3-NOP-041.04 has been completed.
- 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test, has been completed within the past 31 days.
- 3-OSP-206.2, Quarterly Inservice Valve Testing, has been performed within the last 31 days.

Initiating Cue:

- You have been directed to complete 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, starting with Step 4.1.1.7.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- The plant is being shut down to Cold Shutdown.
- 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, is complete up through Step 4.1.1.6.E.
- Attachment 1, OMS Valve Alignment, of 3-NOP-041.04 has been completed.
- 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test, has been completed within the past 31 days.
- 3-OSP-206.2, Quarterly Inservice Valve Testing, has been performed within the last 31 days.

Initiating Cue:

- You have been directed to complete 3-NOP-041.04, Overpressure Mitigating System, Section 4.1.1, starting with Step 4.1.1.7.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

FPL	**TURKEY POINT UNIT 3** **NORMAL OPERATING PROCEDURE** SAFETY RELATED **CONTINUOUS USE**	Procedure No. **3-NOP-041.04** Revision No. **3A**

Title:

OVERPRESSURE MITIGATING SYSTEM

Responsible Department: **OPERATIONS**

Special Considerations:

> This is an Upgraded Procedure. Initial use should include increased awareness because of potential technical and/or sequential changes to the procedure. After initial use of this procedure, provide comments back to the Procedure Upgrade Project.

FOR INFORMATION ONLY
Before use, verify revision and change documentation (if applicable) with a controlled index or document.
DATE VERIFIED__________ INITIAL__________

Revision	Approved By	Approval Date
0	Frank Wurster	12/14/08
3A	Michael Coen	10/10/11

UNIT #	UNIT 3
DATE	
DOCT	PROCEDURE
DOCN	3-NOP-041.04
SYS	
STATUS	COMPLETED
REV	3A
# OF PGS	

REVISION SUMMARY	
Rev. No.	**Description**
3A	**AR 1694429, 10/10/11, Adrian Gonzalez** Editorial correction to include additional sign off of nitrogen bottle and regulator pressures in the Unit Narrative Logs. (Pages 7 and 8, Section 4.1.1 Step 6.A(9) and Section 4.1.1 Step 6.C(8).
3	**AR 1644653, 04/26/11, David Dagitz** Revised Attachment 1 to change the normal position of Valves 3-40-2322, 3-40-2323, 3-40-248, 3-40-249, 3-40-258, and 3-40-259 from CLOSED to CLOSED & CAPPED. (CR 460181) Change PI-4-4886A to PI-3-4886A, Section 4.1.1 Step 6.C(7).
2	**AR 589449, 10/23/10, David Dagitz** This expedited revision is to add Attachments 2 and 3 to the procedure to allow using temporary nitrogen bottles for the OMS in Modes 5, 6, or defueled and to ensure the proper coated bottles are back in place prior to entering Mode 4 from Mode 5.
1	**PCR 08-5983, 03/24/09, Dennis Bonsall** Revised procedure for implementation of PC/M 07-044, which adds a nitrogen bottle rack for additional nitrogen bottles and tubing for nitrogen bottle connection.
0	This procedure upgraded per PCR **08-1653, 12/13/08, Frank Wurster**. Upgraded entire procedure to Writer's Guide standards. Moved Prerequisites into applicable sections. Deleted QA Pages and references to them throughout. Logging the activity satisfies all QA record requirements. Deleted logging statements throughout. The requirements on what to log are covered in Conduct of Operations, 0-ADM-200 and Operations Narrative Logbooks, 0-ADM-204. Added specific guidance for checking N_2 bottles in containment. Added additional guidance for changing N_2 bottles. This procedure supersedes 3-OP-41.4 approved 2/21/05.

TABLE OF CONTENTS

1.0 PURPOSE

This procedure provides guidance for aligning and placing the Overpressure Mitigating System (OMS) in service and removing from service.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. Compressed gas cylinders shall always be stored upright, with their caps in place, in approved safe areas away from radiators, furnaces, and other sources of heat.

2. Stored cylinders must be restrained at all times.

3. Compressed gas cylinders should never be subjected to temperatures above 125°F.

4. Pressure shall be relieved before dismantling valves, gauges, or similar equipment associated with compressed gas.

2.2 Limitations

1. Extreme care should be used to prevent damage to adjacent equipment when working on top of the Pressurizer.

3.0 PREREQUISITES

None

4.0 NORMAL OPERATION

4.1 Startup

4.1.1 Preparation for OMS Operation

> **NOTE**
>
> Section 4.1.1 Step 1 through Section 4.1.1 Step 4 may be performed out of order.

1. **CHECK** Instrument Air System available.

> **NOTE**
>
> Previous performance of Attachment 1, OMS Valve Alignment, may be verified by the Shift Manager file if **NO** work has been performed on PORVs, PORV Back-up N_2 System, Instrument Air to PORVs, or in upper area of the Pressurizer cubicle and personnel safety is a concern. Use of a previous Attachment 1, OMS Valve Alignment, shall be recorded in the Unit Narrative Log.

2. **CHECK** OMS valve alignment by completion of Attachment 1, OMS Valve Alignment.

3. **ENSURE** nitrogen regulator outlet pressure for PCV-3-4885 and PCV-3-4886 is established in accordance with 3-PMI-041.39, Reactor Coolant System Power Operated Relief Valve Actuator Overhaul/Maintenance.

> **NOTE**
>
> Exercising the PORV Block Valve is **NOT** required per T.S. 4.4.4 if the PORV Block Valve is closed due to a leaky or inoperable PORV.

4. IF PORV Block Valve operability has **NOT** been demonstrated within the last 92 days, THEN **ENSURE** operability using 3-OSP-206.2, Quarterly Inservice Valve Testing, prior to placing OMS in service.

4.1.1 Preparation for OMS Operation (continued)

NOTE

If there is an adequate supply of charged Nitrogen bottles that meet SPEC-C-034, Protective Coatings for Service Level 1 Applications Inside the Reactor Containment Building, as indicated by being marked **Nitrogen for PRZ PORVs Only**, then Attachment 3, OMS Backup Nitrogen Cylinder Verification - Prior to Mode 4 from Mode 5, should be performed.

5. **CHECK** N_2 bottles inside Containment using either Attachment 2, OMS Backup Nitrogen Cylinder Verification - Modes 5, 6, and Defueled, OR Attachment 3, OMS Backup Nitrogen Cylinder Verification - Prior to Mode 4 from Mode 5.

NOTE

Section 4.1.1 Step 6 and Section 4.1.1 Step 7 may be performed concurrently.

6. **PERFORM** the following in Containment:

NOTE

The nitrogen cylinder isolation valve is considered 3-40-2443, PORV NITROGEN CYLINDER ISOLATION, when in-service. The valve tag for 3-40-2443 is moved with the flex hose connection when the cylinder is replaced.

N/A A. IF N_2 pressure is less than 2000 psig as indicated on PI-3-4885A, PCV-3-4885 UPSTREAM PRESSURE INDICATOR, THEN **CHANGE** the N_2 bottle as follows:

N/A (1) **CLOSE** 3-40-2443, PORV NITROGEN CYLINDER ISOLATION.

CAUTION

No vent valve exists in the N_2 cylinder supply header. Pressure will be relieved as the flex hose is disconnected.

N/A (2) Slowly **DISCONNECT** flex hose from in-service N_2 bottle.

N/A (3) **CONNECT** flex hose to new N_2 bottle.

4.1.1 Preparation for OMS Operation (continued)

6. A. **(continued)**

N/A N/A (4) **ENSURE** the valve label for 3-40-2443 is moved from the nitrogen cylinder just removed from service to the nitrogen cylinder being placed in service.

N/A (5) Slowly **OPEN** new in-service cylinder isolation valve 3-40-2443.

N/A (6) **ENSURE** connection **NOT** leaking.

> **NOTE**
>
> Maximum design inlet pressure for the regulator is 3000 psig.

N/A (7) **CHECK** N_2 pressure greater than 2000 psig on PI-3-4885A.

N/A (8) IF PI-3-4885A reads less than 2000 psig, THEN **REPEAT** Section 4.1.1 Step 6.A(1) through Section 4.1.1 Step 6.A(7).

N/A (9) Log bottle and regulator pressure in the Unit Narrative Logs.

> **NOTE**
>
> The operating pressure range for the regulator is between 2000 and 2400 psig with an output pressure range of 90 to 96 psig.

B. **ENSURE** PCV-3-4885 set to maintain 90 to 96 psig on PI-3-4885B, PCV-3-4885 DOWNSTREAM PRESSURE INDICATOR.

4.1.1 Preparation for OMS Operation (continued)

6. (continued)

NOTE

The nitrogen cylinder isolation valve is considered 3-40-2444, PORV NITROGEN CYLINDER ISOLATION, when in-service. The valve tag for 3-40-2444 is moved with the flex hose connection when the cylinder is replaced.

N/A C. IF N_2 pressure is less than 2000 psig, as indicated on PI-3-4886A, PCV-3-4886 UPSTREAM PRESSURE INDICATOR, THEN **CHANGE** the N_2 bottle as follows:

N/A (1) **CLOSE** 3-40-2444, PORV NITROGEN CYLINDER ISOLATION.

CAUTION

NO vent valve exists in the N_2 cylinder supply header. Pressure will be relieved as the flex hose is disconnected.

N/A (2) Slowly **DISCONNECT** flex hose from in-service N_2 bottle.

N/A (3) **CONNECT** flex hose to new N_2 bottle.

N/A (4) **ENSURE** valve label 3-40-2444 moved from nitrogen cylinder just removed from service to nitrogen cylinder being placed in service.

N/A (5) Slowly **OPEN** new in-service cylinder stop valve 3-40-2444, AND **ENSURE** connection **NOT** leaking.

NOTE

Maximum design inlet pressure for the regulator is 3000 psig.

N/A (6) **CHECK** N_2 pressure greater than 2000 psig on PI-3-4886A.

N/A (7) IF PI-3-4886A reads less than 2000 psig, THEN **REPEAT** Section 4.1.1 Step 6.C(1) through Section 4.1.1 Step 6.C(6).

4.1.1 Preparation for OMS Operation (continued)

6. C. (continued)

N/A (8) Log bottle and regulator pressure in the Unit Narrative Logs.

> **NOTE**
>
> The operating pressure range for the regulator is between 2000 and 2400 PSIG with an output pressure range of 90 to 96 PSIG.

D. **CHECK** PCV-3-4886 set to maintain 90 to 96 PSIG on PI-3-4886B, PCV−3−4886 DOWNSTREAM PRESSURE INDICATOR.

> **NOTE**
>
> Operating Experience has demonstrated that cycling SV-3-6427A, REACTOR COOLANT SYSTEM HOT LEG LOOP A SAMPLE LINE SOLENOID VALVE, during OMS operation can cause a pressure event resulting in PORV actuation. This is due to the common instrument tap used by OMS pressure sensing line for PT-3-405, RCS Wide Range Pressure to OMS, and the sample line.

E. **INITIATE** a clearance on fuses for SV-3-6427A, REACTOR COOLANT SYSTEM HOT LEG LOOP A SAMPLE LINE SOLENOID VALVE, to Assistant Operations Manager per 0-ADM-212, In-plant Equipment Clearance Orders.

4.1.1 Preparation for OMS Operation (continued) **INITIAL**

7. **PERFORM** the following in the Control Room

NOTE

- OMS Loop Operability Test is required to be completed prior to placing OMS in service if **NOT** done within the last 31 days.
- Only one loop of OMS shall be tested at a time.

A. IF OMS N_2 Backup leak and functional testing was **NOT** performed within the last 31 days, THEN **PERFORM** 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test.

B. **CYCLE** MOV-3-535, PRZ PORV BLOCK VALVE, as follows:

(1) IF OMS IST Valve testing **NOT** performed within the last 31 days, THEN **PERFORM** 3-OSP-206.2, Quarterly Inservice Valve Testing.

(2) **CLOSE** MOV-3-535, PRZ PORV BLOCK VALVE. ______

______ IV

NOTE

UNSAT results should be recorded in the Unit Narrative Log.

C. **CYCLE** PCV-3-456, PRZ PORV, full OPEN then CLOSED.

PORV	SAT	UNSAT
PCV-3-456		

D. **ENSURE** PCV-3-456, PRZ PORV, is in AUTO. ______

______ IV

E. **OPEN** MOV-3-535, PRZ PORV BLOCK VALVE. ______

______ IV

4.1.1 Preparation for OMS Operation (continued) **INITIAL**

7. (continued)

F. CYCLE MOV-3-536, PRZ PORV BLOCK VALVE, as follows:

(1) IF OMS IST Valve testing **NOT** done within the last 31 days, THEN **PERFORM** 3-OSP-206.2, Quarterly Inservice Valve Testing.

(2) **CLOSE** MOV-3-536, PRZ PORV BLOCK VALVE. ______

______ IV

NOTE
UNSAT results should be recorded in the Unit Narrative Log.

G. CYCLE PCV-3-455C, PRZ PORV, full OPEN then CLOSED.

PORV	SAT	UNSAT
PCV-3-455C		

H. ENSURE PCV-3-455C, PRZ PORV, is in AUTO. ______

______ IV

I. OPEN MOV-3-536, PRZ PORV BLOCK VALVE. ______

______ IV

4.2 Operation

INITIAL

4.2.1 Establishing and Checking OMS Operation

1. **CHECK** Section 4.1.1 completed.

> **NOTE**
>
> The following values should indicate within 20 psig of each other.

2. **COMPARE** and **RECORD** values shown by the following indicators to verify availability of PT-3-403 and PT-3-405:

   - PI-3-405 (VPB)__________psig
   - PI-3-403 (VPA)__________psig
   - PI-3-402 (VPA)__________psig

3. IF values are greater than 20 psig of each other, THEN **NOTIFY** I&C.

4. WHEN RCS Cold Leg Temperature is less than 300°F, THEN:

   A. **PLACE** Primary OMS Mode Selector Switch in LO PRESS OPS. ______

   ______ IV

   B. **PLACE** Backup OMS Mode Selector Switch in LO PRESS OPS. ______

   ______ IV

5. **CHECK** the following permissive status lights ON:

   - PRIMARY ALIGNED
   - BACKUP ALIGNED

6. **RECORD** OMS <u>established</u> and <u>operating</u> in Unit Narrative Log.

4.3 Shutdown

4.3.1 Transferring OMS to Normal

1. **CHECK** all RCS cold leg temperatures greater than 275°F, as required by T.S. 3.4.9.3.

2. **CHECK** RCS pressure less than 415 psig.

3. **CHECK** OMS operating in LO PRESS OPS.

4. **PLACE** both OMS Control Switches in NORMAL:

   - PCV-3-455C, BACKUP OMS
   - PCV-3-456, PRIMARY OMS

5. **CHECK** the following permissive status lights OFF:

   - PRIMARY ALIGNED
   - BACKUP ALIGNED

NOTE

Annunciator should clear when RCS pressure rises above 415 PSIG.

6. **CHECK** Annunciator A 3/1, OMS LO PRESS OPERATION, in ALARM.

7. **REQUEST** Assistant Operations Manager release ECO on SV-3-6427A fuses.

5.0 INFREQUENT OPERATIONS

None

6.0 RECORDS

1. Date, time, and section completed, shall be entered in Unit Narrative Log.

2. Problems encountered while performing procedure (i.e., malfunctioning equipment, delays due to change in plant conditions, etc.) should be entered in Unit Narrative Log.

7.0 REFERENCES AND COMMITMENTS

7.1 References

7.1.1 Implementing

- 0-ADM-212, In-Plant Equipment Clearance Orders
- 3-PMI-041.39, Reactor Coolant System Power Operated Relief Valve Actuator Overhaul/Maintenance
- 3-OSP-041.4, Overpressure Mitigating System Nitrogen Backup Leak and Functional Test
- 0-OSP-200.1, Schedule of Plant Checks and Surveillances
- 3-OSP-206.2, Quarterly Inservice Valve Testing

7.1.2 Developmental

1. Technical Specifications
   - Section 3/4.4.9, Pressure/Temperature Limits
   - Section 3.4.9.3, Overpressure Mitigating Systems

7.1.2 Developmental (continued)

2. Plant Procedures

   - 0-ADM-215, Plant Surveillance Tracking Program

3. Plant Drawings

   - 5610-T-D-16A, Sheet 1, Pressurizer Pressure Protection and Overpressure Mitigation System
   - 5613-M-3041, Sheet 4, Reactor Coolant System PORV Control

4. Miscellaneous Documents

   - PC/M 89-565, Pressurizer PORV Air and Nitrogen Supply Tubing Enhancement
   - PC/M 90-220, RTD Bypass Elimination Modification and Eagle 21 Installation
   - CR 99-0508
   - PC/M 01-050, AOV Modification and Program Parameter Documentation
   - PTN-ENG-SENS-03-0046, Enabling the Cold Overpressure Mitigation System at Higher Temperature
   - Response to GL 90-06, L-92-285

7.1.3 Management Directives

None

7.2 <u>Commitments</u>

None

ATTACHMENT 1
OMS Valve Alignment
(Page 1 of 4)

EXCEPTIONS		
COMPONENT NUMBER	**COMPONENT DESCRIPTION**	**REMARKS**

PERSONNEL PERFORMING MANIPULATIONS	
PRINTED NAME	**INITIALS**

COMPLETION OF LINEUP			
DATE LINEUP COMPLETED:	(MM/DD/YY): ___/___/___	TIME LINEUP COMPLETED:	(HH:MM, 24 HR CLOCK): ___:___
LINEUP COMPLETED BY:	PRINTED NAME / SIGNATURE: ___/___		

REVIEW OF LINEUP			
LINEUP REVIEWED BY:	PRINTED NAME / SIGNATURE: ___/___	DATE	(MM/DD/YY): ___/___/___

ATTACHMENT 1
OMS Valve Alignment
(Page 2 of 4)

COMPONENT NUMBER	COMPONENT DESCRIPTION	POSITION REQUIRED	ALIGNED BY	VERIFIED BY
In Containment - entrance to or inside Pressurizer cubicle				
NOTE 1: Position can be verified by Control Room position indication.				
MOV-3-536	PRZ PORV BLOCK VALVE	OPEN (NOTE 1)		
MOV-3-535	PRZ PORV BLOCK VALVE	OPEN (NOTE 1)		
3-40-2348	OPENING THROTTLE VALVE FOR PCV-3-455C	LOCKED/ LOCKING DEVICE INTACT		
3-40-2349	CLOSING THROTTLE VALVE FOR PCV-3-455C	LOCKED/ LOCKING DEVICE INTACT		
3-40-2350	OPENING THROTTLE VALVE FOR PCV-3-456	LOCKED/ LOCKING DEVICE INTACT		
3-40-2351	CLOSING THROTTLE VALVE FOR PCV-3-456	LOCKED/ LOCKING DEVICE INTACT		

ATTACHMENT 1
<u>OMS Valve Alignment</u>
(Page 3 of 4)

COMPONENT NUMBER	COMPONENT DESCRIPTION	POSITION REQUIRED	ALIGNED BY	VERIFIED BY
In Containment - on side of Pressurizer cubicle				
3-40-247	PORV INSTRUMENT AIR ISOLATION	OPEN		
3-40-249	PORV INSTRUMENT AIR LINE VENT	CLOSED & CAPPED		
3-40-248	PORV INSTRUMENT AIR LINE VENT	CLOSED & CAPPED		
3-40-2443	PORV NITROGEN CYLINDER ISOLATION	OPEN		
3-40-243	PORV NITROGEN REGULATOR OUTLET	OPEN		
3-40-257	PORV INSTRUMENT AIR ISOLATION	OPEN		
3-40-259	PORV INSTRUMENT AIR LINE VENT	CLOSED & CAPPED		
3-40-258	PORV INSTRUMENT AIR LINE VENT	CLOSED & CAPPED		
3-40-2444	PORV NITROGEN CYLINDER ISOLATION	OPEN		
3-40-253	PORV NITROGEN REGULATOR OUTLET	OPEN		
3-40-2322	PORV TEST CONN ISOLATION	CLOSED & CAPPED		
3-40-2323	PORV TEST CONN ISOLATION	CLOSED & CAPPED		

ATTACHMENT 1
OMS Valve Alignment
(Page 4 of 4)

COMPONENT NUMBER	COMPONENT DESCRIPTION	POSITION REQUIRED	ALIGNED BY	VERIFIED BY
In Containment - on side of Pressurizer cubicle (continued)				
NOTE 2: Valves with same number appear as two handles on same block. Care should be taken to verify correct alignment.				
3-40-2357 **(NOTE 2)**	PORV N_2 PI-3-4886A VENT VALVE	CLOSED		
3-40-2357 **(NOTE 2)**	PORV N_2 PI-3-4886A ISOLATION VALVE	OPEN		
3-40-2358 **(NOTE 2)**	PORV N_2 PI-3-4886B VENT VALVE	CLOSED		
3-40-2358 **(NOTE 2)**	PORV N_2 PI-3-4886B ISOLATION VALVE	OPEN		
3-40-2359 **(NOTE 2)**	PORV N_2 PI-3-4885A VENT VALVE	CLOSED		
3-40-2359 **(NOTE 2)**	PORV N_2 PI-3-4885A ISOLATION VALVE	OPEN		
3-40-2360 **(NOTE 2)**	PORV N_2 PI-3-4885B VENT VALVE	CLOSED		
3-40-2360 **(NOTE 2)**	PORV N_2 PI-3-4885B ISOLATION VALVE	OPEN		

ATTACHMENT 2
OMS Backup Nitrogen Cylinder Verification - Modes 5, 6, and Defueled
(Page 1 of 1)

INITIAL

1. OMS backup nitrogen cylinders are staged inside Containment as follows:

   A. Six fully charged (2200 to 2450 psig) nitrogen cylinders in 58-foot elevation storage rack next to the Pressurizer.

   B. All nitrogen cylinders are 300 cu ft cylinders stamped with DOT or ICC #3AA2400.

   C. Nitrogen bottles stored as follows:

      1) Upright
      2) Restrained
      3) Caps in place
      4) In approved safe areas away from:
         - Radiators
         - Furnaces
         - Other sources of heat
         - Temperature above 125 degrees°F

NITROGEN BOTTLE VERIFICATION			
DATE VERIFICATION COMPLETED:	(MM/DD/YY): today XX / XX / XX	TIME VERIFIED: half hour ago	(HH:MM, 24 HR CLOCK): XX : XX
VERIFICATION COMPLETED BY:	PRINTED NAME / SIGNATURE: James Smith / James Smith		

REVIEW OF NITROGEN BOTTLE VERIFICATION			
VERIFICATION REVIEWED BY:	PRINTED NAME / SIGNATURE: Troy Dillon / Troy Dillon	DATE:	(MM/DD/YY): today XX / XX / XX

ATTACHMENT 3
OMS Backup Nitrogen Cylinder Verification - Prior to Mode 4 from Mode 5
(Page 1 of 1)

INITIAL

1. OMS backup nitrogen cylinders are staged inside Containment as follows:

   A. Six fully charged (2200 to 2450 psig) nitrogen cylinders in 58-foot elevation storage rack next to the Pressurizer. ______

   B. All nitrogen cylinders are 300 cu ft cylinders stamped with DOT or ICC #3AA2400.

   C. Gas cylinders are coated per SPEC-C-034 as indicated by being marked **Nitrogen for PZR PORVs only**. ______

   D. Nitrogen bottles stored as follows:

      (1) Upright ______

      (2) Restrained ______

      (3) Caps in place ______

      (4) In approved safe areas away from:

      - Radiators ______
      - Furnaces ______
      - Other sources of heat ______
      - Temperature above 125 degrees°F ______

NITROGEN BOTTLE VERIFICATION			
DATE VERIFICATION COMPLETED:	(MM/DD/YY): ____/____/____	TIME VERIFIED:	(HH:MM, 24 HR CLOCK): ____:____
VERIFICATION COMPLETED BY:	PRINTED NAME / SIGNATURE: ____________/____________		

REVIEW OF NITROGEN BOTTLE VERIFICATION			
VERIFICATION REVIEWED BY:	PRINTED NAME / SIGNATURE: ____________/____________	DATE:	(MM/DD/YY): ____/____/____

Facility:	Turkey Point	Task No:	01041038100
Task Title:	JPM: Start 3A RCP in Mode 3	JPM No:	01041038101
K/A Reference:	003 A2.03 RO 2.7 SRO 3.1		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X

Classroom ______ Simulator X ______ Plant ______

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in Mode 3 with Shutdown Banks withdrawn in preparation for a plant startup.
- 3A RCP was shut down twenty minutes ago for maintenance.
- The Unit Supervisor has entered TS 3.4.1.2, LCO Action b for 2 Reactor Coolant Loops in service. (40 minutes remains prior to direction to open Reactor Trip Breakers)
- 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*, has been completed through Step 4.1.1.15.
- Electrical Maintenance Supervisor or Component Engineering Supervisor have NOT authorized any higher limits for continued RCP operations.
- Personnel are in Containment.

Initiating Cue:

- You have been directed to start the 3A RCP, beginning with Step 4.1.1.16 of 3-NOP-041.01A.

Task Standard:

- 3A RCP started IAW 3-NOP-041.01A.
- 3B RCP secured IAW 3-ONOP-041.1 per the foldout page.

Required Materials:

- 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*
- Stopwatch

General References:

- 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*

Time Critical Task: No

Validation Time: 20 minutes

SIMULATOR SETUP

______ 1. Reset to IC 194 or equivalent IC.

______ 2. Place Simulator in RUN.

______ 3. Open Lesson JPM - 01041038101 and Execute.

______ 4. Ensure Simulator Operator Checklist is complete.

______ 5. Ensure RCP A MOTOR DETAILS is on DCS.

______ 6. Acknowledge alarms and place simulator in FREEZE.

______ 7. Provide a copy of 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*, marked-up as complete through Step 15.

______ 8. Provide a stopwatch.

______ 9. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

______ 10. When ready to begin, then place the Simulator in RUN.

Denote critical steps with a check mark (√)

Start Time ______

STEP 1	Obtain required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*.	
CUE	Provide the Applicant with a copy 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*, up through Section 4.3.1, and marked-up as complete through Step 15. Provide a stopwatch.	

NOTE	**CAUTION** • 3A RCP Oil Lift Pump operation should be limited to 15 minutes during normal RCP starting evolutions. Exception may be taken during off-normal operation or troubleshooting. • Prolonged operation of 3A RCP Oil Lift Pump may cause air entrainment in the oil resulting in the inability to achieve RCP prestart oil pressure.	
STEP 2 √	**START** 3A RCP Oil Lift Pump. WHEN 3A RCP Oil Lift Pump has operated for at least two minutes AND prior to starting 3A RCP, THEN **CHECK** white permissive light ON. (3-NOP-041.01A, Step 16)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for 3A RCP Oil Lift Pump in the START position. Notes that the green STOP light is OFF and the red ON light is ON.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT	White permissive light takes about 2 minutes after Lift Oil Pump start.	

NOTE	**NOTE** • All associated RCP instrumentation (i.e., Seal Leak-off Flow, #1 Seal Differential Pressure) should be available and indicating properly for current plant conditions. • If the RCS is NOT vented, 3A RCP should only be operated for as long as directed by 3-OP-041.8, Filling and Venting the Reactor Coolant System. • Sudden changes in VCT temperature can cause the #1 Seal faceplates to warp. This can result in a reduction in #1 seal leakoff flow until seal temperature stabilizes. When possible, changes to VCT temperature should be gradual, approximately 5°F per day. **CAUTION** • When 3A RCP started with the Overpressure Mitigating System (OMS) is in Low Pressure Operation, RCS pressure should be closely monitored using highest indicating channel. RCS Loops without a RCP running have highest indicated pressure. There is only a 110 psig margin between the RCS operating pressure range of 325 to 350 psig and the PORV lift setpoint of 460 psig. • 3A RCP #1 Seal Differential Pressure should be monitored during RCP starts at low pressure. 3A RCP shall be stopped if seal differential pressure drops to 225 psid. • Starting 3A RCP causes a voltage transient that could be enough to adversely affect Containment Air Gaseous/Particulate Monitors, R11/R12, sample skid operation.	
STEP 3 √	**START** 3A RCP while monitoring both of the following: • Starting current as indicated on 3A RCP motor ammeter • RCS loop flow rate rise as indicated on FI-3-414, 415, or 416, A LOOP RCS FLOW. (3-NOP-041.01A, Step 17)	SAT ______ UNSAT ______
STANDARD	Applicant places the control switch for 3A RCP in the START position. Notes that the green STOP light is OFF and the red RUN light is ON. Applicant monitors amps on the 3A RCP ammeter and monitors RCS loop A flow rate on FI-3-414.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT	**EVALUATOR NOTES:** The following annunciators will alarm on pump start: • SU XFMRS PANEL TROUBLE (X 3/4) • RCP A/B/C MOTOR OVERLOAD (B 1/5)	

STEP 4	WHEN 3A RCP has operated for at least one minute, THEN **STOP** 3A RCP Oil Lift Pump. (3-NOP-041.01A, Step 19)	SAT _______ UNSAT _______
STANDARD	Applicant stops 3A Oil Lift Pump RCP after one minute.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT	**EVALUATOR NOTE:** The following annunciator will alarm on 3A RCP start for **3B RCP**: • RCP MOTOR/SHAFT HI VIB (F 1/1) [90 seconds after start of 3A RCP]	

STEP 5	IF 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is **NOT** within limits of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, within three minutes of starting 3A RCP, THEN **STOP** 3A RCP. (3-NOP-041.01A, Step 20)	SAT _______ UNSAT _______
STANDARD	Applicant observes 3A RCP #1 seal leak-off flow on FR-3-154A.	
CUE		
COMMENT	**EVALUATOR NOTE:** The following annunciator will alarm on 3A RCP start for **3B RCP**: • RCP MOTOR/SHAFT HI VIB (F 1/1) [90 seconds after start of 3A RCP]	

	CAUSES: 1. RCP high vibration 2. Failed probe or spiking due to electrical transients F1 **RCP MOTOR/SHAFT HI VIB** DEVICE: Bracket mounted probes SETPOINT: 15 mils on shaft 4 mils on motor LOCATION: N/A	
NOTE	**NOTE** Local DANGER indication lights on Cabinet 95 in Cable Spreading Room are set at: • 20 mils on shaft • 5 mils on meter (motor)	
STEP 6	**ALARM CONFIRMATION** **CHECK** RCP Vibration recorder R-3-369. (3-ARP-097.CR.F, F 1/1)	SAT ______ UNSAT ______
STANDARD	Applicant checks RCP Vibration recorder R-3-369.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT		

STEP 7	**OPERATOR ACTIONS** 1. **DISPATCH** operator to check vibration indications in Cable Spreading Room. (3-ARP-097.CR.F, F 1/1)	SAT ______ UNSAT ______
STANDARD	Applicant directs Field Supervisor or Unit 3 Turbine Operator to check vibration indications in Cable Spreading Room.	
CUE	**Booth Operator acknowledges direction.**	

STEP 8	**OPERATOR ACTIONS** 2. IF vibration is above alarm setpoint, THEN **GO TO** 3-ONOP-041.1, Reactor Coolant Pump Off-Normal. (3-ARP-097.CR.F, F 1/1)	SAT ______ UNSAT ______
STANDARD	Applicant enters 3-ONOP-041.1, Reactor Coolant Pump Off-Normal.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT		

NOTE	**CAUTION** *Containment entries shall NOT be performed when there are indications of an RCP seal package failure until the reactor is shutdown and RCS pressure/temperature is reduced to minimize leakage.* **NOTES** • *Foldout Page is required to be monitored throughout this procedure.* • *Off-normal RCP conditions that require shutdown of an RCP shall be verified by cross-checking all RCP parameters.* • *If either 3B or 3C RCP is stopped by the performance of this procedure, then the associated RCS loop pressurizer spray valve should be closed to prevent backflow through the valve.*	
STEP 9	Foldout Page is required to be monitored throughout this procedure. (3-ONOP-041.1, Page 7)	SAT ______ UNSAT ______
STANDARD	Applicant monitors Foldout Page.	
CUE	**If Reactor Operator informs Unit Supervisor, then acknowledge the report.**	
COMMENT		

STEP 10 √	**FOLDOUT PAGE FOR PROCEDURE 3-ONOP-041.1** 2. RCP STOPPING CRITERIA IF any of the following RCP limits are reached, **THEN** manually trip the reactor and verify reactor trip using the EOP network AND then stop the affected RCP, and close PCV-3-455A, PZR Spray Valve Loop C, or PCV-3-455B, PZR Spray Valve Loop B, if applicable. • RCP number one seal ΔP - LESS THAN 200 psid. • RCP number one seal leakoff temperatures on DCS - GREATER THAN OR EQUAL TO 235°F. • RCP pump bearing temperature on DCS - GREATER THAN OR EQUAL TO 225°F. • RCP motor bearing temperature on DCS - GREATER THAN OR EQUAL TO 195°F. • RCP stator winding temperature on DCS - GREATER THAN OR EQUAL TO 248°F. Note exception in Foldout Page Item 4. • Motor frame vibration, R-3-369 (Points 1, 2, 5, 6, 9, 10) - GREATER THAN OR EQUAL TO 5 MILS. Note exception in Foldout Page Item 4. • RCP shaft vibration, R-3-369 (Points 3, 4, 7, 8, 11, 12) - GREATER THAN OR EQUAL TO 20 MILS. Note exception in Foldout Page Item 4. (3-ONOP-041.1, Foldout Page)	SAT ______ UNSAT ______
STANDARD	Applicant verifies 3B RCP has shaft vibration, R-3-369 (Points 3, 4, 7, 8, 11, 12) - GREATER THAN OR EQUAL TO 20 MILS and performs the following: 1. Manually trips the Reactor 2. Verifies Reactor Trip using the 3-EOP-E-0 3. Stops 3B RCP **CRITICAL STEP** 4. Closes PCV-3-455B, PZR Spray Valve Loop B	
TERMINATING CUE	**After 3B RCP is tripped and PCV-3-455B is closed, then the** **Evaluator informs Applicant that another operator will complete the remaining steps of this procedure. This completes the JPM.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01041038101 - JPM: Start 3A RCP in Mode 3

Examinee's Name: ______

Examiner's Name: ______

Date Performed: ______

Facility Evaluator: ______

Number of Attempts: ______

Time to Complete: ______

Question Documentation:

Question:

______

______

______

______

______

Response:

______

______

______

______

______

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______ ______

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in Mode 3 with Shutdown Banks withdrawn in preparation for a plant startup.
- 3A RCP was shut down twenty minutes ago for maintenance.
- The Unit Supervisor has entered TS 3.4.1.2, LCO Action b for 2 Reactor Coolant Loops in service. (40 minutes remains prior to direction to open Reactor Trip Breakers)
- 3-NOP-041.01A, *3A Reactor Coolant Pump Operations*, has been completed through Step 4.1.1.15.
- Electrical Maintenance Supervisor or Component Engineering Supervisor have NOT authorized any higher limits for continued RCP operations.
- Personnel are in Containment.

Initiating Cue:

- You have been directed to start the 3A RCP, beginning with Step 4.1.1.16 of 3-NOP-041.01A.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

JPM BRIEFING SHEET

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FPL	**TURKEY POINT UNIT 3** **NORMAL OPERATING PROCEDURE** SAFETY RELATED **CONTINUOUS USE**	Procedure No. **3-NOP-041.01A** Revision No. **1** Effective Date **08/06/10**

Title:

3A REACTOR COOLANT PUMP OPERATIONS

Responsible Department: **OPERATIONS**

Special Considerations:

> This is an Upgraded Procedure. Initial use should include increased awareness because of potential technical and/or sequential changes to the procedure. After initial use of this procedure, provide comments back to the Procedure Upgrade Project.

> Performance of this procedure may affect core reactivity.

FOR INFORMATION ONLY
Before use, verify revision and change documentation (if applicable) with a controlled index or document.
DATE VERIFIED__________ INITIAL__________

Revision	Approved By	Approval Date
0	Frank Wurster	12/19/08
1	Brian Stamp	08/02/10

UNIT #	UNIT 3
DATE	
DOCT	PROCEDURE
DOCN	3-NOP-041.01A
SYS	
STATUS	COMPLETED
REV	1
# OF PGS	

REVISION SUMMARY

Rev. No.	Description
1	**PCR 10-1222, 08/02/10, David Dagitz** Removed unnecessary Caution about preceding Steps 4.1.1.10 and 5.1.4.

TABLE OF CONTENTS

1.0 PURPOSE

This procedure provides guidance for starting and stopping 3A Reactor Coolant Pump (RCP). This procedure also provides guidance for 3A RCP infrequent operations such as uncoupled pump operation, adjusting Seal Injection flow, filling the RCP standpipe, and resetting an unresponsive 3A RCP Partial Discharge Monitor.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 <u>Precautions</u>

1. Personnel entering 3A RCP area should wear ear protection during RCP operation.
2. Reactor shall be shutdown prior to restart of 3A RCP.
3. Tech Spec 3.4.1.1 requires all loops be in operation in MODES 1 and 2.
4. O-ring seals deteriorate rapidly as temperature approaches 350°F.

2.2 <u>Limitations</u>

1. 3A RCP shall **NOT** be started if Reactor Coolant Loops could potentially be at significantly lower boron concentration than the Reactor Vessel. 0-ONOP-041.9, Potential Dilution of Reactor Coolant Loop(s), provides instructions for ensuring required boron concentrations are achieved prior to RCP operation.
2. Unless 3A RCP oil reservoir level is checked locally, 3A RCP motor shall only be started when oil reservoir high/low level alarm is clear.
3. 3A RCP Oil Lift Pump should **NOT** be operated when CCW is isolated from oil coolers. Momentary operation of the Oil Lift Pump without CCW, such as for uncoupled motor bump for rotation check, is acceptable.
4. If Component Cooling Water (CCW) to 3A RCP is lost, 3A RCP shall be stopped before either upper or lower bearing temperature has risen to 195°F and the Oil Lift Pump shall be stopped.
5. 3A RCP shall **NOT** be started with <u>one</u> or more RCS cold leg temperatures less than or equal to 275°F unless secondary water temperature of each steam generator is less than 50°F above each RCS cold leg temperature. (Tech. Spec. 3/4.4.1.3)

2.2 Limitations (continued)

6. If Reactor Coolant System (RCS) is solid, both of the following apply:

   - If all RCPs are stopped for 10 minutes, running Residual Heat Removal (RHR) pump outlet temperature should be determined and RHR Hx flow adjusted to maintain that temperature.

   - If the two-pump RCS fill and vent method is used and SG U-tubes were drained, a pressurizer bubble should be formed before the last RCP is started to prevent an RCS pressure event.

7. RCP motor starting duty limits are:

   - With the motor at ambient temperature, two successive starts are allowed. The motor shall be allowed to coast to rest between starts.

   - With the motor at operating temperature, one start is allowed. Subsequent starts require the motor be allowed to cool by standing idle for one hour or by running for one half hour.

   - Starts are limited to three within a 2 hour period. Subsequent starts are allowed only after standing idle for one hour.

8. If any of the following limits are reached:

   - Motor vibration 4 mils or shaft vibration 15 mils.

   - Motor upper bearing or lower bearing temperature 195°F.

   - Motor bearing oil reservoir high/low level alarm, unless level verified locally.

NOTE

Stator winding temperature limit may be exceeded for a short time during cold RCP operation.

   - Stator winding temperature 248°F.

   - Pump bearing temperature 225°F.

   - #1 seal leak-off temperature 235°F.

2.2 Limitations (continued)

8. (continued)

- #1 seal leak-off on narrow range recorder is less than 0.2 gpm at low pressure conditions, unless visual inspection shows satisfactory leak-off, or less than 1.0 gpm at normal system pressure per Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure.

- #1 seal leak-off flow greater than 5.0 gpm.

- #1 seal ΔP less than 200 psid.

- Seal injection water is **NOT** required to a running RCP in either of the following conditions:

    - All #1 seal leak-off RCP bearing and CCW temperatures are within limits specified in this procedure and RCS temperature less than 150°F.

    - #1 seal leak-off rate is less than 5 gpm and at least 25 gpm CCW flow at an inlet temperature of less than 105°F flowing through thermal barrier cooling coil.

- Seal injection water temperature 130°F as indicated on TI-3-116, VCT. Temperature may rise to 150°F if RCS temperature is less than 400°F.

3-ONOP-041.1, Reactor Coolant Pump Off-Normal, provides necessary guidance for restoration.

3.0 PREREQUISITES

None

4.0 NORMAL OPERATIONS

4.1 Startup

4.1.1 Starting 3A Reactor Coolant Pump

> **NOTE**
>
> Section 4.1.1 Step 1 through Section 4.1.1 Step 15 may be performed in any order.

1. **CHECK** the following systems available or in operation as necessary to support RCP operation:
   - Component Cooling Water System
   - Chemical and Volume Control System
   - Primary Water System
   - Instrument Air System
   - Waste Disposal System
   - Reactor Coolant System
2. **CHECK** the following plant electrical systems energized to support RCP operation:
   - 3A 4160V Bus
   - 3A MCC
   - LP-34
3. **ENSURE** 3A RCP switch and breaker alignments per:
   - Attachment 1, 3A Reactor Coolant Pump And Oil Lift Pump Switch Alignment
   - Attachment 2, 3A Reactor Coolant Pump And Oil Lift Pump Breaker Alignment

4.1.1 Starting 3A Reactor Coolant Pump (continued)

4. N/A IF starting the first RCP, THEN **CHECK** the following conditions have **NOT** occurred that would indicate a RCS loop or portion thereof may have been diluted during the time RCPs were secured:

- N/A Steam Generator tube(s) ruptured.
- N/A Large boration of the RCS occurred after the RCPs were shutdown.
- N/A Reported or observed activity which may have diluted the water in the RCS.
- N/A RCS Sample indicates a loop has been diluted.

5. N/A IF a RCS loop or portion thereof was diluted, THEN **GO TO** 0-ONOP-041.9, Potential Dilution of Reactor Coolant Loop(s).

CAUTION

Starting 3A RCP may cause 3A Emergency Diesel Generator (EDG), if paralleled to 3A 4160V bus, to trip, and could damage 3A EDG.

6. **ENSURE** 3A EDG is **NOT** paralleled to 3A 4160V Bus.

7. **ENSURE** VCT pressure is controlled to maintain one of the following

- In the normal range of 16 to 25 psig
- As required to maintain RCP seal leak-off and as specified by Chemistry

8. N/A IF FI-3-130, RCP A SEAL INJECTION FLOW INDICATOR, does **NOT** indicate 6 to 13 gpm, THEN **ADJUST** seal injection flow per Section 5.3.

4.1.1 Starting 3A Reactor Coolant Pump (continued)

9. IF thermal barrier differential pressure is less than <u>zero</u> inches of water, as indicated on PI-3-131A, A RCP THERMAL BARRIER D/P, THEN:

> **NOTE**
>
> A minimum of 6 gpm required for RCP Seal Injection.

A. While RCO monitors DCS RCP Detailed Data Summary display for flow changes, SNPO locally **ADJUST** 3-297A, 3A RCP SEAL WATER SUPPLY, to obtain 6 to 13 gpm.

B. IF 3-297A is full OPEN AND seal injection flow is less than 6 gpm, THEN, while SNPO monitors RCP seal injection flow locally, RCO **ADJUST** HCV-3-121, CHARGING FLOW TO REGEN HX, CLOSED to maximize seal injection flow.

> **NOTE**
>
> Following initial verification of RCP CCW flows and S/G temperatures, re-verification is **N/A** for subsequent RCP starts if, at discretion of the Shift Manager, **NO** intervening activities occurred to adversely impact those flows or temperatures.

10. **CHECK** the following CCW flows:

- FI-3-630, RCP A THERMAL BARRIER CCW RETURN FLOW INDICATOR, indicates 21 to 30 gpm.
- FI-3-628, RCP A LOWER BEARING CCW RETURN FLOW INDICATOR, indicates 5 to 10 gpm.
- FIC-3-629, RCP A CCW RETURN FLOW, indicates 150 to 163 gpm or, when on RHR, 138 to 145 gpm.

11. IF RCS cold leg temperature is less than or equal to 275°F AND **NO** RCPs are RUNNING, THEN **CHECK** Steam Generator secondary water temperature less than 10°F above RCS temperature in 3A, 3B, and 3C Steam Generators using Section 5.6.

12. **CHECK** 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, within limits shown in Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure.

4.1.1 Starting 3A Reactor Coolant Pump (continued)

12. (continued)

N/A **A.** IF #1 seal leak-off flow less than lower limit of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, THEN **REFER TO** Section 5.5.1.

N/A **B.** IF #1 seal leak-off flow greater than upper limit of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, THEN **REFER TO** Section 5.5.2.

> **NOTE**
>
> RCS pressure range is 325 to 350 psig for solid plant condition.

13. IF PI-3-156, A RCP #1 SEAL ΔP, indicates less than 225 psid across #1 seal, THEN **ENSURE** RCS pressure greater than 325 psig.

14. IF Annunciator G 2/1 - RCP A STANDPIPE HI LEVEL, is in ALARM, THEN **GO TO** 3-ONOP-041.1, Reactor Coolant Pump Off-Normal.

15. IF Annunciator G 3/1 - RCP A STANDPIPE LO LEVEL, is in ALARM, THEN **FILL** the standpipe per Section 5.7.

> **CAUTION**
>
> - 3A RCP Oil Lift Pump operation should be limited to 15 minutes during normal RCP starting evolutions. Exception may be taken during off-normal operation or troubleshooting.
> - Prolonged operation of 3A RCP Oil Lift Pump may cause air entrainment in the oil resulting in the inability to achieve RCP prestart oil pressure.

16. **START** 3A RCP Oil Lift Pump as follows:

A. **START** 3A RCP Oil Lift Pump.

B. WHEN 3A RCP Oil Lift Pump has operated for at least two minutes AND prior to starting 3A RCP, THEN **CHECK** white permissive light ON.

4.1.1 Starting 3A Reactor Coolant Pump (continued)

NOTE

- All associated RCP instrumentation (i.e., Seal Leak-off Flow, #1 Seal Differential Pressure) should be available and indicating properly for current plant conditions.
- If the RCS is **NOT** vented, 3A RCP should only be operated for as long as directed by 3-OP-041.8, Filling and Venting the Reactor Coolant System.
- Sudden changes in VCT temperature can cause the #1 Seal faceplates to warp. This can result in a reduction in #1 seal leakoff flow until seal temperature stabilizes. When possible, changes to VCT temperature should be gradual, approximately 5°F per day.

CAUTION

- When 3A RCP started with the Overpressure Mitigating System (OMS) is in Low Pressure Operation, RCS pressure should be closely monitored using highest indicating channel. RCS Loops without a RCP running have highest indicated pressure. There is only a 110 psig margin between the RCS operating pressure range of 325 to 350 psig and the PORV lift setpoint of 460 psig.
- 3A RCP #1 Seal Differential Pressure should be monitored during RCP starts at low pressure. 3A RCP shall be stopped if seal differential pressure drops to 225 psid.
- Starting 3A RCP causes a voltage transient that could be enough to adversely affect Containment Air Gaseous/Particulate Monitors, R11/R12, sample skid operation.

17. **START** 3A RCP while monitoring <u>both</u> of the following:
    - Starting current as indicated on 3A RCP motor ammeter
    - RCS loop flow rate rise as indicated on FI-3-414, 415, or 416, A LOOP RCS FLOW

NOTE

Motor current will normally be 637 amps and shall be maintained less than 943 amps, except for starting current.

18. IF RCP starting current is greater than 943 amps after 25 seconds, THEN **STOP** 3A RCP.

4.1.1 Starting 3A Reactor Coolant Pump (continued)

19. WHEN 3A RCP has operated for at least one minute, THEN **STOP** 3A RCP Oil Lift Pump.

20. IF 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is **NOT** within limits of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, within three minutes of starting 3A RCP, THEN **STOP** 3A RCP.

21. IF indication on R11/R12 sample skid does **NOT** return, THEN **REQUEST** I&C start sample pumps in MANUAL MODE locally at skid.

22. **ENSURE** VCT pressure is controlled to maintain one of the following:

- In the normal range of 16 and 25 psig.
- As required to maintain RCP seal leak-off and as specified by Chemistry.

4.1.1 Starting 3A Reactor Coolant Pump (continued)

23. WHEN 3A RCP has operated for more than 10 minutes, THEN **CHECK** conditions on DCS stabilized less than maximum values listed below:

> **NOTE**
>
> Stator Winding maximum temperature may be exceeded during RCP cold operation (i.e., first start attempt).

Table 1 - RCP Startup Temperature Ranges

PARAMETER	MAX °F	NORM °F	STABLE YES	STABLE NO
#1 Seal Leak-off	235	100-190		
Pump Bearing	225	160		
Upper Thrust Bearing	190	150		
Lower Thrust Bearing	190	150		
Upper Guide Bearing	190	150		
Lower Guide Bearing	190	125		
Stator Winding	248	200		

A. **CHECK** seal water injection flow on FI-3-130 between 6 and 13 gpm.

> **NOTE**
>
> RCP Vibration indicated on Recorder 369 and on DCS.

B. **CHECK** RCP shaft vibration less than 15 mils.

C. **CHECK** RCP motor vibration less than 4 mils.

4.2 Operation

None

4.3 Shutdown

4.3.1 Stopping 3A Reactor Coolant Pump

1. **STOP** 3A RCP.

CAUTION

- CCW to 3A RCP is required until RCS temperature is less than 150°F and 3A RCP is idle for at least a half hour.
- Seal Injection water to 3A RCP is required when RCS temperature is greater than 150°F and RCS pressure is greater than 100 psig, or when CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION, is OPEN.

2. **MAINTAIN** CCW to 3A RCP motor bearing oil cooler for at least one half hour or until RCS temperature is less than 150°F after stopping the RCP.

5.0 INFREQUENT OPERATIONS

5.1 Starting 3A RCP Motor With Pump Uncoupled

1. **CHECK** 3A RCP motor UNCOUPLED.

2. **CHECK** the following plant electrical systems energized to support RCP motor operation:

   - 3A 4160V Bus
   - 3A MCC
   - LP-34

3. **ENSURE** 3A RCP switch and breaker alignments per:

   - Attachment 1, 3A Reactor Coolant Pump And Oil Lift Pump Switch Alignment
   - Attachment 2, 3A Reactor Coolant Pump And Oil Lift Pump Breaker Alignment

> **NOTE**
>
> CCW is **NOT** required for rotation check of RCP uncoupled motor.

4. IF CCW is required, THEN **CHECK** the following CCW flows:

   - FI-3-628, RCP A LOWER BEARING CCW RETURN FLOW INDICATOR, indicates 5 to 10 gpm
   - FIC-3-629, RCP A CCW RETURN FLOW, indicates 150 to 163 gpm or 138 to 145 gpm when on RHR

5. **START** 3A RCP Oil Lift Pump.

6. **CHECK** white permissive light ON.

5.1 Starting 3A RCP Motor With Pump Uncoupled (continued)

NOTE

- Current reading may be noticeably lower than normal with motor uncoupled.
- Motor run time for RCP uncoupled motor rotation check should be less than 15 seconds.

7. WHEN 3A RCP Oil Lift Pump has run for at least two minutes, THEN **START** 3A RCP motor while monitoring starting current.

8. IF 3A RCP motor starting current is greater than 943 amps after 25 seconds, THEN **STOP** 3A RCP motor.

9. WHEN 3A RCP motor has operated for at least one minute, THEN **STOP** 3A RCP Oil Lift Pump.

10. WHEN 3A RCP motor has operated for more than 10 minutes, THEN **CHECK** conditions stabilized less than maximum values listed below:

Table 2 - RCP Temperature Channel Readings

	RECORDER PT			MAX	NORM	STABLE	
PARAMETER	**A**	**B**	**C**	**°F**	**°F**	**YES**	**NO**
Upper Thrust Bearing	7	8	9	190	150		
Lower Thrust Bearing	10	11	12	190	150		
Upper Guide Bearing	13	14	15	190	150		
Lower Guide Bearing	16	17	18	190	125		
Stator Winding	20	21	22	248	200		

NOTE

RCP Vibration is indicated on recorder 369 and on DCS.

A. **CHECK** RCP shaft vibration less than 15 mils.

B. **CHECK** RCP motor vibration less than 4 mils.

5.2 Stopping Uncoupled 3A Reactor Coolant Pump Motor

1. **STOP** 3A RCP motor.

2. IF CCW was supplied to motor bearing oil cooler during the uncoupled run, THEN **MAINTAIN** CCW to motor bearing oil cooler for at least one half hour after stopping motor.

5.3 Adjustment of 3A RCP Seal Injection Flow

CAUTION

3-ONOP-041.1, Reactor Coolant Pump Off-Normal, should be used to address loss of seal flow with temperature greater than 170°F.

1. **CHECK** 3A RCP seal injection flow outside normal range of 6 to 13 gpm as indicated locally or on DCS.

2. **NOTIFY** Shift Manager of performance of this Section.

NOTE

- Performance of this Section requires coordination between the RCO and SNPO to minimize the time seal flow is outside normal range on 3A RCP.
- During performance of subsequent steps, Annunciator A 6/5, RCP LABYRINTH SEAL ΔP, is an expected alarm.
- Seal injection flow adjustments need to be made in small increments to prevent cocking #1 seal and ensuring seal injection flow is responding on local and DCS instrumentation.

3. **ENSURE** HCV-3-121, CHARGING FLOW TO REGEN HX, is full OPEN.

NOTE

If minimum seal injection flow of 6 gpm can **NOT** be obtained, the throttle valve should be full OPEN.

4. While the RCO monitors DCS RCP Detailed Data Summary display for flow changes, SNPO locally **ADJUST** 3-297A, 3A RCP SEAL WATER SUPPLY, to obtain 6 to 13 gpm.

5. IF Annunciator A 6/6, SEAL WATER INJ FILTER HI ΔP, is in ALARM, THEN **PLACE** Standby Seal Injection Filter in service using 3-OP-047, CVCS - Charging and Letdown.

6. IF actions to restore seal injection flow to greater than 6 gpm are **NOT** successful, THEN **GO TO** 3-ONOP-041.1, Reactor Coolant Pump Off-Normal.

5.3 Adjustment of 3A RCP Seal Injection Flow (continued)

NOTE

To minimize potential operating problems, HCV-3-121 should be full OPEN or as close to full OPEN as possible while Annunciator A 6/5, RCP LABYRINTH SEAL LO ΔP, is maintained CLEAR.

7. IF Annunciator A 6/5, RCP LABYRINTH SEAL LO ΔP, is in ALARM, THEN **ADJUST** HCV-3-121 CLOSED to clear alarm.

8. IF HCV-3-121, CHARGING FLOW TO REGEN HX, is adjusted to clear Annunciator A 6/5, RCP LABYRINTH SEAL LO ΔP, THEN **DIRECT** SNPO locally ADJUST 3-297A, 3A RCP SEAL WATER SUPPLY, to obtain 6 to 13 gpm.

9. **CHECK** DCS and local Seal Injection flow indication AGREE.

5.4 Resetting Unresponsive 3A RCP Partial Discharge Monitor

1. IF 3A RCP partial discharge monitor is unresponsive, THEN:

   A. **ENSURE** flux map detectors withdrawn to drive unit.

   B. **OPEN** 3C MCC breaker 30768, LIGHTING XFMR NO. 37 CNTMT ELEVATION 14 FT.

   C. **CLOSE** 3C MCC breaker 30768.

   D. **REQUEST** Predictive Maintenance Department check proper operation of 3A RCP partial discharge monitor.

   E. **ENSURE** flux map detectors restored to desired position.

5.5 Response to High/Low 3A RCP #1 Seal Leak-off Flow

5.5.1 Response to Low 3A RCP #1 Seal Leak-off Flow

1. IF 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is less than the lower limit of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, THEN **PERFORM** one of the following:

A. IF Hand-Rotating 3A RCP Rotating Element, THEN:

(1) **OBTAIN** Engineering approval for this option:

_______________________________ __________
Engineering Representative Date

(2) **REQUEST** Maintenance hand-rotate 3A RCP rotating element.

(3) WHEN Maintenance is ready to hand-rotate 3A RCP rotating element, THEN:

a. **START** 3A RCP Oil Lift Pump.

b. **CHECK** white permissive light ON.

(4) WHEN hand-rotation of 3A RCP rotating element complete, THEN **DETERMINE** if 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, within limits of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure

(5) IF 3A RCP #1 seal leak-off flow is within the limits of Attachment 3, THEN **RETURN TO** Section 4.1.1 Step 12.

(6) IF 3A RCP #1 seal leak-off flow is **NOT** within the limits of Attachment 3, THEN **CONSULT** Engineering for another option.

5.5.1 Response to Low 3A RCP #1 Seal Leak-off Flow (continued)

1. (continued)

B. IF Cycling CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION, THEN:

(1) **OBTAIN** Engineering approval for this option:

__________________________________ __________

Engineering Representative   Date

CAUTION

CV-3-303A shall remain closed for less than <u>one</u> minute and may be cycled a maximum of <u>three</u> times.

(2) **CLOSE** CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION.

(3) **OPEN** CV-3-303A.

(4) **DETERMINE** if 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, within limits of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure.

(5) IF 3A RCP #1 seal leak-off flow is within the limits of Attachment 3, THEN **RETURN TO** Section 4.1.1 Step 12.

(6) IF 3A RCP #1 seal leak-off flow is **NOT** within the limits of Attachment 3, THEN **REPEAT** Section 5.5.1 Step 1.B(2) through Section 5.5.1 Step 1.B(4) up to <u>two</u> more times.

(7) IF 3A RCP #1 seal leak-off flow is **NOT** within the limits of Attachment 3, THEN **CONSULT** Engineering for another option.

5.5.1 Response to Low 3A RCP #1 Seal Leak-off Flow (continued)

1. (continued)

C. IF visually verifying 3A RCP #1 Seal Leakoff, THEN:

(1) **OBTAIN** Engineering approval for this option:

_______________________________ __________

Engineering Representative Date

(2) **CLOSE** CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION.

> **NOTE**
>
> 3A RCP #3 Seal Leak-off line indication found at containment 14-foot elevation trough.

(3) **DETERMINE** if flow through 3A RCP #3 Seal Leak-off line within prescribed limits of greater than lower limit of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, and less than 5 gpm.

(4) **OPEN** CV-3-303A.

(5) IF 3A RCP #3 seal leak-off flow is within prescribed limits, THEN **RETURN TO** Section 4.1.1 Step 12.

(6) IF 3A RCP #3 Seal Leak-off flow is **NOT** within prescribed limits, THEN **CONSULT** Engineering for another option.

5.5.2 Response to High 3A RCP #1 Seal Leak-off Flow

1. IF 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is greater than the upper limit of Attachment 3, Unit 3 Reactor Coolant Pump Operation Figure, THEN **PERFORM** one of the following:

   A. IF 3A RCP #1 Seal Leak-off is less than 5 gpm, THEN:

      (1) **OBTAIN** Engineering approval to allow continued operation outside the limits of Attachment 3 and less than 5 gpm:

      ______________________________ __________
      Engineering Representative Date

      (2) **DETERMINE** if 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, within the prescribed limits.

      (3) IF 3A RCP #1 seal leak-off flow is within the prescribed limits, THEN **RETURN TO** Section 4.1.1 Step 12.

   B. IF Hand-Rotating 3A RCP Rotating Element, THEN:

      (1) **OBTAIN** Engineering approval for this option:

      ______________________________ __________
      Engineering Representative Date

      (2) **REQUEST** Maintenance hand-rotate 3A RCP rotating element.

      (3) WHEN Maintenance is ready to hand-rotate 3A RCP rotating element, THEN:

         a. **START** 3A RCP Oil Lift Pump.

         b. **CHECK** white permissive light ON.

      (4) WHEN hand-rotation of 3A RCP rotating element complete, THEN **DETERMINE** if 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is less than the upper limit of Attachment 3.

      (5) IF 3A RCP #1 seal leak-off flow is less than the upper limit of Attachment 3, THEN **RETURN TO** Section 4.1.1 Step 12.

5.5.2 Response to High 3A RCP #1 Seal Leak-off Flow (continued)

1. B. (continued)

(6) IF 3A RCP #1 seal leak-off flow is greater than the upper limit of Attachment 3, THEN **CONSULT** Engineering for another option.

C. IF Cycling CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION, THEN:

(1) **OBTAIN** Engineering approval for this option:

______________________________ __________
Engineering Representative Date

> **CAUTION**
>
> CV-3-303A shall remain closed for less than <u>one</u> minute and may be cycled a maximum of <u>three</u> times.

(2) **CLOSE** CV-3-303A, 3A RCP #1 SEAL LEAKOFF ISOLATION.

(3) **OPEN** CV-3-303A.

(4) **DETERMINE** if 3A RCP #1 seal leak-off flow, as indicated on FR-3-154A or FR-3-154B, is less than the upper limit of Attachment 3.

(5) IF 3A RCP #1 seal leak-off flow is less than the upper limit of Attachment 3, THEN **RETURN TO** Section 4.1.1 Step 12.

(6) IF 3A RCP #1 seal leak-off flow is greater than the upper limit of Attachment 3, THEN **REPEAT** Section 5.5.2 Step 1.C(2) through Section 5.5.2 Step 1.C(4) up to <u>two</u> more times.

(7) IF 3A RCP #1 seal leak-off flow is greater than the upper limit of Attachment 3, THEN **CONSULT** Engineering for another option.

5.6 Steam Generator Secondary Water Temperature Measurement

NOTE

Methods **NOT** used may be **N/A**, or **N/A** at Shift Manager discretion for subsequent starts.

1. **CHECK** Steam Generator secondary water temperature is less than 10°F above RCS temperature in 3A, 3B, and 3C Steam Generators by <u>one</u> of the following methods:

   A. Steam Generator blowdown temperature as indicated by the following temperature indicators:

   - TI-3-6562A for 3A Steam Generator
   - TI-3-6562B for 3B Steam Generator
   - TI-3-6562C for 3C Steam Generator

NOTE

Pyrometer reading may be taken at RCP cubicle. Insulation cover for hand hole is a snap on the unit.

   B. Contact pyrometer on uninsulated surface of each steam generator above steam generator tube sheet.

5.6 Steam Generator Secondary Water Temperature Measurement (continued)

1. (continued)

C. Temperature measurement of representative secondary water sample obtained from <u>one</u> of the following for each Steam Generator:

- <u>3A Steam Generator</u>

  SGB-3-044, 3A S/G TEST CONN ISOLATION

  SGB-3-047, 3A S/G BLDN HDR TEST CONN ISOLATION

- <u>3B Steam Generator</u>

  SGB-3-045, 3B S/G TEST CONN ISOLATION

  SGB-3-048, 3B S/G BLDN HDR TEST CONN ISOLATION

- <u>3C Steam Generator</u>

  SGB-3-046, 3C S/G TEST CONN ISOLATION

  SGB-3-049, 3C S/G BLDN HDR TEST CONN ISOLATION

D. IF Steam Generator Wet Lay Up (SGWL) is in service per 3-OP-079, THEN **OBTAIN** temperature measurement of representative secondary water sample from the following:

- SGWL-3-073, TEST CONN BLOWDOWN HDR TO AND FROM 3A SGWL PP, for 3A S/G
- SGWL-3-072, TEST CONN BLOWDOWN HDR TO AND FROM 3B SGWL PP, for 3B S/G
- SGWL-3-071, TEST CONN BLOWDOWN HDR TO AND FROM 3C SGWL PP, for 3C S/G

5.7 Filling 3A RCP Standpipe

1. **OPEN** CV-3-519A, PW TO CNTMT ISOLATION VALVE.

2. **OPEN** CV-3-522A, A RCP STANDPIPE FILL VALVE, as required to clear low level alarm.

3. WHEN standpipe low level alarm is CLEAR, THEN:

   A. **CLOSE** CV-3-522A, A RCP STANDPIPE FILL VALVE.

   B. **CLOSE** CV-3-519A, PW TO CNTMT ISOLATION VALVE, and **RETURN** control switch to AUTO.

6.0 RECORDS

1. Date, time, and section completed, shall be entered in Unit Narrative Log.

2. Problems encountered while performing procedure (i.e., malfunctioning equipment, delays due to change in plant conditions, etc.) should be entered in Unit Narrative Log.

3. Completed copies of the below listed Attachments shall be retained in the SHIFT MANAGER FILE until the next performance of the Attachment:

   - Attachment 1, 3A Reactor Coolant Pump And Oil Lift Pump Switch Alignment
   - Attachment 2, 3A Reactor Coolant Pump And Oil Lift Pump Breaker Alignment

7.0 REFERENCES AND COMMITMENTS

7.1 <u>References</u>

7.1.1 Implementing References

1. 3-ONOP-041.1, Reactor Coolant Pump Off-Normal
2. 0-ONOP-041.9, Potential Dilution of Reactor Coolant Loop(s)
3. 3-OP-041.4, Overpressure Mitigating System
4. 3-OP-041.8, Filling and Venting the Reactor Coolant System
5. 3-OP-047, CVCS - Charging and Letdown
6. 3-OP-079, Steam Generator Wet Lay up System

7.1.2 Developmental References

1. Technical Specifications

   A. Section 3/4.4, Reactor Coolant System

2. FSAR

   A. Section 4.2.2, Reactor Coolant System Components

7.1.2 Developmental References (continued)

3. Operating Diagrams

A. 5613-M-3041, Sheet 1, Reactor Coolant System Loops

B. 5613-M-3041, Sheet 3, Reactor Coolant System Reactor Coolant Pumps

C. 5613-M-3047, Sheet 3, Chemical and Volume Control System Seal Water Injection to RCP

4. Operating Procedures

A. 0-ADM-215, Plant Surveillance Tracking Program

B. 3-OP-013, Instrument Air System

C. 3-OP-020, Primary Water System

D. 3-NOP-030, Component Cooling Water System

E. 0-NOP-046, Chemical and Volume Control System

F. 3-OP-061.3, Reactor Coolant Drain Tank

G. 0-OSP-200.1, Schedule of Plant Checks and Surveillances

5. Vendor/Technical Manual

A. Westinghouse Technical Manual - Model V1101-B1, Controlled Leakage Seal RCP

6. Miscellaneous Documents

A. PC/M-83-154, Alternate Shutdown Capability for Appendix R Modifications - Unit 3

B. PC/M-89-574, 3C RCP Motor Refurbishment/Upgrade

C. PC/M-87-258, Loadcenter 3H and Repowering of MCC-D (3D)

D. NCR-N-92-0194, 4B EDG Trip

E. Westinghouse Letter 92-TP-TD-5513, dated December 4, 1992

7.1.2 Developmental References (continued)

6. (continued)

F. Special Report L-93-28, Overpressure Mitigating Systems, PORV Actuation

G. PC/M-00-027, Cold Overpressure Mitigation System (COMS) Setpoint Change

H. Evaluation PTN-ENG-SEMS-05-003, Flex Hose Fill Line

I. CR-2004-12236, Prolonged RCP Oil Lift Pump Operation Results in Inability to Achieve RCP Prestart Pressure

J. CR-2006-34689, RCP Started with VCT Pressure High.

K. PC/M-04-112, Emergency Response Data Acquisition and Display System (ERDADS) Replacement

L. MOS Daily Report, dated 11/25/87, from G. M. Smith Item G (CTRAC-87-1546-34)

M. CEADP-85-9, RCP Motor Oil Seals (CTRAC-87-0014-34)

N. JPN-PTN-SENP-95-026, CCW Flow Balance and Post Accident Alignment Requirements to Support Current and Uprated Conditions (LER 250/95-006)

O. INPO SOER 94-2, Boron Dilution Events in PWRs

7.1.3 Management Directives

None

7.2 <u>Commitments</u>

None

ATTACHMENT 1
3A REACTOR COOLANT PUMP AND OIL LIFT PUMP SWITCH ALIGNMENT
(Page 1 of 2)

EXCEPTIONS	
COMPONENT NOUN DESCRIPTION	**REMARKS**

PERSONNEL PERFORMING MANIPULATIONS	
PRINTED NAME	**INITIALS**

COMPLETION OF LINEUP			
DATE LINEUP COMPLETED:	(MM/DD/YY): / /	TIME LINEUP COMPLETED:	(HH:MM, 24 HR CLOCK): :
LINEUP COMPLETED BY:	PRINTED NAME / SIGNATURE: /		

REVIEW OF LINEUP			
LINEUP REVIEWED BY:	PRINTED NAME / SIGNATURE: /	DATE	(MM/DD/YY): / /

ATTACHMENT 1

3A REACTOR COOLANT PUMP AND OIL LIFT PUMP SWITCH ALIGNMENT

(Page 2 of 2)

COMPONENT NOUN DESCRIPTION	POSITION REQUIRED	ALIGNED BY	VERIFIED BY
Control Room Switch Alignment (VPA)			
3A REACTOR COOLANT PUMP	MID AFTER STOP		
3A RCP OIL LIFT PUMP	MID AFTER STOP		

ATTACHMENT 2
3A REACTOR COOLANT PUMP AND OIL LIFT PUMP BREAKER ALIGNMENT
(Page 1 of 2)

EXCEPTIONS		
COMPONENT NUMBER	**COMPONENT DESCRIPTION**	**REMARKS**

PERSONNEL PERFORMING MANIPULATIONS	
PRINTED NAME	**INITIALS**

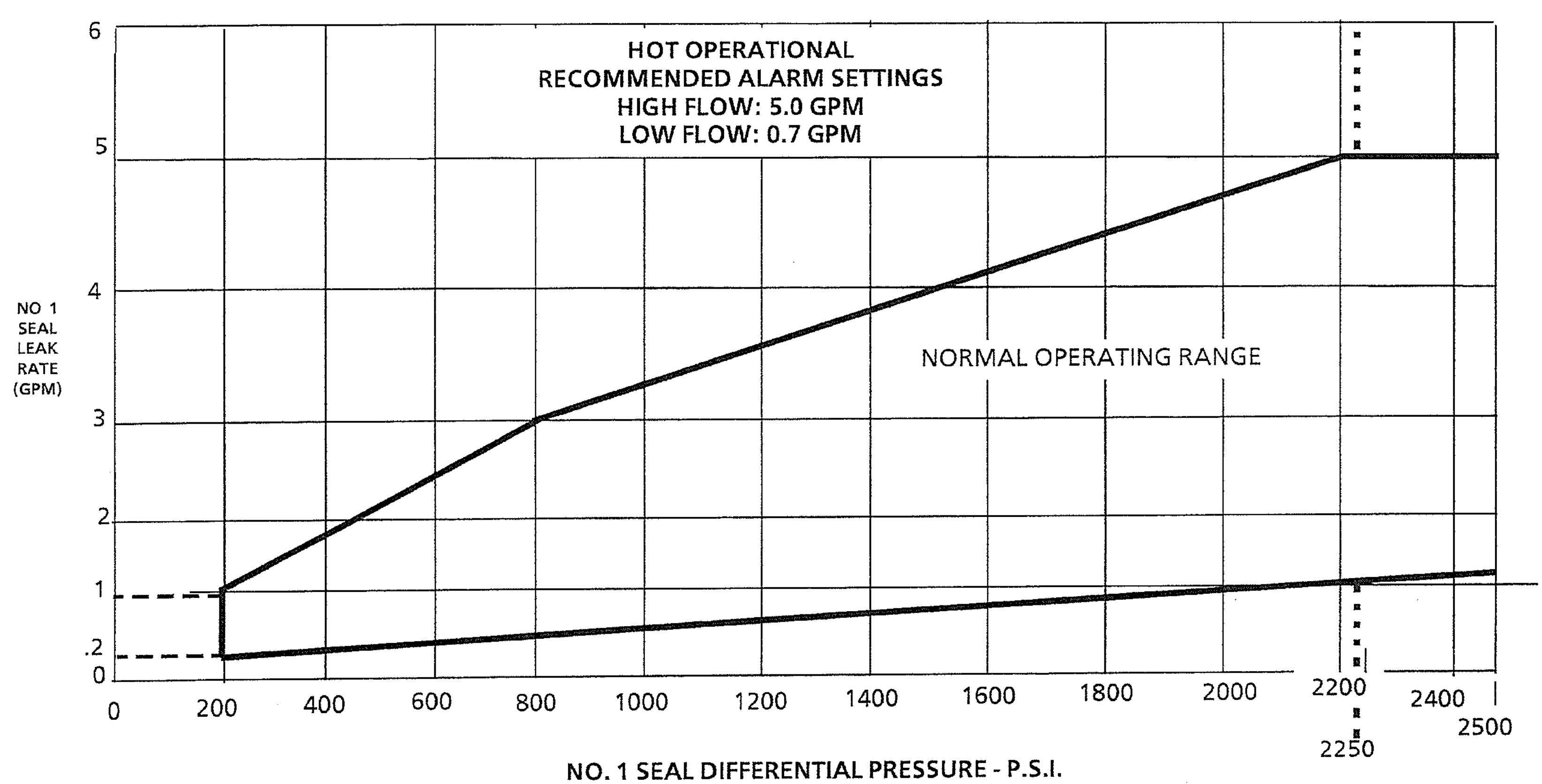
COMPLETION OF LINEUP			
DATE LINEUP COMPLETED:	(MM/DD/YY): ___/___/___	TIME LINEUP COMPLETED:	(HH:MM, 24 HR CLOCK): ___:___
LINEUP COMPLETED BY:	PRINTED NAME / SIGNATURE: ______/______		

REVIEW OF LINEUP			
LINEUP REVIEWED BY:	PRINTED NAME / SIGNATURE: ______/______	DATE:	(MM/DD/YY): ___/___/___

ATTACHMENT 2
3A REACTOR COOLANT PUMP AND OIL LIFT PUMP BREAKER ALIGNMENT
(Page 2 of 2)

COMPONENT NUMBER	COMPONENT DESCRIPTION	POSITION REQUIRED	ALIGNED BY	VERIFIED BY
3A MCC				
30554	3A RCP OIL LIFT PUMP	ON		
LP-34				
LP34-5	3A RCP MOTOR HEATER	ON		
3A 4160 V Switchgear Room				
3AA01	3A REACTOR COOLANT PUMP	RACKED IN		

ATTACHMENT 3
UNIT 3 REACTOR COOLANT PUMP OPERATION FIGURE
(Page 1 of 1)



Facility:	Turkey Point	Task No:	01067013200
Task Title:	JPM: Manually Initiate Containment Spray and Control Room Ventilation Isolation	JPM No:	01067013201
K/A Reference:	013 A4.01 RO 4.5 SRO 4.8		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X

Classroom ______ Simulator X Plant ______

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit 3 Reactor has tripped due to a LOCA inside of Containment.
- Safety Injection has occurred.
- Containment Isolation Phase A has occurred.
- The rest of the crew is continuing after Step 5 of 3-EOP-E-0, *Reactor Trip or Safety Injection*.

Initiating Cue:

- You have been directed to complete 3-EOP-E-0, Attachment 3, starting at Step 15.

Task Standard:

- The Applicant manually initiates at least ONE train of Containment Spray
- The Applicant manually isolates Containment Isolation Phase B components.
- The Applicant manually starts at least one train of CR Emergency Recirculation.

Required Materials:

- 3-EOP-E-0, *Reactor Trip or Safety Injection,* Attachment 3

General References:

- 3-EOP-E-0, *Reactor Trip or Safety Injection*, Attachment 3

Time Critical Task: No

Validation Time: 10 minutes

SIMULATOR SETUP

_____ 1. Reset to IC 195 or equivalent IC.

_____ 2. Place simulator in RUN.

_____ 3. Open Lesson JPM-01067013201 and Execute.

_____ 4. Ensure Simulator Operator Checklist is complete.

_____ 5. Acknowledge alarms and place simulator in FREEZE.

_____ 6. Provide a copy of 3-EOP-E-0, Reactor Trip or Safety Injection, Attachment 3, marked up as complete through Step 14.

_____ 7. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

_____ 8. When ready to begin, then place simulator in RUN.

Denote critical steps with a check mark (√)

Start Time ______

STEP 1	Obtain required materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 3-EOP-E-0, *Reactor Trip or Safety Injection.*	
CUE	Provide the Applicant with a copy 3-EOP-E-0, *Reactor Trip or Safety Injection,* Attachment 3, marked up as complete through Step 14.	
COMMENT		

STEP 2	Monitor Containment Pressure To Verify Containment Spray NOT Required. Containment pressure - HAS REMAINED LESS THAN 20 PSIG • PR-3-6306A **AND** • PR-3-6306B (3-EOP-E-0, Attachment 3, Step 15.a)	SAT ______ UNSAT ______
STANDARD	Applicant observes Containment pressure is greater than 20 psig on Containment pressure recorders. Transitions to the RNO column.	
CUE		
COMMENT		
NOTE	**EVALUATOR NOTE:** This is one of the Alternate Path aspects of this JPM.	

STEP 3 √	**IF** containment spray **NOT** initiated, **THEN** manually initiate containment spray. (3-EOP-E-0, Attachment 3, Step 15 RNO a.1)	SAT _______ UNSAT _______
STANDARD	Applicant initiates two complete Trains of Containment Spray by performing the following: Applicant Notes that MOV-3-880A and MOV-3-880B did not open and that Containment Spray Pumps A and B did not start. Applicant places BOTH CNTMT SPRAY ISOLATION MOV-3-880A and MOV-3-880B handswitches to OPEN. Notes that the green CLOSED lights are OFF and the red OPEN lights are ON. **AND** Applicant places the 3A and 3B Containment Spray Pumps handswitches to START. Notes the red RUN lights are ON and the green STOP lights are OFF.	
CUE		
COMMENT		
NOTE	**EVALUATOR NOTE:** This is one of the Alternate Path aspects of this JPM. Sequence of opening valves, compared to starting pumps, is not critical.	

STEP 4	Verify Containment Isolation Phase B - ACTUATED. (3-EOP-E-0, Attachment 3, Step 15 RNO a.2)	SAT ______ UNSAT ______
STANDARD	Applicant notes that Containment Isolation Phase B has not actuated by noting that all of the white, PHASE "B" lights are NOT BRIGHT. Applicant Goes to 15 RNO Step a.3).	
CUE		
COMMENT		

STEP 5	Verify Containment Isolation Phase B valve white lights on VPB – ALL BRIGHT. (3-EOP-E-0, Attachment 3, Step 15 RNO a.3)	
STANDARD	Applicant notes that the white Phase B lights on VPB are NOT BRIGHT. Goes to Step 15 RNO Step a.4). Applicant may attempt to manually initiate Phase B Isolation by simultaneously depressing BOTH Phase B Isolation pushbuttons.	
CUE		
COMMENT	**EVALUATOR NOTE:** Phase B pushbuttons are disabled; therefore, depressing the pushbuttons is not critical.	

STEP 6 √	**IF** any Containment Isolation Phase B valve did **NOT** close, **THEN** manually or locally isolate affected containment penetration. (3-EOP-E-0, Attachment 3, Step 15 RNO a.4)	SAT ______ UNSAT ______
STANDARD	Notes that the white lights for the Phase B Isolation valves are NOT BRIGHT. Applicant takes control switch for the flowing valves to the CLOSE position: • RCP CLG WTR MOV-3-716B • RCP CLG WTR FCV-3-626 • RCP CLG WTR MOV-3-730 Applicant notes the white lights for the following valves are BRIGHT: • RCP CLG WTR MOV-3-716B CLOSED • RCP CLG WTR FCV-3-626 CLOSED • RCP CLG WTR MOV-3-730 CLOSED	
CUE		
COMMENT		
NOTE	**EVALUATOR NOTE:** Containment Isolation Phase B is disabled as a part of the setup.	

STEP 7	Stop all RCPs (3-EOP-E-0, Attachment 3, Step 15 RNO a.5)	SAT ______ UNSAT ______
STANDARD	Applicant notes that all RCPs have already been stopped by observing the green STOP lights ON and the red START lights OFF for the three RCPs.	
CUE		
COMMENT		

STEP 8	**Verify Containment and Control Room Ventilation Isolation** Unit 3 containment purge exhaust and supply fans – OFF (3-EOP-E-0, Attachment 3, Step 16.a)	SAT ______ UNSAT ______
STANDARD	Applicant notes that the green STOP light is ON and the red RUN light is OFF for the U-3 CNTMT PURGE SUPPLY FAN and the U-3 CNTMT. PURGE EXHAUST FAN on VPB.	
CUE		
COMMENT		

STEP 9	Verify Control Room ventilation status panel - PROPER EMERGENCY RECIRCULATION ALIGNMENT (3-EOP-E-0, Attachment 3, Step 16.b)	SAT ______ UNSAT ______
STANDARD	Applicant notes the EMER. AIR SUPPLY FAN SF-1B (V-29B) did NOT start. Transitions to the RNO column.	
CUE		
COMMENT		
NOTE	**EVALUATOR NOTE:** This is one of the Alternate Path aspects of this JPM.	

STEP 10 √	Manually align equipment for Control Room emergency recirculation. (3-EOP-E-0, Attachment 3, RNO Step 16.b)	SAT ______ UNSAT ______
STANDARD	Applicant places handswitch for the EMER. AIR SUPPLY FAN SF-1B (V-29B) in the START position. Notes the green OFF light is OFF and the red RECIRC ON light is ON.	
TERMINATING CUE	**Evaluator informs Applicant that another operator will complete Attachment 3. This completes the JPM.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01067013201 - JPM: Manually Initiate Containment Spray and Control Room Ventilation Isolation

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

____

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____

____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ____________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit 3 Reactor has tripped due to a LOCA inside of Containment.
- Safety Injection has occurred.
- Containment Isolation Phase A has occurred.
- The rest of the crew is continuing after Step 5 of 3-EOP-E-0, *Reactor Trip or Safety Injection*.

Initiating Cue:

- You have been directed to complete 3-EOP-E-0, Attachment 3, starting at Step 15.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit 3 Reactor has tripped due to a LOCA inside of Containment.
- Safety Injection has occurred.
- Containment Isolation Phase A has occurred.
- The rest of the crew is continuing after Step 5 of 3-EOP-E-0, *Reactor Trip or Safety Injection*.

Initiating Cue:

- You have been directed to complete 3-EOP-E-0, Attachment 3, starting at Step 15.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 1 of 7)

PROMPT ACTION VERIFICATIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	**Check The Load Centers Associated With The Energized 4 KV Buses – ENERGIZED** • 3A LC • 3B LC • 3C LC • 3D LC • 3H LC	Close the Load Center supply breakers.
2.	**Check If Main Steamlines Should Be Isolated**	
	a. Check main steamline isolation and bypass valves - ANY OPEN	a. Go to Step 3.
	b. Check if either main steam isolation signal has actuated No • High steam flow with either low S/G pressure 614 psig **OR** low Tavg 543 F **OR** • Hi-Hi containment pressure 20 PSIG	b. Go to Step 3.
	c. Verify main steam isolation and bypass valves - CLOSED	c. Push manual Steamline Isolation push buttons on VPB **OR** manually close valves.
3.	**Verify Feedwater Isolation**	
	a. Place main feedwater pump switches in STOP	
	b. Feedwater control valves – CLOSED	b. Manually close valves.
	c. Feedwater bypass valves – CLOSED	c. Manually close valves.
	d. Close feedwater isolation MOVs	d. Locally close valves.
	e. Verify standby feedwater pumps – OFF	e. **IF** standby feedwater is aligned to Unit 3, **THEN** stop standby feedwater pump(s).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 2 of 7)

PROMPT ACTION VERIFICATIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	**Verify Proper ICW System Operation**	
	a. Verify ICW pumps - AT LEAST TWO RUNNING	a. Start ICW pump(s) to establish at least two running.
	b. Verify ICW to TPCW Heat Exchanger – ISOLATED • POV-3-4882 – CLOSED • POV-3-4883 – CLOSED	b. Manually close valve(s). **IF** valve(s) can **NOT** be closed, **THEN** locally close the following valves: • 3-50-319 for POV-3-4882 • 3-50-339 for POV-3-4883
	c. Check ICW headers - TIED TOGETHER	c. **IF** both ICW headers are intact, **THEN** direct operator to tie headers together.
5.	**Verify Proper CCW System Operation**	
	a. CCW Heat Exchangers – THREE IN SERVICE	a. Perform the following: 1) Start or stop CCW pumps as necessary to establish ONLY ONE RUNNING CCW PUMP. 2) Verify Emergency Containment Coolers - ONLY TWO RUNNING 3) Go to Step 5c.
	b. CCW pumps - ONLY TWO RUNNING	b. Start or stop CCW pumps as necessary to establish ONLY TWO RUNNING CCW PUMPS.
	c. CCW headers - TIED TOGETHER	c. **IF** both CCW headers are intact, **THEN** direct a field operator to tie the headers together.
	d. RCP Thermal Barrier CCW Outlet, MOV-3-626 – OPEN	d. **IF** containment isolation phase B **NOT** actuated **AND** CCW radiation levels are normal, **AND** RCP number one seal leak-off temperature is less than 235°F, **THEN** manually open MOV-3-626. **IF** MOV-3-626 can **NOT** be manually opened, **THEN** direct operator to open MOV-3-626 locally.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 3 of 7)

PROMPT ACTION VERIFICATIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.	**Verify Containment Cooling**	
	a. Check emergency containment coolers - ONLY TWO RUNNING	a. Manually start or stop emergency containment coolers to establish - ONLY TWO RUNNING.
	b. Verify emergency containment filter fans - AT LEAST TWO RUNNING	b. Manually start emergency containment filter fans.
7.	**Verify Pump Operation**	
	a. At least two high head SI pumps running	a. Manually start high-head pump(s).
	b. Both RHR pumps running	b. Manually start RHR pump(s).
8.	**Verify SI Flow**	
	a. RCS pressure - LESS THAN 1600 PSIG [2000 PSIG]	a. Go to Step 9.
	b. High-head SI pump flow indicator – CHECK FOR FLOW	b. Manually start pumps **AND** align valves to establish an injection flowpath.
	c. RCS pressure - LESS THAN 250 PSIG [650 PSIG]	c. Go to Step 9.
	d. RHR pump flow indicator - CHECK FOR FLOW	d. Manually start pumps **AND** align valves to establish an injection flowpath.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 4 of 7)

PROMPT ACTION VERIFICATIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	**Realign SI System**	
	a. Verify Unit 3 high-head SI pumps - TWO RUNNING	a. Perform the following: 1) Operate Unit 3 and Unit 4 high-head SI pumps to establish injection to Unit 3 from two high-head SI pumps. 2) Direct Unit 4 Reactor Operator to align Unit 4 high-head SI pump suction to Unit 3 RWST using ATTACHMENT 1 of this procedure. 3) Go to Step 10.
	b. Stop both Unit 4 high-head SI pumps **AND** place in standby	
10.	**Verify Containment Isolation Phase A Valve White Lights On VPB – ALL BRIGHT**	Perform the following: a. Manually actuate Containment Isolation Phase A. b. **IF** any Containment Isolation Phase A valve is **NOT** closed, **THEN** manually close valve. **IF** valve(s) can **NOT** be manually closed, **THEN** manually or locally isolate affected containment penetration.
11.	**Verify SI Valve Amber Lights On VPB - ALL BRIGHT**	Manually align valves to establish proper SI alignment for an injection flowpath.
12.	**Verify SI – RESET**	Reset SI
13.	**Verify Containment Phase A – RESET**	Reset Phase A

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 5 of 7)

PROMPT ACTION VERIFICATIONS

14. Reestablish RCP Cooling

a. Check RCPs – AT LEAST ONE RUNNING NO

a. Go to Step 15.

b. Open CCW to normal containment cooler valves

- MOV-3-1417
- MOV-3-1418

b. Stop all RCPs

c. Reset and start normal containment coolers

c. Stop all RCPs

15. Monitor Containment Pressure To Verify Containment Spray NOT Required

a. Containment pressure - HAS REMAINED LESS THAN 20 PSIG

- PR-3-6306A

AND

- PR-3-6306B

a. Perform the following:

1) **IF** containment spray **NOT** initiated, **THEN** manually initiate containment spray.

2) Verify Containment Isolation Phase B - ACTUATED.

3) Verify Containment Isolation Phase B valve white lights on VPB – ALL BRIGHT.

4) **IF** any Containment Isolation Phase B valve did **NOT** close, **THEN** manually or locally isolate affected containment penetration.

5) Stop all RCPs.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 6 of 7)

PROMPT ACTION VERIFICATIONS

16.	**Verify Containment and Control Room Ventilation Isolation**	
	a. Unit 3 containment purge exhaust and supply fans – OFF	a. Manually stop fans.
	b. Verify Control Room ventilation status panel - PROPER EMERGENCY RECIRCULATION ALIGNMENT	b. Manually align equipment for Control Room emergency recirculation.

NOTE

Hydrogen Monitors should be in service within 30 minutes of a valid SI signal. They should be available in a timely manner to support decision-making related to hydrogen generation in containment.

17.	**Place Hydrogen Monitors In Service Using 3-NOP-094, CONTAINMENT POST ACCIDENT MONITORING SYSTEM**	
18.	**Verify All Four EDGs – RUNNING**	EMERGENCY START any available EDG **NOT** running.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT 3
(Page 7 of 7)

PROMPT ACTION VERIFICATIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.	**Verify Power To Emergency 4 KV Buses and Load Centers**	
	a. Check the 3A, 3B and 3D 4 KV buses - ALL ENERGIZED	a. Perform the following: 1) Inform the Unit Supervisor that ATTACHMENT 3 is complete with the exception of the de-energized bus or buses. 2) **IF** the Unit Supervisor decides not to energize the de-energized bus or buses, **THEN** go to Step 20. 3) **IF** the Unit Supervisor decides to energize 3A, 3B, or 3D bus, **THEN** perform the following: a) **IF** 3A 4 KV bus de-energized, **THEN** restore power to bus using 3-ONOP-004.2, LOSS OF 3A 4KV BUS. b) **IF** 3B 4 KV bus de-energized, **THEN** restore power to bus using 3-ONOP-004.3, LOSS OF 3B 4KV BUS. c) **IF** 3D 4 KV bus de-energized, **THEN** restore power to bus using 3-ONOP-004.5, LOSS OF 3D 4KV BUS.
20.	**Notify The Unit Supervisor That The PROMPT ACTION VERIFICATIONS Attachment Is Complete And Discuss Any Safeguards Equipment That Is Not In The Required Condition**	

Facility:	Turkey Point	Task No:	01074011300
Task Title:	JPM: Loss of B SG Auto MFRV Control	JPM No:	01074011303
K/A Reference:	059 A2.12 RO 3.1 SRO 3.4		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X
Classroom		Simulator X	Plant

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 and 4 are in MODE 1 at 100% power with no equipment out of service.

Initiating Cue:

- You are to respond to plant conditions as the Unit 3 Reactor Operator.

Task Standard:

- Take manual control of B S/G Main Feed Regulating Valve and re-establish and stabilize level at the program level of 60% without tripping the Reactor or Turbine.

Required Materials:

- 3-ARP-097.CR.C, Control Room Response – Panel C

General References:

- 3-ARP-097.CR.C, Control Room Response – Panel C

Time Critical Task: No

Validation Time: 10 minutes

SIMULATOR SETUP

______ 1. Reset to IC 1 or equivalent IC.

______ 2. Place Simulator in RUN.

______ 3. Open Lesson JPM - 01074011303 and Execute.

______ 4. Ensure Simulator Operator Checklist is complete.

______ 5. Acknowledge alarms and place Simulator in FREEZE.

______ 6. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

______ 7. When ready to begin, then place the Simulator in RUN.

Denote critical steps with a check mark (√) **Start Time** ______

STEP 1	Walkdown the boards and assume the Watch.	SAT ______ UNSAT ______
STANDARD	Applicant briefly walks down the boards and assumes the Watch.	
CUE		
COMMENT		

BOOTH OPERATOR	On the Examiner's Cue, **trigger** lesson step **LOSS OF B SG MFRV AUTO CONTROL** (insert TFF185CS TRUE delay=0 ramp=60 on=0 off=0) and (insert TVS1M3ED TRUE delay=0 ramp=0 on=0 off=0).	

EVALUATOR NOTE	• Loss of B SG MFRV Auto Control starts with the B SG Stm Flow FI-3-484 failing low over 60 seconds and the input from FI-3-485, if selected, is unavailable. • The operator will respond with Prompt Actions to take manual control of B Main Feed Reg Valve and return level to normal (60%) without tripping either the Reactor or Turbine in accordance with ARP C 4/2, 5/2, 6/2 or 0-ADM-211.	

CAUSES:
1. Steam Generator Level Control Malfunction
2. Instrument Failure

C15

SG B
LEVEL
DEVIATION

DEVICE:	SETPOINT:	LOCATION:
LC-488D	5% above or below program level	N/A

CAUSES:
1. Steam Generator Level Control Malfunction
2. Instrument Failure
3. Feedwater or steam line leak

C13

SG B
FEED > STEAM

DEVICE:	SETPOINT:	LOCATION:
• FC-488C • FC-488D	1 out of 2 feed flow 0.665 x 10^6 lbs/hr greater than steam flow	N/A

CAUSES:
1. Steam Generator Level Control Malfunction
2. Instrument Failure
3. Feedwater or steam line break

C14

SG B
STEAM > FEED

DEVICE:	SETPOINT:	LOCATION:
• FC-488A • FC-488B	1 ouf of 2 steam flow 0.5 x 10^6 lbs/hr greater than feed flow	N/A

PROMPT ACTIONS

IF malfunctioning SG level controls, THEN:
- **TAKE** manual control of level.
- **RETURN** SG levels to normal.

STEP 2 √	After determining malfunctioning Auto SG Level Controls, then place FCV-3-488, 3B FW Control Valve, to manual.	SAT ______ UNSAT ______
STANDARD	Applicant places FCV-3-488, 3B FW Control Valve, to manual.	
CUE	Acknowledge reports from the operator.	
COMMENT	Auto light extinguishes and manual light illuminates.	

STEP 3 √	Push the increase pushbutton to increase output demand on FCV-3-488, 3B FW Control Valve.	SAT ______ UNSAT ______
STANDARD	Applicant pushes the increase pushbutton (up arrow) to increase output demand on FCV-3-488, 3B FW Control Valve.	
CUE	Acknowledge reports from the operator.	
COMMENT		

STEP 4	Push the decrease pushbutton to lower output demand on FCV-3-488, 3B FW Control Valve. As required.	SAT ______ UNSAT ______
STANDARD	Applicant pushes the decrease pushbutton (down arrow) to lower output demand on FCV-3-488, 3B FW Control Valve as required.	
COMMENT		

STEP 5 √	Re-establish and stabilize level at the program level of 60% without tripping the Reactor or Turbine.	SAT ______ UNSAT ______
STANDARD	Applicant re-establishes and stabilizes level at the program level of 60% without tripping the Reactor or Turbine.	
CUE		
COMMENT		

TERMINATING CUE	**When B SG Level is stabilized or the Reactor or Turbine is tripped. Then, the Evaluator informs the Applicant that another operator will assume control.** **The JPM is complete.**	

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01074011303 - JPM: Loss of B SG Auto MFRV Control

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result : Satisfactory/Unsatisfactory

Examiner's signature and date:

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 and 4 are in MODE 1 at 100% power.

Initiating Cue:

- You are to respond to plant conditions as the Unit 3 Reactor Operator.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 and 4 are in MODE 1 at 100% power.

Initiating Cue:

- You are to respond to plant conditions as the Unit 3 Reactor Operator.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

Facility:	Turkey Point	Task No:	01059017200
Task Title:	JPM: Test Source Range Nuclear Instrument	JPM No:	01059017201
K/A Reference:	015 A4.01 RO 3.9 SRO 3.9		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X
Classroom		Simulator X	Plant

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit is in MODE 3.
- The SM has authorized performance of 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*, for N-32.
- A previous shift operator has completed Steps 7.3.2 through 7.3.2.25.e.
- I&C support is no longer required.
- At the start of the test, N-32 reads 110 cps.
- Containment is closed with NO personnel inside Containment.
- The Control Rod Drive System is NOT capable of withdrawal at this time.

Initiating Cue:

- The US has directs you to perform Steps 7.3.2.26 through Step 7.3.2.34 of 3-OSP-059.1.

Task Standard:

- Verify setpoints are within limits
- Confirms results are unsatisfactory.

Required Materials:

- 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*, marked-up to show completion up through Step 7.3.2.25.e (includes Attachment 2).

General References:

- 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*

Time Critical Task: No

Validation Time: 20 minutes

SIMULATOR SETUP

______ 1. Reset to IC 197 or equivalent IC.

______ 2. Place Simulator in RUN.

______ 3. Open Lesson JPM - 01059017201 and Execute.

______ 4. Trigger lesson step **N-32 HIGH FLUX TRIP SETPOINT TOO HIGH** (insert N1SRHLS2=5.08).

______ 5. Ensure Simulator Operator Checklist is complete.

______ 6. Acknowledge alarms and place Simulator in FREEZE.

______ 7. Provide a copy of 3-OSP-059.1, Source Range Nuclear Instrumentation Analog Channel Operational Test, marked-up to show completion up through Step 7.3.2.25, also include Attachment 2.

______ 8. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

______ 9. When ready to begin, then place Simulator in RUN.

Denote critical steps with a check mark (√) **Start Time: ______**

STEP 1	Obtain required materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains the marked-up copy of 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test.*	
CUE	Provide Applicant with a copy of 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*, marked-up to show completion up through Step 7.3.2.25.e. **(NOTE:** Includes some data taken on Attachment 2.)	
COMMENT		

STEP 2 √	Place HIGH FLUX AT SHUTDOWN switch (NIS panel, N-32) to BLOCK. (3-OSP-059.1, Step 7.3.2.26)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the HIGH FLUX AT SHUTDOWN Switch (NIS panel, N-32) clockwise to the BLOCK position.	
CUE		
COMMENT		

STEP 3	Verifies Annunciator B 4/2, SOURCE RANGE HI FLUX AT SHUTDOWN BLOCKED, is ON. (3-OSP-059.1, Step 7.3.2.27)	SAT ______ UNSAT ______
STANDARD	Applicant notes that annunciator B 4/2, SOURCE RANGE HI FLUX AT SHUTDOWN BLOCKED, is ON.	
CUE		
COMMENT		

STEP 4	Announce distinctly over the plant P.A. phone, **ATTENTION ALL PERSONNEL, THE CONTAINMENT EVACUATION ALARM TEST IS COMPLETE**. (Mark N/A if no personnel are in containment). (3-OSP-059.1, Step 7.3.2.28)	SAT ______ UNSAT ______
STANDARD	Since no personnel are in containment, Applicant marks this step N/A.	
CUE		
COMMENT		

EVALUATOR NOTE	**The LEVEL TRIP status light will light at approximately 1.2 X 10^5 CPS which is outside the acceptable band.**	
STEP 5 √	Adjust LEVEL ADJ potentiometer (NIS panel, N-32) slowly clockwise until LEVEL TRIP status light (NIS panel, N-32) turns ON. (3-OSP-059.1, Step 7.3.2.29)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the LEVEL ADJ potentiometer (NIS panel, N-32) slowly clockwise until LEVEL TRIP status light (NIS panel, N-32) turns ON.	
CUE	If the applicant informs the Unit Supervisor, acknowledge the report.	
COMMENT		

STEP 6 √	Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for Level Trip bistable trip point on Attachment 2. (3-OSP-059.1, Step 7.3.2.30.a)	SAT ______ UNSAT ______
STANDARD	Applicant records **an unacceptable reading of between > 1.0 x 10^5 to 2.0 x 10^5** in the blank for Step 7.3.2.30 on Attachment 2. Tolerance based on the increments of the log scale.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	

STEP 7	Verify REACTOR PROTECTION LOGIC status light (VPB), SOURCE RANGE HI FLUX NC32D is ON. (3-OSP-059.1, Step 7.3.2.30.b)	SAT ______ UNSAT ______
STANDARD	Applicant notes that the REACTOR PROTECTION LOGIC status light (VPB), SOURCE RANGE HI FLUX NC32D is ON	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	
COMMENT		

STEP 8 √	Adjust LEVEL ADJ potentiometer (NIS panel N-32) slowly counterclockwise until LEVEL TRIP status light (NIS panel, N-32) turns OFF. (3-OSP-059.1, Step 7.3.2.31)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the LEVEL ADJ potentiometer (NIS panel N-32) slowly counterclockwise until LEVEL TRIP status light (NIS panel, N-32) turns OFF.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	

STEP 9 √	Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for Level Trip bistable reset point on Attachment 2. (3-OSP-059.1, Step 7.3.2.32.a)	SAT ______ UNSAT ______
STANDARD	Applicant records between **6.0 X 10^4** and **7.0 X 10^4** in the blank for Step 7.3.2.32 on Attachment 2. Tolerance based on the increments of the log scale.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	
COMMENT		

STEP 10	Declares the Acceptance Criteria UNSAT and enters 3-ONOP-059.5, SOURCE RANGE NUCLEAR INSTRUMENTATION. (3-OSP-059.1, Step 7.3.2.32.b)	SAT ______ UNSAT ______
STANDARD	Applicant confirms results are unsatisfactory, THEN confirms results are unsatisfactory, THEN declares the N-32 channel inoperable and enters 3-ONOP-059.5, SOURCE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
COMMENT		

STEP 11 √	Adjust LEVEL ADJ potentiometer (NIS panel, N-32) fully counterclockwise. (3-OSP-059.1, Step 7.3.2.33)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the LEVEL ADJ potentiometer (NIS panel, N-32) fully counterclockwise. Also may note that the potentiometer "reading" is near 0.0.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	
COMMENT		

STEP 12 √	Place OPERATION SELECTOR switch (NIS panel, N-32) to NORMAL. (3-OSP-059.1, Step 7.3.2.34)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the OPERATION SELECTOR switch (NIS panel, N-32) counterclockwise to the NORMAL position.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report and go to the TERMINATING CUE on **Page 10.**	
EVALUATOR NOTE	Informs Unit Supervisor or Shift Manager of the UNSAT reading affecting Channel N-32.	

STEP 13	Declares the Acceptance Criteria UNSAT and enters 3-ONOP-059.5, SOURCE RANGE NUCLEAR INSTRUMENTATION. (3-OSP-059.1, Attachment 2)	SAT ______ UNSAT ______
STANDARD	Applicant confirms results are unsatisfactory, THEN confirms results are unsatisfactory, THEN declares the N-32 channel inoperable and enters 3-ONOP-059.5, SOURCE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION.	
CUE	When the applicant informs the Unit Supervisor or Shift Manager of the **UNSAT Acceptance Criteria**, then acknowledge the report.	
COMMENT		

TERMINATING CUE	**Evaluator informs Applicant that another operator will complete the remaining steps of this procedure. This completes the JPM.**	

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01059017201 - JPM: Test Source Range Nuclear Instrument

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

____

____

____

____

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ______________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit is in MODE 3.
- The SM has authorized performance of 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*, for N-32.
- A previous shift operator has completed Steps 7.3.2 through 7.3.2.25.e.
- I&C support is no longer required.
- At the start of the test, N-32 reads 110 cps.
- Containment is closed with NO personnel inside Containment.
- The Control Rod Drive System is NOT capable of withdrawal at this time.

Initiating Cue:

- The US has directs you to perform Steps 7.3.2.26 through Step 7.3.2.34 of 3-OSP-059.1.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- The Unit is in MODE 3.
- The SM has authorized performance of 3-OSP-059.1, *Source Range Nuclear Instrumentation Analog Channel Operational Test*, for N-32.
- A previous shift operator has completed Steps 7.3.2 through 7.3.2.25.e.
- I&C support is no longer required.
- At the start of the test, N-32 reads 110 cps.
- Containment is closed with NO personnel inside Containment.
- The Control Rod Drive System is NOT capable of withdrawal at this time.

Initiating Cue:

- The US has directs you to perform Steps 7.3.2.26 through Step 7.3.2.34 of 3-OSP-059.1.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

Florida Power & Light Company

Turkey Point Nuclear Plant

Unit 3

This procedure may be affected by a T.C. (Temporary Change) Verify information prior to use.
Date verified TODAY *Initials*

3-OSP-059.1

Title:

Source Range Nuclear Instrumentation Analog Channel Operational Test

(Continuous Use)

Safety Related Procedure	
Responsible Department:	Operations
Revision Number:	1
Issue Date:	6/3/11
Revision Approval Date:	2/23/11

ARs *564687*
RTSs *88-0382P, 89-0472, 89-0672P, 90-0997, 91-1364W, 92-1718P, 93-1178P, 96-1090P, 97-1315, 98-1096P, 99-0478P, 03-0217P, 04-0288P, 07-0950P*
PC/Ms *90-508, 93-047, 02-085*

W97:/TNM/nw/ln/cls

LIST OF EFFECTIVE PAGES
(Rev. 1)

Page	Revision Date	Page	Revision Date
1	02/23/11	23	09/16/01
2	02/23/11	24	09/16/01
3	11/10/07	25	09/16/01
4	02/23/11	26	11/10/07
5	02/23/11	27	09/16/01
6	02/23/11	28	09/16/01
7	02/23/11	29	09/16/01
8	11/10/07	30	11/10/07
9	09/16/01	31	09/16/01
10	09/16/01C	32	09/16/01C
11	11/10/07	33	09/16/01C
12	09/16/01	34	11/10/07
13	09/16/01	35	09/16/01C
14	11/10/07	36	09/16/01C
15	02/23/11	37	11/10/07
16	03/26/03	38	09/16/01C
17	09/16/01	39	09/16/01
18	11/10/07	40	11/10/07
19	09/16/01	41	09/16/01C
20	09/16/01	42	09/16/01
21	04/01/04	43	11/10/07
22	11/10/07	44	11/10/07C

TABLE OF CONTENTS

1.0 **PURPOSE**

1.1 This procedure provides the prerequisites, precautions, limitations and instructional guidance to perform the required surveillance prior to reactor startup and monthly surveillance of the Source Range Nuclear Instrumentation. This surveillance satisfies the requirements of Reference 2.1.1.

2.0 **REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS**

2.1 References

2.1.1 Technical Specifications

1. Section 2.2.1, Table 2.2-1, Item 4, Reactor Trip System Instrumentation Setpoints
2. Section 4.3.1.1, Table 4.3-1, Item 4, Reactor Trip System Instrumentation Surveillance Requirements
3. Section 4.9.2, Items b and c, Refueling Operations Instrumentation Surveillance Requirements
4. Section 3.9.2, Refueling Operations Instrumentation
5. Table 4.3-1, Functional Unit 4, Notation (9), High Flux at Shutdown

2.1.2 Final Safety Analysis Report

1. Section 7.2, Protective Systems
2. Section 7.4, Nuclear Instrumentation

2.1.3 Plant Procedures

1. 0-ADM-724, Instrumentation Protection Channel Determination of Channel Operability
2. 3-ONOP-059.5, Source Range Nuclear Instrumentation Malfunction
3. 0-OP-003.3, 120V Vital Instrument AC System
4. 3-OSP-059.6, High Flux at Shutdown

2.1.4 Miscellaneous Documents (i.e., PC/Ms, Correspondence)

1. Inter-Office Correspondence, PTN-TECH-89-121, J. M. Donis to R. G. Mende, dated January 31, 1989, Subject: 3/4-OSP-059.1, Acceptance Criteria for Control Room Indicators Operability of Sources Range Channels

2. PC/M 90-508, Implementation of Setpoint Methodology

3. PC/M 93-047, Annunciator Dark Board

4. PC/M (MSP) 02-085, Replace Recorder NR-45

5. CR 2009-15410, Half Decade

2.2 Records Required

2.2.1 The date, time, and section completed shall be logged in the Unit Narrative Log. Also, any problems encountered while performing the procedure should be logged (i.e., malfunctioning equipment, delays due to changes in plant conditions, etc.).

2.2.2 Completed copies of the below listed item(s) document the compliance with Technical Specification surveillance requirements and shall be transmitted to QA Records for retention in accordance with Quality Assurance Records Program requirements:

1. Section 7.0

2. Attachments 1, 2, 3, 4, and 5

2.2.3 Completed copies of the below listed item(s) shall be transmitted to System Engineer for information.

1. Attachments 1, 2, 3, 4, and 5

2.3 Commitment Documents

2.3.1 JPN-PTN-SENP-94-014, No Significant Hazards Evaluation for Extension of Technical Specification Surveillance Intervals and Out of Service Times for the Reactor Protection and Engineered Safety Features Instrumentation Systems

3.0 PREREQUISITES

3.1 Instrument AC Panels 3P06 and 3P07 should be powered from their normal sources per 0-OP-003.3, 120V Vital Instrument AC System, during this test.

3.2 Instrument & Controls Department available to jumper high volts.

4.0 PRECAUTIONS/LIMITATIONS

4.1 Tests shall be performed on only one source range channel at a time. The channel not under test must be operable except as indicated in the note below.

NOTE

With only one source range channel operable, the Shift Manager may authorize testing the operable channel after reviewing the applicable Action Statements of Technical Specification 3.3.1, Table 3.3-1, item 4, and Section 3.9.2.

4.2 Any nuclear instrumentation channel should be energized for at least one hour prior to being tested.

4.3 A source range channel should not be tested when neutron flux level changes in the source range are in progress.

4.4 Discrepancies noted during this test shall be investigated for their effect on channel operability and actions taken per 3-ONOP-059.5, Source Range Nuclear Instrumentation Malfunction, as applicable.

4.5 The Shift Manager shall be notified immediately if any Acceptance Criteria is not met or any malfunction or abnormal conditions occur. This information shall also be recorded in the Remarks Section.

5.0 SPECIAL TOOLS/EQUIPMENT

5.1 None

6.0 ACCEPTANCE CRITERIA

6.1 The Reactor Trip System Instrumentation Trip Setpoint for the Source Range, Neutron Flux shall be less than or equal to 10^5 CPS.

6.2 When in Mode 3, 4, or 5 with Reactor Trip System breakers closed and Control Rod Drive System capable of rod withdrawal, permissives P-6 and P-10 are in their required state for existing plant conditions.

6.3 Technical Specification Table 4.3-1, Functional Unit 4, Notation (9), requires High Flux at Shutdown alarm setpoint at 1/2 decade above the existing count rate. Multiplication by 10^2 increases any number two decades. Multiplication by 10^1 increases any number by one decade. Multiplication by $10^{1/2}$ increases any number by 1/2 decade. Since $10^{1/2}$ (the square root of 10) is approximately 3.16, the CPS multiplied by 3.16 usefully approximates this Technical Specification required setpoint within the accuracy of plant equipment.

Pages 7-18 are complete and

intentionally removed from

3-OSP-059.1.

INITIALS
CK'D VERIF

7.3.2 (Cont'd)

21. Verify Annunciator B 4/2, SOURCE RANGE HI FLUX AT SHUTDOWN BLOCKED, is OFF (Mark N/A if Annunciator B 4/2 is ON due to Source Range N-31, HIGH FLUX AT SHUTDOWN switch in BLOCK).

22. Adjust LEVEL ADJ potentiometer (NIS panel, N-32) slowly clockwise until HIGH FLUX AT SHUTDOWN status light (NIS panel, N-32) turns ON.

23. Perform the following:

    a. Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for High Flux at Shutdown bistable trip point on Attachment 2.

    b. Verify HIGH FLUX AT SHUTDOWN status light (NIS panel, N-32) is ON.

    c. Verify Annunciator B 4/1, SOURCE RANGE HI FLUX AT SHUTDOWN, is ON.

    N/A d. Verify containment Evacuation Alarm is ON. (Mark N/A if no personnel are in containment).

24. Adjust LEVEL ADJ potentiometer (NIS panel N-32) slowly counterclockwise until HIGH FLUX AT SHUTDOWN status light (NIS panel, N-32) turns OFF.

25. Perform the following:

    a. Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for High Flux at Shutdown bistable reset point on Attachment 2.

    b. Verify HIGH FLUX AT SHUTDOWN status light (NIS panel, N-32) is OFF.

    c. Verify Annunciator B 4/1, SOURCE RANGE HI FLUX AT SHUTDOWN, is OFF.

    d. Verify Containment Evacuation Alarm is OFF (Mark N/A if no personnel are in containment).

    e. Verify High Flux at Shutdown bistable reset point is within acceptance criteria range of Enclosure 1.

INITIALS
CK'D VERIF

7.3.2 (Cont'd)

____ 26. Place HIGH FLUX AT SHUTDOWN switch (NIS panel, N-32) to BLOCK.

____ 27. Verify Annunciator B 4/2, SOURCE RANGE HI FLUX AT SHUTDOWN BLOCKED, is ON.

____ 28. Announce distinctly over the plant P.A. phone, **ATTENTION ALL PERSONNEL, THE CONTAINMENT EVACUATION ALARM TEST IS COMPLETE**. (Mark N/A if no personnel are in containment).

____ 29. Adjust LEVEL ADJ potentiometer (NIS panel, N-32) slowly clockwise until LEVEL TRIP status light (NIS panel, N-32) turns ON.

30. Perform the following:

____ a. Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for Level Trip bistable trip point on Attachment 2.

____ b. Verify REACTOR PROTECTION LOGIC status light (VPB), SOURCE RANGE HI FLUX NC32D is ON.

____ 31. Adjust LEVEL ADJ potentiometer (NIS panel N-32) slowly counterclockwise until LEVEL TRIP status light (NIS panel, N-32) turns OFF.

32. Perform the following:

____ a. Record SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) for Level Trip bistable reset point on Attachment 2.

____ b. Verify REACTOR PROTECTION LOGIC status light (VPB), SOURCE RANGE HI FLUX NC32D is OFF.

____ 33. Adjust LEVEL ADJ potentiometer (NIS panel, N-32) fully counterclockwise.

____ 34. Place OPERATION SELECTOR switch (NIS panel, N-32) to NORMAL.

INITIALS
CK'D VERIF

7.3.2 (Cont'd)

____ 35. Verify SOURCE RANGE CPS NEUTRON LEVEL (NIS panel, N-32) indication returns to approximately the CPS level recorded in Substep 7.3.2.1 of this test.

36. At NIS panel, N-32, verify the following:

____ a. INSTRUMENT POWER ON status light ON.

____ b. CONTROL POWER ON status light ON.

____ c. CHANNEL ON TEST status light OFF.

____ d. LOSS OF DETECTOR VOLT. status light OFF.

____ e. LEVEL TRIP status light OFF.

____ f. HIGH FLUX AT SHUTDOWN status light OFF.

____ g. BISTABLE TRIP SPARE status light OFF.

____ 37. Verify Annunciator B 7/3, NIS CHANNEL IN TEST, is OFF.

____ 38. Place HIGH FLUX AT SHUTDOWN switch (NIS panel, N-32) to NORMAL.

____ 39. Verify Annunciator B 4/2, SOURCE RANGE HI FLUX AT SHUTDOWN BLOCKED, is OFF (Mark N/A if Annunciator B 4/2 is ON due to Source Range N-31, HIGH FLUX AT SHUTDOWN switch in BLOCK).

____ ____ 40. Place LEVEL TRIP switch (NIS panel, N-32) to NORMAL.

41. Verify the following:

____ a. LEVEL TRIP BYPASS status light (NIS panel, N-32) is OFF.

____ b. N-32 IN BYPASS status light (VPA) is OFF.

____ c. Annunciator B 8/4, NIS TRIP BYPASSED, is OFF. (Mark N/A if Annunciator B 8/4 is ON due to another NIS channel in BYPASS).

INITIALS
CK'D VERIF

7.3.2 (Cont'd)

____ 42. Position the NIS recorders to monitor the highest reading source range and the highest reading intermediate range channels.

____ ____ 43. **IF** in Mode 6, **OR** preparing to enter Mode 6, **THEN** place the Audio Count Rate Channel Selector Switch to an operable channel.

7.3.3 **IF** in Mode 3, 4, or 5 AND reactor trip breakers are closed AND control rod drive system is capable of rod withdrawal, **THEN** perform Attachment 5.

Date/Time Completed:____________________/____________

PERFORMED BY (Print)	INITIALS	VERIFIED BY (Print)	INITIALS
____________________	__________	____________________	__________
____________________	__________	____________________	__________
____________________	__________	____________________	__________

REVIEWED BY: ____
Shift Manager or SRO Designee

Pages 23-34 are

intentionally removed from

3-OSP-059.1.

ATTACHMENT 2
(Page 1 of 3)

SOURCE RANGE CHANNEL N-32 TEST DATA (SHUTDOWN)

QA RECORD PAGE

(Page 1 of 3)

> **NOTE**
>
> *The NIS Drawer Meter is to be used for channel operability requirements. Deficiencies in the console indications should be brought to the attention of the I&C Department, with appropriate prioritization with respect to plant mode.*

<u>Ref. Step</u>

7.3.2.14 Operation Selector switch range verification.

> **NOTE**
>
> *The symbol +xxx in the acceptance criteria represents greater than $1.0x10^6$ CPS by an amount less than or equal to the meter deflection between $8x10^5$ CPS and $1.0x10^6$ CPS.*

OPERATION SELECTOR POSITION	NIS Meter N-32	CONSOLE* Meter N-3-32	CONSOLE* Recorder NR-3-45, Channel S2
60 CPS	60	55	60
Acceptance Criteria:		(50 to 75 CPS)	
10^3 CPS	1×10^3	1×10^3	1.1×10^3
Acceptance Criteria:		(8×10^2 to 1.2×10^3 CPS)	
10^5 CPS	1×10^5	1×10^5	1.1×10^5
Acceptance Criteria:		(8×10^4 to 1.2×10^5 CPS)	
10^6 CPS	1×10^6	1×10^6	1×10^6
Acceptance Criteria:		(8×10^5 to +xxx)	
10 CPS - PREAMP	1.2×10^1	1.0×10^6	1×10^6
(No Acceptance Criteria)			
$10.24x10^3$ CPS - PREAMP	1×10^4	1×10^4	1×10^4
(No Acceptance Criteria)			

Return to Step 7.3.2.15

ATTACHMENT 2
(Page 2 of 3)

SOURCE RANGE CHANNEL N-32 TEST DATA (Shutdown)

QA RECORD PAGE

(Page 2 of 3)

~~7.3.2.23~~ High Flux at Shutdown bistable trip point, N-32

Source Range 315 CPS

~~7.3.2.25~~ High Flux at Shutdown bistable reset point, N-32

Source Range 270 CPS

7.3.2.30 Level Trip bistable trip point, N-32

Source Range ____________ CPS

Acceptance Criteria ($\leq 10^5$ CPS)

* FOR REVIEW ONLY

7.3.2.32 Level Trip bistable reset point, N-32

Source Range ____________ CPS

Acceptance Criteria (4.1×10^4 to 6.2×10^4 CPS)

Acceptance Criteria specified in this Attachment has been satisfied.

Results Satisfactory ______________________________ ____________________
Signature *Date*

IF results are unsatisfactory, **THEN** declare the channel inoperable and perform actions required by 3-ONOP-059.5, SOURCE RANGE NUCLEAR INSTRUMENTATION MALFUNCTION.

NOTE

If channel(s) did not meet acceptance criteria, then notify I&C to perform 0-ADM-724, Instrumentation Protection Channel Determination of Channel Operability, for the failed channels. [Commitment - Step 2.3.1]

ATTACHMENT 2
(Page 3 of 3)

SOURCE RANGE CHANNEL N-32 TEST DATA (Shutdown)

QA RECORD PAGE

(Page 3 of 3)

REMARKS:____

PERFORMED BY (Print)	INITIALS
Jay Taylor	JT
Mike Skiles	MS

REVIEWED BY: ______________________________
Shift Manager or SRO Designee

Pages 38-44 are

intentionally removed from

3-OSP-059.1.

Facility:	Turkey Point	Task No:	01030008300
Task Title:	JPM: Respond to Component Cooling Water System Malfunctions	JPM No:	01030008303
K/A Reference:	001 A2.03 RO 3.5 SRO 4.2		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance		Actual Performance	X
Classroom		Simulator X	Plant

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- Unit 4 is in MODE 1 at 100% power.
- The following equipment is Out of Service for maintenance - 3A CCW Pump, 3A ICW Pump, 4A HHSI Pump.

Initiating Cue:

- You are to respond to plant conditions as the Unit 3 Reactor Operator.

Task Standard(s)

- Stop RCPs, isolate Letdown, and direct alignment of emergency cooling to a Charging Pump in accordance with 3-ONOP-030.

Required Material(s)

- 3-ARP-097.CR.H, *Control Room Annunciator Response – Panel H*
- 3-ONOP-030, *Component Cooling Water Malfunction*

Reference(s)

- 3-ARP-097.CR.H, *Control Room Annunciator Response – Panel H*
- 3-ONOP-030, *Component Cooling Water Malfunction*

Time Critical Task: No

Validation Time: 10 minutes

SIMULATOR SETUP

______ 1. Reset to IC 198 or equivalent IC.

______ 2. Place simulator in RUN.

______ 3. Open Lesson JPM - 01030008303 and Execute.

______ 4. Ensure 3A CCW Pump (PTL), 3A ICW Pump(Auto/Stop), and 4A HHSI Pump(PTL) are not running.

______ 5. Trigger lesson step **SETUP – 3A CCW PUMP OOS** (insert TFK1A12T=TRUE)
(insert TAK1A12P=RACKOUT)

______ 6. Trigger lesson step **SETUP – 3A ICW PUMP OOS** (insert TAK2A19P=RACKOUT)

______ 7. Trigger lesson step **SETUP – 4A HHSI PUMP OOS** (insert TAM2D4AS=RACKOUT)

______ 8. Hang ECO Information Tags on the handswitches for 3A CCW Pump, 3A ICW Pump, and 4A HHSI Pump.

______ 9. Ensure Simulator Operator Checklist is complete.

______ 10. Acknowledge alarms and place Simulator in FREEZE.

______ 11. When the last performance of this JPM is completed for the day, delete any temporary ICs that were created and delete the contents of the Recycle Bin.

______ 12. When ready to begin, then place Simulator in RUN.

Denote critical steps with a check mark (√)

Start Time ______

NOTE	The applicant assumes the duties of Unit 3 Reactor Operator.	
BOOTH OPERATOR	On the Examiner's Cue, **trigger** lesson step **LOSS OF CCW** (insert TVKA002X=1.000000 delay=0 ramp=60 on=0 off=0) (insert TFK1A17T=TRUE delay=0 ramp=0 on=0 off=0)	
STEP 1	Obtain required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant acknowledges annunciators and references 3-ARP-097.CR.H, for annunciator H-8/1, 2, or 3; OR 3-ONOP-030, *Component Cooling Water Malfunction*.	
CUE		
COMMENT		
EVALUATOR NOTES	Applicant may directly enter 3-ONOP-030, *Component Cooling Water Malfunction*. For this reason, use of the ARP is NOT critical. Applicant may recognize high amps on 3B CCW pump and manually trip the pump. Otherwise, 3B CCW pump will automatically trip on overcurrent due to the failed bearing. Either behavior is acceptable. If the ARP is entered, the Applicant may attempt to start 3C CCW pump but the pump will fail to start.	

NOTE	**CAUTION** *If any RCP bearing temperature annunciator alarm actuates AND its associated motor bearing temperature is greater than 195°F, trip the reactor and stop the affected RCPs.* **NOTE** *Foldout page should be monitored throughout this procedure.*	
STEP 2	Verify Power To 4KV Bus 3D Maintain 4KV Bus 3D energized - ALIGNED TO AN ENERGIZED 4KV BUS (3-ONOP-030, Step 1 & 1.a.)	SAT ______ UNSAT ______
STANDARD	Applicant verifies that 4KV Bus 3D is energized by observing that Bus 3B Load Centers are energized and that the breakers from the 3B 4KV bus to the 3D 4KV bus are closed.	
CUE		
COMMENT		
EVALUATOR NOTE	The Applicant may perform actions **from the Foldout page**, which if completed, would bypass this step, if this occurs, go to **Step 7**.	

STEP 3	Verify Component Cooling Water Pump(s) in service. (3-ONOP-030, Step 2)	SAT ______ UNSAT ______
STANDARD	Applicant notes that NO CCW pumps are in service, then transitions to the RNO column.	
BOOTH OPERATOR CUE	Acknowledge orders / request if required.	
COMMENT		
EVALUATOR NOTES	The Applicant may have attempted to start the 3C CCW pump using the ARP in step 1. Applicant may make calls to the field to attempt local start of 3C CCW pump. Applicant may also dispatch an operator to investigate the CCW pumps and breakers. Applicant may also instruct the WCC SRO to attempt to restore 3A CCW pump as soon as possible.	

STEP 4	**IF** starting an idle CCW pump will **NOT** overload an EDG, **THEN** start CCW pumps as necessary to establish flow in both headers. (3-ONOP-030, RNO Step 2.a)	SAT ______ UNSAT ______
STANDARD	Applicant attempts to manually start the 3C CCW pump. Notes that the pump will not start and informs the US.	
BOOTH OPERATOR CUE	Acknowledge orders / request if required	
COMMENT		
EVALUATOR NOTES	The Applicant may have attempted to start the 3C CCW pump using the ARP in step 1. Applicant may make calls to the field to attempt local start of 3C CCW pump. Applicant may also dispatch an operator to investigate the CCW pumps and breakers. Applicant may also instruct the WCC SRO to attempt to restore 3A CCW pump as soon as possible. This is one of the Alternate Path aspects of this JPM.	

STEP 5	Verify Flow In Both Component Cooling Water Headers – NORMAL • FT-3-613A for header A • FT-3-613B for header B (3-ONOP-030, Step 3)	SAT ______ UNSAT ______
STANDARD	Applicant checks A CCW HDR FLOW FI-3-613A & B CCW HDR FLOW FI-3-613B and notes that both indicators are reading 0 GPM. Transitions to the RNO column.	
CUE		
COMMENT		
EVALUATOR NOTE	This Step is NOT critical since there are no verifiable operator actions.	

STEP 6 √	**IF** CCW flow to RCPs can **NOT** be established, **THEN** manually trip the reactor **AND** verify reactor trip using the EOP Network, **AND** then stop all RCPs **AND** perform the following: (3-ONOP-030, RNO Step 3.a.)	SAT ______ UNSAT ______
STANDARD	Applicant observes that the Reactor is already tripped. Applicant trips all three RCPs by placing their control switches in the STOP position. Notes that the green STOP light is ON and the red RUN light is OFF for all three RCPs. **OR** Per 3-ONOP-030, Foldout Page, Item 1.A, Applicant may trip RCPs prior to RNO Step 3.	
CUE		
COMMENT		
EVALUATOR NOTE	Applicant should acknowledge that the Reactor was previously tripped and re-verification of trip is not warranted.	

STEP 7 √	Isolate Letdown and Excess Letdown (3-ONOP-030, RNO Step 3.a.1.)	SAT ______ UNSAT ______
STANDARD	Applicant isolates **<u>Letdown</u>** by placing the handswitch for the following valves in the CLOSE position. **EITHER:** • CV-3-204, L/D FROM RHX. ISOL. VALVE **OR** • LCV-3-460, HIGH PRESS. L/D ISOL. VLV. FROM LOOP B COLD LEG **OR** • BOTH CV-3-200A, 45 GPM L/D ISOLATION VALVE and CV-3-200B, 60 GPM L/D ISOLATION VALVE Notes that the green CLOSED light is ON and the red OPEN light is OFF for each of the above valves. Applicant verifies Excess Letdown is already isolated by observing that the green CLOSED light is ON and the red OPEN light is OFF for the following: • CV-3-387, EXCESS L/D ISOL. VLV. FROM COLD LEG TO EXCESS L/D HX. • CV-3-389, EXCESS L/D FROM HX. TO VCT OR RCDT. **OR** Per 3-ONOP-030, Foldout Page, Item 1.A, Applicant may isolate Letdown and Excess Letdown (per the above) prior to RNO Step 3.a.1.	
CUE		
COMMENT		
EVALUATOR NOTE	Applicant should verify excess letdown was previously isolated. Verification of excess letdown being isolated is NOT critical since there are no verifiable operator actions.	

STEP 8 √	**IF** any charging pump is running, **THEN** operate at maximum speed until Attachment 1 is completed. (3-ONOP-030, RNO Step 3.a.2.)	SAT ______ UNSAT ______
STANDARD	Applicant takes the controller(s) for Charging Pumps 3A and 3C to manual by depressing the MAN pushbutton on the controller(s). Notes the white MAN light is LIT and the white AUTO light is OFF. Applicant raises the controller output to maximum by depressing the ⮝ pushbutton on the controller until the DEMAND METER is at 100%. Annunciator CHARGING PUMP HI SPEED (G 1/2) will actuate when the pump is at maximum speed.	
CUE		
COMMENT		
EVALUATOR NOTE	**The Applicant <u>may stop one charging pump</u> based on plant need. ONLY the Charging pump(s) that are running are operated at a maximum speed.**	

STEP 9	Dispatch an operator to establish emergency cooling water to desired charging pump using Attachment 1. (3-ONOP-030, RNO Step 3.a.3.)	SAT ______ UNSAT ______
STANDARD	Applicant contacts a field operator and directs the operator to perform Attachment 1 of 3-ONOP-030 for a running pump.	
TERMINATING CUE	**Evaluator informs the Applicant that another operator will continue in this procedure. The JPM is complete.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01030008303 - JPM: Respond to Component Cooling Water System Malfunctions

Examinee's Name: ______________________

Examiner's Name: ______________________

Date Performed: ______________________

Facility Evaluator: ______________________

Number of Attempts: ______________________

Time to Complete: ______________________

Question Documentation:

Question:

____

____

____

____

____

Response:

____

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Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______________________ ______________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is in MODE 3.
- Unit 4 is in MODE 1 at 100% power.
- The following equipment is Out of Service for maintenance - 3A CCW Pump, 3A ICW Pump, 4A HHSI Pump.

Initiating Cue:

- You are to respond to plant conditions as the Unit 3 Reactor Operator.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

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- Unit 4 is in MODE 1 at 100% power.
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Florida Power & Light Company

Turkey Point Nuclear Plant

Unit 3

3-ONOP-030

Title:

Component Cooling Water Malfunction

(Continuous Use)

Safety Related Procedure	
Responsible Department:	Operations
Revision Number:	2
Issue Date:	6/15/11
Revision Approval Date:	3/25/11

ARs *580245*
PCRs *08-3724, 08-2161, 10-0619*
OTSCs *10906, 0543-00, 0301-02, 0195-03*
PC/Ms *91-064, 92-031, 92-108, 93-034, 94-096, 96-092, 96-093, 00-016, 04-112, 06-018*

W97/nw/mr/nw

LIST OF EFFECTIVE PAGES
(Rev. 2)

Page	Revision Date	Page	Revision Date
1	03/25/11	19	11/28/07
2	03/25/11	20	11/28/07
3	11/28/07	21	11/28/07
4	10/12/10	22	03/25/11
5	03/25/11	23	11/28/07
6	11/28/07	24	11/28/07
7	01/05/09	25	11/28/07
8	03/25/11	26	10/12/10
9	11/28/07	27	11/28/07
10	11/28/07	28	10/12/10
11	11/28/07	29	10/12/10
12	11/28/07	30	10/12/10
13	03/25/11	31	11/28/07
14	03/25/11	32	11/28/07
15	03/25/11	33	10/12/10
16	03/25/11	34	11/28/07
17	11/28/07	35	11/28/07
18	03/25/11	Foldout	10/12/10

1.0 PURPOSE

1.1 This procedure provides instructions to be followed in the event of a malfunction or failure in the Component Cooling Water System.

1.2 This procedure applies to loss of Component Cooling Water due to system leakage or due to high system temperatures.

2.0 SYMPTOMS OR ENTRY CONDITIONS

2.1 Visible evidence of system leakage.

2.2 Rapid decrease in CCW Surge Tank Level, LI-3-613A, or CCW Head Tank Level, LI-3-614A.

2.3 Component Cooling Water Supply Header Temperature, TI-3-607A, greater than 120°F.

2.4 Loss of intake cooling water flow to CCW Heat Exchangers as determined by 3-ONOP-019, INTAKE COOLING WATER MALFUNCTION.

2.5 Annunciators

2.5.1 A 1/1, RCP THERMAL BARR COOLING WATER HI FLOW

2.5.2 A 1/3, RCP THERMAL BARR COOLING WATER LO FLOW

2.5.3 H 7/3, RHR PP A COOLING WATER LO FLOW

2.5.4 H 7/4, RHR PP B COOLING WATER LO FLOW

2.5.5 H 7/5, CSP A/B COOLING WATER LO FLOW

2.5.6 H 7/6, CCW SURGE TANK LO LEVEL

2.5.7 H 8/1, CCW PP A/B/C TRIP

2.5.8 H 8/2, CCW PP A/B/C MOTOR OVERLOAD

2.5.9 H 8/3, CCW HEADER LO PRESS

2.5.10 H 8/4, CCW PP SUCTION HI TEMP

2.5.11 H 8/5, CCW HX OUTLET HI TEMP

2.5.12 H 8/6, CCW HEAD TANK HI/LO LEVEL

2.5.13 H 9/5, RCP MOTOR BRG COOLING WATER LO FLOW

2.5.14 X 3/6, SI PP COOLING WATER LO FLOW

3.0 REFERENCES/RECORDS REQUIRED/COMMITMENT DOCUMENTS

3.1 References

3.1.1 Technical Specifications

1. Section 3/4.5.2, ECCS Subsystems - Tavg Greater Than or Equal to 350°F
2. Section 3/4.5.3, ECCS Subsystems - Tavg Less Than 350°F
3. Section 3/4.7.2, Component Cooling Water System
4. Section 3/4.9.8, Residual Heat Removal and Coolant Circulation

3.1.2 FSAR

1. Section 9, Auxiliary and Emergency Systems

3.1.3 Plant Drawings

1. 5613-M-3047, Sheets 1 and 2, CVCS - Charging and Letdown System
2. 5613-M-3030, Sheets 1 through 5, Component Cooling Water System
3. 5613-M-3020, Sheets 1 and 2, Primary Water System

3.1.4 Plant Procedures

1. 0-EPIP-20101, Duties of Emergency Coordinator
2. 0-NOP-012, Service Water System
3. 3-EOP-E-0, Reactor Trip Or Safety Injection
4. 3-ONOP-019, Loss of Intake Cooling Water
5. 3-ONOP-041.1, Reactor Coolant Pump Off-Normal
6. 3/4-NOP-030, Component Cooling Water System
7. 3-NOP-041.01A, 3A Reactor Coolant Pump Operations
8. 3-NOP-041.01B, 3B Reactor Coolant Pump Operations
9. 3-NOP-041.01C, 3C Reactor Coolant Pump Operations

3.1.5 Miscellaneous Documents (i.e, PC/M, Correspondence)

1. PC/M 91-064, Charging Pump Service Water Connections
2. PC/M 92-108, Replacement of Raw Water and Service Water Systems
3. PC/M 93-034, CCW System Reconfiguration to HHSI Pumps Seal/Thrust Bearing Coolers
4. PC/M 94-096, Removal of Valves CV-3-2202
5. PC/M 96-093, Addition of Unit 4 CCW Head Tank
6. PC/M 96-092, Addition of U-3 CCW Head Tank
7. PC/M 00-016, CRN M-10471, CCW Surge Tank Level Indicator Replacement
8. PC/M 04-112, Emergency Response Data Acquisition and Display System (ERDADS) Replacement
9. PC/M 06-018 (EC242212), Unit 3 Cask Handling Facility

3.2 Records Required

3.2.1 None

3.3 Commitment Documents

3.3.1 NRC Inspection Report 89-053, March 14, 1990

3.3.2 JPN-PTN-SENP-95-026, Safety Evaluation for CCW Flow Balance and Post Accident Alignment Requirements to Support Current and Uprated Conditions (LER 250/95-006)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

If any RCP bearing temperature annunciator alarm actuates AND its associated motor bearing temperature is greater than 195°F, trip the reactor and stop the affected RCPs.

NOTE

Foldout page should be monitored throughout this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	**Verify Power To 4KV Bus 3D** a. Maintain 4KV Bus 3D energized - ALIGNED TO AN ENERGIZED 4KV BUS	a. IF lockout of 4KV Bus 3D **NOT** present, THEN perform the following: 1. Verify 3C CCW Pump - BREAKER OPEN 2. Verify 3C ICW Pump - BREAKER OPEN 3. Operate bus supply breakers to energize bus.
2	**Verify Component Cooling Water Pumps In Service**	a. IF starting an idle CCW pump will NOT overload an EDG, THEN start CCW pumps as necessary to establish flow in both headers.
3	**Verify Flow In Both Component Cooling Water Headers - NORMAL** • FT-3-613A for header A • FT-3-613B for header B	Perform the following: a. IF CCW flow to RCPs can NOT be established, THEN manually trip the reactor AND verify reactor trip using the EOP Network, AND then stop all RCPs AND perform the following: 1. Isolate Letdown and Excess Letdown 2. IF any charging pump is running, THEN operate at maximum speed until Attachment 1 is completed. 3. Dispatch an operator to establish emergency cooling water to desired charging pump using Attachment 1.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- *The top of the component cooling water surge tank divider plate is located at approximately 25% indicated level.*
- *If a cross tie valve between the units is leaking or open, the surge tank on the opposite unit may be experiencing level control problems.*
- *If in Modes 1 through 3, and CCW System level is NOT maintained within the CCW Head Tank, restore CCW System level to be within the CCW Head Tank within 24 hours.*
- *LI-3-613A and LI-3-614A are NOT overlapping (i.e., LI-3-614A will go off scale low before LI-3-613A comes off its high peg with decreasing level).*

4 **Verify Component Cooling Water Surge Tank Level Being Maintained**

a. Component Cooling Water Surge Tank Level, LI-3-613A -

- GREATER THAN 25%

AND

- STABLE OR INCREASING .

RESPONSE NOT OBTAINED:

Perform the following:

1. Open Component Cooling Water Surge Tank Makeup, MOV-3-832 as necessary to add makeup.
2. **IF** Component Cooling Water Surge Tank Level can **NOT** be maintained, **THEN** perform the following:
   a) Trip the reactor **AND** perform 3-EOP-E-0, Reactor Trip or Safety Injection, while continuing with this procedure.
   b) **WHEN** rector verified tripped, **THEN** stop all RCPs.
3. Observe NOTES prior to Step 8 and go to Step 8.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	**Check If Component Cooling Water Headers Should Be Tied Together**	
	a. Check CCW headers - SPLIT	a. Go to Step 34.
	b. Check if flow has been lost in any CCW header * FT-3-613A for header A * FT-3-613B for header B	b. **IF** flow in both CCW headers is normal, **THEN** go to Step 34.
6	**Tie Component Cooling Water Headers Together**	
	a. Direct operator to terminate activities which require splitting CCW headers * Heavy load transport in Cask Handling Facility * In-service testing	
	b. Locally open CCW pump Suction Header Sectionalizing valves • 3-787A • 3-787B	
	c. Locally open CCW pump Discharge Header Sectionalizing valves • 3-787C • 3-787D	
	d. Locally open all Component Cooling Water Heat Exchanger Outlet Header Sectionalizing valves • 3-787E • 3-787F • 3-787G • 3-787H	
7	**Go To Step 34**	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- *Steps 8 through 33 are only applicable when leakage from the Component Cooling Water System is in progress.*
- *When leakage has been located and isolated, recovery actions shall continue starting with Step 27.*

8 **Establish Stable Plant Parameters**

a. Station a watch at Header B local surge tank level indicator, LI-3-615

b. Isolate Letdown and Excess Letdown

c. Dispatch an operator to establish emergency cooling water to desired charging pump using Attachment 1

d. Dispatch an operator to locate and isolate CCW System leakage by performing a System Walkdown.

RESPONSE NOT OBTAINED:

d. **IF** the system walkdown fails to identify the leak and CCW Surge Tank Level is still decreasing **OR** makeup still required, **THEN** perform the following:

1. Stop and PULL-TO-LOCK all but one CCW Pump.

2. Attempt to determine if the leak is in a Heat Exchanger by removing ONLY one CCW Heat Exchanger from service at a time using the following CCW isolation valves:

HX	Inlet	Outlet
3A	3-712A	3-713A
3B	3-712B	3-713B
3C	3-712C	3-713C

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	**Check If Additional Makeup Is Required**	
	a. Component Cooling Water Surge Tank Level, LI-3-613A - DECREASING OR EMPTY	a. Perform the following: 1) **<u>IF</u>** surge tank level can **<u>NOT</u>** be maintained during subsequent recovery actions, **<u>THEN</u>** do Steps 9b, 9c and 9d. 2) Go to Step 10.
	b. Locally open Component Cooling Water Header A Makeup Water Isolation, 3-711A	
	c. Throttle closed DWDS-001 to provide Demin Water Flow to the CCW Surge Tank	
	d. Locally throttle Demin Water Supply Valve, 3-724D, as necessary to maintain surge tank level stable or increasing	
10	**Verify CCW Pumps - NOT CAVITATING**	Stop any cavitating CCW pumps and place all CCW pumps in Pull-To-Lock.
	a. Running CCW pump amps - STABLE	
	b. Component Cooling Water Header Flows - STABLE • FI-3-613A • FI-3-613B	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

After dispatching an operator to locally split the Component Cooling Water headers, the Control Room operator shall continue with Step 13.

11 **Check If Headers Should Be Split Between The B And C CCW Pumps**

a. Leakage - KNOWN TO EXIST ON HEADER B

RESPONSE NOT OBTAINED: a. **IF** leakage is on header A **OR** location of leakage is **NOT** known, **THEN** go to Step 15.

b. Check on one of the following pumps - RUNNING

* 3A CCW Pump

OR

* 3B CCW Pump

RESPONSE NOT OBTAINED: b. Perform the following:

1) **IF** CCW pumps were placed in PULL-TO-LOCK due to cavitation, **THEN** DO **NOT** start the 3A or 3B CCW Pump **AND** go to Step 11c.

2) **IF** ONLY 3C CCW Pump running, **THEN** start 3A or 3B CCW Pump.

c. Place the 3C CCW Pump in STOP and PULL-TO-LOCK

12 **Isolate B CCW Header**

RESPONSE NOT OBTAINED: Locally close the listed valves to separate the headers.

a. Check the CCW Header Sectionalizing valves closed

- CCW Hx Outlet Hdr Sect Valve, 3-787G

  OR

  CCW Hx Outlet Hdr Sect Valve, 3-787H
- CCW Pump Dischg Hdr Sect Valve, 3-787D
- CCW Pump Suct Hdr Sect Valve, 3-787B
- CCW Sys Demin Water Primary Water Supply, 3-737C

13 **Check CCW Pump Operation**

RESPONSE NOT OBTAINED: Start either 3A or 3B CCW Pump.

a. Either 3A or 3B CCW Pump running

14 **Go to Step 18**

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

3C CCW Pump should be off if 3B CCW Pump is available to minimize the potential for exceeding the flow limits on the CCW Heat Exchangers.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	**Check If Headers Should Be Split Between The A And B CCW Pumps**	
	a. Check on one of the following pumps - RUNNING * 3B CCW Pump **OR** * 3C CCW Pump	a. Perform the following: 1) **IF** CCW pumps were placed in PULL-TO-LOCK due to cavitation, **THEN** DO **NOT** start the 3B or 3C CCW Pump **AND** go to Step 15b. 2) **IF** ONLY 3A CCW Pump running, **THEN** start 3B or 3C CCW Pump.
	b. Place the 3A CCW Pump in STOP and PULL-TO-LOCK	
16	**Isolate A CCW Header**	Locally close the listed valves to separate the header.
	a. Check the CCW Header Sectionalizing valves closed • CCW Hx Outlet Hdr Sect Valve, 3-787E **OR** CCW Hx Outlet Hdr Sect Valve, 3-787F • CCW Pump Dischg Hdr Sect Valve, 3-787C • CCW Pump Suct Hdr Sect Valve, 3-787A • CCW Sys Demin Water Primary Water Supply, 3-737C	
17	**Check CCW Pump Operation**	Start either 3B or 3C CCW Pump.
	a. Either 3B or 3C CCW Pump running	
18	**Check If Components Supplied By The B Header Should Be Shut Down**	Go to Step 23.
	* Header B Flow, FI-3-613B - NO FLOW **OR** * Local Header B Surge Tank Level, LI-3-615 - EMPTY **OR** * Local Header B Surge Tank Level, LI-3-615 - DECREASING IN AN UNCONTROLLED MANNER	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

The remainder of this procedure shall be performed concurrently with E-0, REACTOR TRIP OR SAFETY INJECTION, and any other applicable Emergency Operating Procedures.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19	**Shut Down Components Cooled By The B Component Cooling Water Header**	
	a. Manually trip the reactor	
	b. Place the following in Pull-To-Lock or Off • All RCPs • 3B RHR Pump • 3B Containment Spray Pump • 3B Emergency Containment Cooler • 3C Emergency Containment Cooler	
	c. Check component cooling water to Unit 3 High-Head SI pumps - ALIGNED TO UNIT 3	c. Go to Step 20.
	d. Place the following in Pull-To-Lock • 3A High-Head SI pump • 3B High-Head SI pump	
	e. Realign Unit 3 High-Head SI pumps component cooling water to Unit 4 per 3-NOP-030	
	f. **WHEN** the Unit 3 High-Head SI pumps have been realigned to Unit 4, **THEN** place the Unit 3 High-Head SI pumps back in AUTO	
20	**Check The Following Valves Closed**	
	a. HCV-3-137, Excess Letdown Flow Controller	a. Close HCV-3-137.
	b. CV-3-387, Excess Letdown Heat Exchanger Isolation Valve From Cold Leg To Excess Letdown	b. **WHEN** HCV-3-137 has been closed for 12 hours, **THEN** close CV-3-387.
21	**Check If Components Supplied By Cask Handling Facility Piping Should Be Isolated**	Go to Step 23.
	• Check component cooling water Cask Handling Facility piping - ALIGNED TO THE B HEADER PRIOR TO COMPONENT COOLING WATER MALFUNCTION	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Operation of the Charging Pump without cooling at less than maximum speed will result in excessive coupling oil temperatures. These temperatures may exceed the design limits within 20 seconds at half load. At maximum speed, temperature limits are expected to remain within specification limits indefinitely.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22	**Isolate Components Supplied By Cask Handling Facility Piping**	
	a. Close all letdown orifice isolation valves	
	b. Close High Pressure Letdown Isolation From Loop B Cold Leg, LCV-3-460	
	c. Increase charging flow to maximum on one pump	
	d. Start and stop charging pump at maximum speed as necessary to maintain Pressurizer level and RCP seal temperatures	
	e. Dispatch operator to establish emergency cooling water to desired charging pumps using ATTACHMENT 1	
	f. **WHEN** cooling water established to charging pump, **THEN** operate the pump as necessary to maintain Pressurizer level and RCP seal cooling	
	g. Verify Cask Handling Facility component cooling water piping - **NOT** LEAKING	g. Dispatch operator to close the following: 1) Both CCW Header Supply To Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx. • 3-835E • 3-835F 2) Both CCW Header Return From Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx. • 3-835G • 3-835H
23	**Check If Components Supplied By The A Header Should Be Shut Down** * Header A Flow, FI-3-613A - NO FLOW **OR** * Header A Surge Tank Level, LI-3-613A - EMPTY **OR** * Header A Surge Tank Level, LI-3-613A - DECREASING IN AN UNCONTROLLED MANNER	Go to Step 27.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	**Shut Down Components Cooled By The A Component Cooling Water Header**	
	a. Place the following in Pull-To-Lock or Off • 3A RHR Pump • 3A Containment Spray Pump • 3A Emergency Containment Cooler	
	b. Check component cooling water to Unit 4 High-Head SI pumps - ALIGNED TO UNIT 3	b. Go to Step 25.
	c. Place the following pump in Pull-To-Lock • 4A High-Head SI Pump • 4B High-Head SI pump	
	d. Realign Unit 4 High-Head SI pump component cooling water to Unit 4 using Section 5.4 of 4-NOP-030, COMPONENT COOLING WATER SYSTEM	
	e. **WHEN** the Unit 4 High-Head SI pumps have be realigned to Unit 4 component cooling water, **THEN** place the Unit 4 High-Head SI pumps back in AUTO	
25	**Check If Components Supplied By Cask Handling Facility Piping Should Be Isolated**	Go to Step 27.
	• Check component cooling water Cask Handling Facility piping - ALIGNED TO THE A HEADER PRIOR TO COMPONENT COOLING WATER MALFUNCTION	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Operation of the Charging Pump without cooling at less than maximum speed will result in excessive coupling oil temperatures. These temperatures may exceed the design limits within 20 seconds at half load. At maximum speed, temperature limits are expected to remain within specification limits indefinitely.

26 **Isolate Components Supplied By Cask Handling Facility Piping**

a. Close all letdown orifice isolation valves

b. Close High Pressure Letdown Isolation From Loop B Cold Leg, LCV-3-460

c. Increase charging flow to maximum on one pump

d. Start and stop charging pump at maximum speed as necessary to maintain Pressurizer level and RCP seal temperatures

e. Dispatch operator to establish emergency cooling water to desired charging pumps using ATTACHMENT 1

f. **WHEN** cooling water established to a charging pump, **THEN** operate the pump as necessary to maintain Pressurizer level and RCP seal cooling

g. Verify Cask Handling Facility component cooling water piping - NOT LEAKING

RESPONSE NOT OBTAINED:

g. Dispatch operator to close the following:

1) Both CCW Header Supply To Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx.

- 3-835E
- 3-835F

2) Both CCW Header Return From Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx.

- 3-835G
- 3-835H

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	**Check If Headers Are Leaking**	
	a. Locally check Header B Surge Tank Level, LI-3-615 – LEVEL ABOVE BOTTOM OF SIGHTGLASS	a. Go to Step 27d.
	b. Stop makeup to the B header	
	c. Check header B surge tank level - DECREASING	c. **<u>IF</u>** header B is intact, **<u>THEN</u>** go to Step 34.
	d. Check Header A Surge Tank Level, LI-3-613A - GREATER THAN 0%	d. Go to Step 28.
	e. Stop makeup to the A header	
	f. Check Header A Surge Tank Level - DECREASING	f. **<u>IF</u>** header A is intact, **<u>THEN</u>** observe CAUTION and NOTE prior to Step 29 and go to Step 29.
28	**Try To Establish One Intact Component Cooling Water Header**	
	a. Continue efforts to locate and isolate Component Cooling Water System leakage	
	b. Continue adding makeup to intact portions of the Component Cooling Water System	
	c. Return to Step 9	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Transferring components to the A header may cause surge tank level to decrease rapidly.

NOTE

Steps 29 through 33 are only applicable when the B CCW header is not intact.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	**Transfer Components Supplied By Cask Handling Facility Piping To The A Header**	
	a. Verify Cask Handling Facility piping - INTACT	a. Go to Step 30.
	b. Isolate Cask Handling Facility piping from the B header	b. Go to Step 30.
	1) Close CCW Header B Return From Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx, 3-835H	
	2) Close CCW Header B Supply To Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx, 3-835E	
	c. Align Cask Handling Facility piping to the A header	
	1) Open CCW Header A Supply To Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx, 3-835F	
	2) Open CCW Header A Return From Charging Pumps, Spent Fuel Pit Hx, Non-Regen Hx, And Seal Water Hx, 3-835G	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30	**Transfer 3C Emergency Containment Cooler To The A Header**	
	a. Isolate 3C Emergency Containment Cooler from the B header	a. Go to Step 31.
	1) Close Emergency Cooler C Tie To CCW Header B, 3-652	
	2) Close CCW Header B Tie To Emergency Containment Cooler C, 3-650	
	b. Align 3C Emergency Containment Cooler to the A header	
	1) Open CCW Header A Tie To Emergency Containment Cooler C, 3-651	
	2) Open Emergency Cooler C Tie To CCW Header A, 3-653	
31	**Transfer Components To The A Header**	
	a. Isolate components from the B header	a. Go to Step 32.
	1) Close CCW Return Header B Isolation, 3-835B	
	2) Close CCW Header B Supply To RCP, Containment Coolers, Rod Drive Coolers, Primary Shield, Excess Letdown Hx, Evaporator Coolers, And Sample Coolers, 3-835C	
	b. Align components to the A header	
	1) Open CCW Header A Supply To RCP, Containment Coolers, Rod Drive Coolers, Primary Shield, Excess Letdown Hx, Evaporator Coolers, And Sample Coolers, 3-835D	
	2) Open CCW Return Header A Isolation, 3-835A	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32	**Isolate CCW Pump B From The B Header**	
	a. Place CCW pump C in Pull-To-Lock	
	b. Check CCW pump B - ALIGNED TO HEADER B	b. **IF** CCW pump B is already aligned to header A, **THEN** go to Step 34.
	c. Place CCW pump B in Pull-To-Lock	
	d. Locally isolate CCW pump B from the B header	d. **IF** CCW pump B can **NOT** be isolated from the B header, **THEN** perform the following:
	1) Locally close at least one Component Cooling Water Heat Exchanger Outlet Header Sectionalizing valve * 3-787G * 3-787H	a) Locally verify at least one Component Cooling Water Heat Exchanger Outlet Header Sectionalizing valves - CLOSED: * 3-787E * 3-787F
	2) Locally close CCW pump Discharge Header Sectionalizing Valve, 3-787D	b) Locally verify CCW pump Discharge Header Sectionalizing Valve, 3-787C - CLOSED
	3) Locally close CCW pump Suction Header Sectionalizing Valve, 3-787B	c) Locally verify CCW pump Suction Header Sectionalizing Valve, 3-787A - CLOSED
		d) Go to Step 34.
33	**Align CCW Pump B To The A Header**	
	a. Locally open both Component Cooling Water Heat Exchanger Outlet Header Sectionalizing valves • 3-787E • 3-787F	
	b. Locally open CCW Pump Discharge Header Sectionalizing Valve, 3-787C	
	c. Locally open CCW Pump Suction Header Sectionalizing Valve, 3-787A	
	d. Check flow on the A header	d. Start the CCW Pump B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
34	**Verify Component Cooling Water From Unit 4 - NOT REQUIRED**	
	a. Unit 3 CCW headers filled and intact	a. Return to Step 4.
	b. Verify CCW pumps - AT LEAST ONE RUNNING	b. Start a Standby CCW pump.
	c. Verify flow in at least one intact CCW header * FI-3-613A for header A * FI-3-613B for header B	c. Perform the following: 1) Try to establish flow in at least one intact CCW header. 2) **<u>IF</u>** flow in at least one intact CCW header can **<u>NOT</u>** be established, **<u>THEN</u>** observe NOTE prior to Step 36 and go to Step 36.
	d. Verify intake cooling water flow to all in service CCW heat exchangers * FI-3-1407 for Hx A * FI-3-1408 for Hx B * FI-3-1409 for Hx C	d. Perform the following: 1) Try to establish intake cooling water flow to in-service CCW heat exchangers. 2) Stop components cooled by component cooling water as necessary to stabilize component cooling water temperature. 3) **<u>IF</u>** any component cooled by component cooling water must be operated **<u>AND</u>** stable component cooling water temperature can **<u>NOT</u>** be maintained, **<u>THEN</u>** observe NOTE prior to Step 36 and go to Step 36.
35	**Observe CAUTION Prior To Step 43 And Go To Step 43**	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

Steps 36 through 42 are only applicable when component cooling water from Unit 4 is required and the Unit 3 CCW Headers are intact and filled.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	**Prepare To Establish CCW Flow From Unit 4**	
	a. Obtain permission from Shift Manager to cross-connect Unit 3 and Unit 4 component cooling water systems	a. DO NOT CROSS-CONNECT CCW SYSTEMS. Observe CAUTION prior to Step 43 and go to Step 43.
	b. Verify Unit 4 component cooling water headers - TIED TOGETHER	b. Direct Unit 4 Reactor Operator to perform the following: 1) Stop spent fuel transfer in Unit 4 Cask Handling Facility. 2) Tie Unit 4 component cooling water headers together using 4-NOP-030, COMPONENT COOLING WATER SYSTEM.
	c. Verify Unit 4 CCW pumps - AT LEAST TWO RUNNING	c. Direct Unit 4 Reactor Operator to start CCW pumps as necessary to establish two Unit 4 CCW pumps running.
	d. Verify Unit 4 CCW Heat Exchangers - ALL IN SERVICE	d. Direct personnel to restore out-of-service CCW Heat Exchanger to service.
	e. Direct Unit 4 Reactor Operator to start intake cooling water pumps as necessary to establish at least two Unit 4 intake cooling water pumps running	
	f. Direct Unit 4 Reactor Operator to closely monitor Unit 4 CCW System	
	g. Locally verify the following valves - OPEN • 3-789A, PASS Gas Compressors And Boric Acid Evaporator CCW Supply • 3-789B, PASS Gas Compressors And Boric Acid Evaporator CCW Outlet • 4-789A, PASS Gas Compressors And Boric Acid Evaporator CCW Supply • 4-789B, PASS Gas Compressors And Boric Acid Evaporator CCW Outlet	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

Unit 3 CCW surge tanks are isolated to prevent loss of Unit 4 component cooling water through Unit 3 surge tank vent lines when the CCW Systems are cross-connected.

37 **Isolate Unit 3 CCW Surge Tank**

a. Locally check Component Cooling Water Header A Makeup Water Isolation, 3-711A - CLOSED

RESPONSE NOT OBTAINED: a. Locally close 3-711A.

b. Locally close the following valves

- 3-710A, CCW Header A Surge Tank Isolation
- 3-710B, CCW Header B Surge Tank Isolation

38 **Establish CCW Flow From Unit 4**

a. Locally unlock both Unit 3 - Unit 4 CCW Tie Between Boric Acid Evaporator And Waste Gas Compressor valves

- 779A
- 779B

b. Direct Unit 4 Reactor Operator to locally open both CCW Header Makeup Isolation Valves

- 4-711A
- 4-711B

c. Stop all Unit 3 CCW pumps

d. Locally throttle open Unit 3 - Unit 4 CCW Tie Between Boric Acid Evaporator And Waste Gas Compressors (Inlet), 779A

39 **Maintain Stable Unit 4 CCW Inventory**

- LI-4-614A – Stable
- LI-4-613A - Stable

RESPONSE NOT OBTAINED: Direct Unit 4 Reactor Operator to add makeup as necessary to stabilize Unit 4 CCW System inventory using one or both of the following:

* Open component Cooling Water Surge Tank Makeup, MOV-4-832.
* Locally throttle Demin Water Supply Valve, 4-724D.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

The top of the component cooling water surge tank divider plate is located at approximately 25% indicated level.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
40	**Maintain Unit 4 Surge Tank Level, LI-4-613A - GREATER THAN 25%**	Perform the following:

a. Locally close both Unit 3 - Unit 4 CCW Tie Between Boric Acid Evaporator And Waste Gas Compressor valves

- 779A
- 779B

b. Determine and try to correct cause for Unit 4 CCW System level decrease.

c. **IF** the cause for Unit 4 CCW System level decrease can be corrected, **THEN** return to Step 38.

d. **IF** the cause for Unit 4 CCW System level decrease can **NOT** be corrected, **THEN** perform the following:

1) Locally open the following valves:

- 3-710A, CCW Header A Surge Tank Isolation
- 3-710B, CCW Header B Surge Tank Isolation

2) Restart any previously running Unit 3 CCW pumps.

3) Locally lock both Unit 3 - Unit 4 CCW Tie Between Boric Acid Evaporator And Waste Gas Compressor valves

- 779A
- 779B

4) **WHEN** makeup to Unit 4 CCW System is no longer required, **THEN** direct Unit 4 Reactor Operator to locally close CCW Header Makeup Isolation Valve, 4-711A

5) Go to Step 43.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
41	**Fully Open Both Unit 3 - Unit 4 CCW Tie Between Boric Acid Evaporator And Waste Gas Compressor Valves** • 779A • 779B	
42	**Maintain Unit 4 Component Cooling Water Temperatures**	
	a. Check Unit 4 Component Cooling Water Supply Header Temperature - LESS THAN 120°F • TI-4-607A • TI-4-607B	a. Stop Unit 3 and Unit 4 components as necessary to reduce heat load on Unit 4 Component Cooling Water System.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

If component cooling water to any component has been lost and can not be restored, that component shall be maintained in Pull-To-Lock or Off to prevent equipment damage.

43 **Verify Component Cooling Water Is Being Supplied To The Following Components**

- High-head SI pumps
- RHR pumps
- Containment spray pumps
- Emergency containment coolers

Perform the following:

a. Verify headers are not leaking, **THEN** locally align valves as necessary to establish component cooling water flow to each component. Refer to 3-NOP-030, COMPONENT COOLING WATER SYSTEM, for proper valve alignment.

b. **IF** component cooling water can **NOT** be established to any component, **THEN** perform the following:

1) Place the affected components in Pull-To-Lock or Off.

2) DO NOT START AFFECTED COMPONENTS in subsequent steps.

3) DO NOT PLACE AFFECTED COMPONENTS IN STANDBY in subsequent steps.

44 **Verify Proper Component Alignment**

a. Restart previously running components

* High-head SI pumps
* RHR pumps
* Containment spray pumps
* Emergency containment coolers

b. Place idle components in standby

* High-head SI pumps
* RHR pumps
* Containment spray pumps
* Emergency containment coolers

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
45	**Establish Charging Flow**	
	a. Locally verify component cooling water flow from charging pumps, FI-3-660	a. Verify emergency cooling water has been established to desired charging pump using Attachment 1.
	b. Check charging pumps - AT LEAST ONE RUNNING	b. <u>IF</u> any charging pumps were running prior to component cooling water malfunction, **<u>THEN</u>** start one charging pump.
	c. Maintain minimum charging flow for RCP seal injection	
46	**Verify CCW To RCPs - AVAILABLE**	Perform the following:
	a. Verify component cooling water to RCPs - AVAILABLE	1. Verify reactor - TRIPPED
	b. Verify CCW Inlet valves - OPEN	2. Verify all RCPs - STOPPED
	• MOV-3-716A	3. Close RCP Thermal Barrier CCW Outlet, MOV-3-626.
	• MOV-3-716B	4. Adjust charging flow and Charging Flow to Regen Heat Exchanger, HCV-3-121, to maintain thermal barrier ΔP greater than 0 inches of water.
		5. Verify natural circulation.
		6. Go to Step 49.
47	**Verify RCP Bearing CCW Outlet, MOV-3-730 - OPEN**	Perform the following: a. Verify reactor - TRIPPED b. Verify all RCPs - STOPPED c. Verify natural circulation.
48	**Verify RCP Thermal Barrier CCW Outlet, MOV-3-626 - OPEN**	Adjust charging flow and Charging Flow to Regen Heat Exchanger, HCV-3-121, to maintain thermal barrier DP greater than 0 inches of water.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
49	**Verify Containment Cooling**	
	a. Check normal containment coolers – RUNNING	a. Go to Step 50.
	b. Establish normal containment cooling 1) Verify component cooling water to normal containment coolers - AVAILABLE 2) Verify Component Cooling Water To Normal Containment Cooler valve - OPEN • MOV-3-1417 • MOV-3-1418	b. Consult with Shift Manager to determine if one of the following methods should be used to cool containment: * Emergency containment coolers. **OR** * Containment purge.
50	**Maintain Reactor Coolant System Circulation**	
	a. Check RCPs - ALL STOPPED	a. Go to Step 51.
	b. Obtain permission from Plant Manager to start RCPs	b. Perform the following: 1) Verify natural circulation. 2) Go to Step 51.
	c. Start RCPs as desired using 3-NOP-041.01A, 3A REACTOR COOLANT PUMP OPERATIONS; 3-NOP-041.01B, 3B REACTOR COOLANT PUMP OPERATIONS; and 3-NOP-041.01C, 3C REACTOR COOLANT PUMP OPERATIONS, as appropriate	
51	**Check If Letdown Or Excess Letdown Should Be Placed In Service**	Go to Step 53.
	a. Charging pumps - AT LEAST ONE RUNNING	
	b. Letdown **OR** excess letdown - IN SERVICE PRIOR TO COMPONENT COOLING WATER MALFUNCTION	
	c. Letdown **AND** excess letdown - SECURED	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

52 **Establish Letdown**

a. Verify letdown orifice isolation valves - CLOSED

b. Place L/D Temp Controller, TC-3-144A, in MANUAL and control letdown temperature manually

c. Open Letdown From Regen Heat Exchanger Isolation, CV-3-204

d. Open High Pressure Letdown Isolation From Loop B Cold Leg, LCV-3-460

e. Manually control Low Pressure Letdown Controller, PCV-3-145, to limit pressure spike when opening letdown orifice isolation valves

f. Open letdown orifice isolation valves to establish desired letdown flow

g. Place Low Pressure Letdown Controller, PCV-3-145, in Automatic

h. Place Charging pump controls in Automatic to maintain Pressurizer level

i. **WHEN** letdown temperature is 115°F to 121°F and stable, **THEN** place TC-3-144A in AUTO

RESPONSE NOT OBTAINED:

Establish excess letdown

1. Verify Excess Letdown Heat Exchanger CCW Outlet, CV-3-739, OPEN.
2. Verify Excess Letdown Flow Controller, HCV-3-137 – CLOSED.
3. Verify Excess Letdown Isolation Valve CV-3-387 – CLOSED.
4. Locally verify Component Cooling Water Flow From Excess Letdown Heat Exchanger, FI-3-624. **IF** flow is **NOT** available, **THEN** go to Step 53.
5. Verify Excess Letdown From Heat Exchanger to VCT Or RCDT, CV-3-389, is in the desired position:

   * RCDT - Divert

   OR

   * VCT – Normal
6. Slowly open Excess Letdown Flow Control Valve, HCV-3-137.
7. Close Excess Letdown Flow Control Valve, HCV-3-137.
8. Open Excess Letdown Heat Exchanger Isolation Valve From Cold Leg To Excess Letdown, CV-3-387.
9. Open Excess Letdown Flow Controller, HCV-3-137.
10. Verify Excess Letdown Heat Exchanger Outlet Temperature, TI-3-139 - less than 190°F.
11. **IF** volume control tank temperature increases to greater than 130°F, **THEN** place Excess Letdown From Heat Exchanger To VCT Or RCDT, CV-3-389, in RCDT - Divert position.
12. Continue efforts to establish normal letdown. **WHEN** normal letdown has been established, **THEN** stop excess letdown. Continue with Step 53.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
53	**Locally Verify Component Cooling Water Flow From Seal Water Heat Exchanger, FI-3-618**	Perform the following: a. Place Excess Letdown From Heat Exchanger To VCT Or RCDT, CV-3-389, in RCDT - Divert position. b. Close Excess Letdown And RCP Seal Return To VCT, MOV-3-381.
54	**Locally Verify Component Cooling Water Flow From Spent Fuel Pool Heat Exchanger, FI-3-622**	Perform the following: a. Monitor spent fuel pool temperatures. b. Add makeup as necessary to maintain spent fuel pool level greater than 7 inches below normal level of 57 feet.
55	**Direct Shift Manager To Evaluate Plant Conditions** a. Check for applicability to conditions listed in 0-EPIP-20101, DUTIES OF EMERGENCY COORDINATOR b. Verify applicable Technical Specification Limiting Conditions for Operation - SATISFIED	b. Perform applicable Technical Specification corrective actions.
56	**Verify Component Cooling Water System - ALIGNED FOR NORMAL OPERATIONS**	Perform the following: a. **WHEN** normal system operation is possible, **THEN** realign the system using 3-NOP-030, COMPONENT COOLING WATER SYSTEM. b. **IF** component cooling water is being supplied by Unit 4, **THEN** place both units in cold shutdown as soon as possible.
57	**Go To Appropriate Plant Procedure As Determined By The Shift Manager**	

END OF TEXT

ATTACHMENT 1
(Page 1 of 5)

CONTROL OF EMERGENCY COOLING WATER TO CHARGING PUMPS

NOTES

- *Emergency cooling water SUPPLY hose has a quick disconnect fitting on one end and a cam lock fitting on the other end.*
- *Loss of off-site power in coincidence with a loss of CCW will require the diesel driven service water pump to be in service in order to provide emergency cooling water to the charging pumps.*

1. Connect cam lock fitting end of emergency cooling water supply hose to Service Water Connection Inside Unit 3 Charging Pump Room, 3-70-179A.

2. Consult with Unit 3 Reactor Operator to determine desired charging pump.

3. Verify desired charging pump is stopped **OR** running at maximum speed.

4. Connect quick disconnect fitting end of emergency cooling water supply hose to emergency hose connection on desired charging pump.

a. Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-291

OR

b. Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-289

OR

c. Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-299

NOTE

Emergency cooling water OUTLET hose has a quick disconnect fitting on one end and no fitting on the other end.

5. Connect quick disconnect fitting end of emergency cooling water outlet hose to emergency hose connection on desired charging pump.

a. Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-290

OR

b. Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-288

OR

c. Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-298

ATTACHMENT 1
(Page 2 of 5)

CONTROL OF EMERGENCY COOLING WATER TO CHARGING PUMPS

6. Remove cover from floor drain to be used in Charging Pump Room.

7. Route open end of emergency cooling water outlet hose to floor drain being used in Charging Pump Room.

8. Isolate CCW to hydraulic oil cooler on desired charging pump:

   a. Close CCW to A Charging Pump Oil Cooler Inlet, 3-825A

   OR

   b. Close CCW to B Charging Pump Oil Cooler Inlet, 3-825C

   OR

   c. Close CCW to C Charging Pump Oil Cooler Inlet, 3-825E

9. Isolate CCW from hydraulic oil cooler on desired charging pump:

   a. Close CCW from A Charging Pump Oil Cooler Inlet, 3-825B

   OR

   b. Close CCW from B Charging Pump Oil Cooler Inlet, 3-825D

   OR

   c. Close CCW from C Charging Pump Oil Cooler Inlet, 3-825F

10. Open Service Water Connection Inside Unit 3 Charging Pump Room Root Valve, 3-70-179.

11. Open Service Water Connection Inside Unit 3 Charging Pump Room, 3-70-179A.

12. Establish service water to desired Charging Pump:

   a. Open Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-291

   OR

   b. Open Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-289

   OR

   c. Open Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-299

ATTACHMENT 1
(Page 3 of 5)

CONTROL OF EMERGENCY COOLING WATER TO CHARGING PUMPS

13. Adjust service water flow from desired charging pump to provide maximum flow.

a. Open Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-290

OR

b. Open Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-288

OR

c. Open Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-298

14. IF service water flow is not obtained, **THEN** have the Service Water System placed in service using 0-NOP-012, SERVICE WATER SYSTEM, using any available pump including the diesel driven SWP D.

15. Notify Unit 3 Reactor Operator that emergency cooling water has been established to desired charging pump.

NOTE

Maximum charging pump oil temperature is 220°F to prevent oil break down. The installed temperature indicators only indicate up to 200°F. Some indicators are located on the cooler inlet and others on the cooler outlet. Maximum expected ΔT across the cooler is 20°F. At 195°F on the cooler outlet (oil to the hydraulic coupling), this would equate to 215°F on the cooler inlet (oil from the hydraulic coupling).

16. Monitor oil temperatures on running charging pump.

17. IF hydraulic coupling oil temperature on running charging pump exceeds 195°F, **THEN** perform the following:

a. Notify Unit 3 Reactor Operator that operating charging pump should be stopped.

b. Consult with Unit 3 Reactor Operator to determine if emergency cooling water should be realigned to a different charging pump.

c. IF Unit 3 Reactor Operator determines that emergency cooling water must be realigned to a different charging pump, **THEN** go to Step 20 of this attachment.

18. IF Unit 3 Reactor Operator determines that emergency cooling water to charging pumps is no longer required, **THEN** go to Step 20 of this attachment.

19. Return to Step 16 of this attachment.

20. Verify charging pump being supplied with emergency cooling water is stopped.

ATTACHMENT 1
(Page 4 of 5)

CONTROL OF EMERGENCY COOLING WATER TO CHARGING PUMPS

21. Isolate emergency cooling water flow from previously running charging pump:

a. Close Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-290

OR

b. Close Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-288

OR

c. Close Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-298

22. Isolate emergency cooling water flow to previously running charging pump:

a. Close Emergency Hose Connection to Charging Pump A Oil Cooler, 3-10-291

OR

b. Close Emergency Hose Connection to Charging Pump B Oil Cooler, 3-10-289

OR

c. Close Emergency Hose Connection to Charging Pump C Oil Cooler, 3-10-299

23. Reestablish CCW to hydraulic oil cooler on previously running charging pump:

a. Open CCW to A Charging Pump Oil Cooler Inlet, 3-825A

OR

b. Open CCW to B Charging Pump Oil Cooler Inlet, 3-825C

OR

c. Open CCW to C Charging Pump Oil Cooler Inlet, 3-825E

ATTACHMENT 1
(Page 5 of 5)

CONTROL OF EMERGENCY COOLING WATER TO CHARGING PUMPS

24. Reestablish CCW from hydraulic oil cooler on previously running charging pump.

a. Open CCW from A Charging Pump Oil Cooler Inlet, 3-825B

OR

b. Open CCW from B Charging Pump Oil Cooler Inlet, 3-825D

OR

c. Open CCW from C Charging Pump Oil Cooler Inlet, 3-825F

25. Disconnect emergency cooling water outlet hose from previously running charging pump.

26. Close Service Water Connection Inside Unit 3 Charging Pump Room Root Valve, 3-70-179.

27. Close Service Water Connection Inside Unit 3 Charging Pump Room, 3-70-179A.

28. Disconnect emergency cooling water supply hose from previously running charging pump.

29. **IF** emergency cooling water must be realigned to a different charging pump, **THEN** return to Step 2.

30. Disconnect emergency cooling water supply hose from Service Water Connection Inside Unit 3 Charging Pump Room, 3-70-179A.

31. Return emergency cooling water supply and outlet hoses to their designated storage locations.

32. Replace cover on floor drain used for emergency cooling water.

33. Notify Unit 3 Reactor Operator that emergency cooling water alignment has been terminated.

FINAL PAGE

FOLDOUT FOR 3-ONOP-030

1. **TOTAL LOSS OF CCW FLOW**

   A. Manually trip the reactor, verify reactor trip using the EOP network, **THEN** stop the RCPs.

   B. Isolate letdown and excess letdown.

   C. Establish one charging pump running at maximum speed **AND** dispatch operator to establish emergency cooling water to one of the remaining two charging pumps using Attachment 1. Monitor RCS pressure closely while running charging pump at maximum speed.

   D. **WHEN** Attachment 1 is complete, **THEN** operate charging pump supplied with emergency cooling as necessary to maintain RCP seal cooling.

2. **LOSS OF CCW TO ANY COMPONENT**

   IF component cooling water flow to any component cooled by CCW is lost, **THEN** shut down the affected component.

3. **CHARGING PUMP EMERGENCY COOLING CRITERIA**

   IF Cooling Water is **NOT** available to charging pumps, **THEN** charging pump operation shall be at maximum speed until cooling is restored from CCW System or using Attachment 1.

4. **CCW PUMP STOPPING CRITERIA**

   IF any Component Cooling Water Pump is cavitating, **THEN** stop the affected Component Cooling Water Pumps and place in Pull-To-Lock.

5. **REACTOR TRIP CRITERIA**

   IF tripping a RCP is required, **THEN** manually trip the reactor prior to stopping the RCP.

6. **RCP STOPPING CRITERIA**

   IF any RCP bearing temperature annunciator alarm actuates **AND** its associated motor bearing temperature is greater than 195°F, **THEN** trip reactor and stop the affected RCPs.

7. CCW System operation once CCW System Hdr has been restored shall be within the operating restrictions of 3-NOP-030 summarized as follows: [Commitment - Step 3.3.2]

   CCW Pumps, Heat Exchangers, and Flows/Loads.

   - N-1 CCW Pumps (where N = number of CCW Hxs aligned to CCW)
   - All CCW Hxs in service when RHR in service **OR** with only 2 CCW Hxs in service, place 2 CCW Pumps in Pull-To-Lock.
   - Maximum of 5 out of 6 CCW Heat Loads.

Facility:	Turkey Point	Task No:	14028009500
Task Title:	JPM: Locally Trip the Reactor and Main Turbine	JPM No:	14028009501
K/A Reference:	029 EA 1.1 RO 3.9 SRO 4.1		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance	X	Actual Performance	

Classroom ______ Simulator ______ Plant X

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*, is in progress on UNIT 4.

Initiating Cues:

- You have been directed to proceed to the Unit 4B MCC room and take local actions to trip the Unit 4 Reactor per 4-EOP-FR-S.1, RNO Step 7.a.

- You are then directed to trip the Main Turbine locally per 4-EOP-FR-S.1, RNO Step 7.b.

Task Standard:

- Reactor is Tripped by locally opening the Unit 4A and 4B Reactor Trip and Bypass Breakers in the 4B MCC room (Time Critical).
- Unit 4A and Unit 4B Rod Drive Motor Generator set input and output breakers are opened locally in the 4B MCC room.
- Main Turbine is tripped from the Front Standard.

Required Materials:

- 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS,* Step 7.

General References:

- 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*

Time Critical Task: Yes

Validation Time: 10 minutes

Denote critical steps with a check mark (√) **Start Time** ______

STEP 1	Obtain required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*.	
CUE	Provide Applicant with a copy of 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*, Step 7.	
COMMENT		

STEP 2 √	In 4B MCC room, locally trip reactor as follows: Open 4A and 4B Reactor Trip Breakers. (4-EOP-FR-S.1, RNO Step 7.a., Bullet 1)	SAT ______ UNSAT ______
STANDARD	Applicant proceeds to the Unit 4B MCC Room and locates the RTBs. Explains that the red CLOSED flag should be showing for the RTBs. Applicant opens the Unit 4A and 4B Reactor Trip Breakers by depressing the TRIP button on the front of the Unit 4A and 4B Reactor Trip Breakers. Explains that the green OPEN flag should be showing.	
CUE	When the Applicant explains expected conditions at the RTBs, inform the Applicant that the red CLOSED flag is showing for the Unit 4 A and 4B Reactor Trip Breakers. When the Applicant demonstrates opening each of the breakers by depressing the TRIP button on the front of the Unit 4A and 4B Reactor Trip Breakers, inform the Applicant that the green OPEN flag is indicated.	
COMMENT		
NOTE	**EVALUATOR NOTE:** The Unit 4A and 4B Reactor Trip Breakers may be opened in any order.	

STEP 3	Open 4A and 4B Reactor Trip Bypass Breakers. (4-EOP-FR-S.1, RNO Step 7.a., Bullet 2)	SAT ______ UNSAT ______
STANDARD	Applicant describes that the Unit 4A and 4B Reactor Trip Bypass Breakers should show a green OPEN flag; therefore, depressing the TRIP button on the front of the Unit 4A and 4B Reactor Trip Breakers is not required.	
CUE	When the Applicant describes that the Unit 4A and 4B Reactor Trip Bypass Breakers should show a green OPEN flag and should be withdrawn from the cubicle, inform the Applicant that the RTBP is withdrawn from the cubicle and that the green OPEN flag is indicated.	
COMMENT		
NOTE	**EVALUATOR NOTE:** The Unit 4 Reactor Trip Breakers are normally racked out **EVALUATOR NOTE:** This Step is NOT critical because the Initial Conditions indicate that the Reactor Trip Bypass Breakers are already open; therefore, would not require operator actions.	

TIME STOP for Time Critical action____________

STEP 4 √	Open A/B MG set generator output breakers. (4-EOP-FR-S.1, RNO Step 7.a., Bullet 3)	SAT ______ UNSAT ______
STANDARD	Applicant describes that the green light should be OFF and the red light should be ON initially. Applicant places the GENERATOR 4A control switch for the 4A MG set to the TRIP position. Explains that the green light should be ON and the red light should be OFF. Applicant places the GENERATOR 4B control switch for the 4A MG set to the TRIP position. Explains that the green light should be ON and the red light should be OFF.	
CUE	After Applicant explains the initial status of the generator output breaker, inform the Applicant that the green light is OFF and the red light is ON. When the Applicant explains expected conditions when the GENERATOR 4A/4B control switches are operated, inform the Applicant that the green lights are ON and the red lights are OFF.	
COMMENT		

STEP 5 √	Open A/B MG set motor input breakers. (4-EOP-FR-S.1, RNO Step 7.a., Bullet 4)	SAT ______ UNSAT ______
STANDARD	Applicant describes that the green light should be OFF and the red light should be ON initially. Applicant places the MOTOR 4A control switch for the 4A MG set to the TRIP position. Explains that the green light should be ON and the red light should be OFF. Applicant places the MOTOR 4B control switch for the 4A MG set to the TRIP position. Explains that the green light should be ON and the red light should be OFF.	
CUE	After Applicant explains the initial status of the motor input breaker, inform the Applicant that the green light is OFF and the red light is ON. When the Applicant explains expected conditions when the MOTOR 4A/4B control switches are operated, inform the Applicant that the green lights are ON and the red lights are OFF.	
COMMENT		

STEP 5 √	Locally trip turbine at turbine front standard. (4-EOP-FR-S.1, RNO Step 7.b)	SAT _______ UNSAT _______
STANDARD	Applicant describes that, to trip the Main turbine; the orange, RESET/TRIP lever is rotated clockwise to the TRIP position. Indications of a turbine trip include, but are not limited to: • Sound of turbine rolling down. • Indications of lowering shaft rpm. • Lowering bearing oil pressure. • Turbine stop and control valves going closed.	
CUE	**EVALUATOR CUE:** After Applicant explains the initial trip method and provides some indications of the trip occurring, inform Applicant that the Main Turbine is slowing down and bearing oil pressure is decreasing. **TERMINATING CUE:** **The task is complete when the Applicant returns the JPM Briefing Sheet to the examiner.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 14028009501

Examinee's Name: ______

Examiner's Name: ______

Date Performed: ______

Facility Evaluator: ______

Number of Attempts: ______

Time to Complete: ______

Question Documentation:

Question:

______

______

______

______

______

Response:

______

______

______

______

______

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ______ ______

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*, is in progress on UNIT 4.

Initiating Cues:

- You have been directed to proceed to the Unit 4B MCC room and take local actions to trip the Unit 4 Reactor per 4-EOP-FR-S.1, RNO Step 7.a.

- You are then directed to trip the Main Turbine locally per 4-EOP-FR-S.1, RNO Step 7.b.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- 4-EOP-FR-S.1, *Response to Nuclear Power Generation/ATWS*, is in progress on UNIT 4.

Initiating Cues:

- You have been directed to proceed to the Unit 4B MCC room and take local actions to trip the Unit 4 Reactor per 4-EOP-FR-S.1, RNO Step 7.a.

- You are then directed to trip the Main Turbine locally per 4-EOP-FR-S.1, RNO Step 7.b.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

If an SI signal exists or occurs and the reactor is subcritical, proper safeguards equipment alignment is required to be verified using Attachment 3 of 4-EOP-E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	**Check If The Following Trips Have Occurred**	
	a. Reactor trip	a. In 4B MCC room, locally trip reactor as follows: • Open 4A and 4B Reactor Trip Breakers. • Open 4A and 4B Reactor Trip Bypass Breakers. • Open A/B MG set generator output breakers. • Open A/B MG set motor input breakers.
	b. Turbine trip	b. Locally trip turbine at turbine front standard.
	c. Mid and East GCBs – OPEN (Normally 30 seconds delay)	c. Perform the following: 1) Manually open breakers. 2) **IF** breakers do **NOT** open **THEN** actuate Emergency Gen Bkr Trip Switch for the affected breaker(s). 3) **IF** breaker position indication is **NOT** available **AND** turbine speed is **NOT** decreasing, **THEN** direct Field Operator to perform the following: a) Obtain key 17 from the Shift Manager key locker. b) Locally trip Mid and East GCBs from the switchyard. • 8W88 • 8W65

Facility:	Turkey Point	Task No:	01053002100
Task Title:	JPM: Preparations for Initiating Containment Vent Alternate Air Pressurization	JPM No:	01053002101
K/A Reference:	103 A1.01 RO 3.7 SRO 4.1		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance	X	Actual Performance	

Classroom ______ Simulator ______ Plant X

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is at 100%.
- Containment Pressure is -1.5 psig and must be increased.
- The R-11, R-12 Backup Sampler is not installed.

Initiating Cue:

- The US has directed you to make preparations for initiating containment vent alternate air pressurization, per 3-NOP-094, *Containment Post Accident Monitoring System,* Section 5.3.

Task Standard:

- Containment Vent Alternate Air supply is aligned to pressurize containment.

Required Materials:

- 3-NOP-094, *Containment Post Accident Monitoring System.*

General References:

- None

Time Critical Task: No

Validation Time: 20 minutes

ote critical steps with a check mark (√)

Start Time ______

STEP 1	Obtain the required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 3-NOP-094, *Containment Post Accident Monitoring Systems.*	
CUE	Provide a copy of 3-NOP-094, *Containment Post Accident Monitoring Systems.* At a minimum, include the Cover Page, Precautions and Limitations, and Section 5.3.	
COMMENT		

Evaluator Note: Student will perform either Steps 2 and 3 OR Step 4

STEP 2 √	**PERFORM** one of the following: Outside the Unit 3 BA Evap Room: **REMOVE** the floor cap for MPAS-001, WHT PUMP DISCHARGE TO RADWASTE BUILDING. (3-NOP-094, 5.3.1.A.(1)	SAT ______ UNSAT ______
STANDARD	Applicant locates the floor cap for MPAS-001 outside of the Unit 3A BA Evaporator Room. Rotates the cap counter-clockwise until it is off, and then sets it aside.	
CUE	Applicant describes obtaining the tools from the wall after unlocking them with the key, normally maintained by operators. Inform the Applicant that the cap rotates freely and eventually comes loose.	
COMMENT		

NOTE	**NOTE** Full travel for valve is provided in parentheses. Turning these valves beyond full travel may damage the reach rod assemblies.	
STEP 3 √	**CLOSE** MPAS-001, WHT PUMP DISCHARGE TO RADWASTE BUILDING (1/4 turn). (3-NOP-094, 5.3.1.A.(2)	SAT ______ UNSAT ______
STANDARD	Applicant rotates the reach-rod operator for MPAS-001 clockwise ¼ turn.	
CUE	Inform the Applicant that the valve operator rotates freely.	
COMMENT		
NOTE	**EVALUATOR NOTE:** Because MPAS-001 (this step) and valve 1731 (next step) are in series, there is no adverse effect if both are closed by the Applicant.	

STEP 4 √	At the Waste Evaporator Feed Pump Room in the Radwaste Bldg, **CLOSE** valve 1731, WHT TO RWB WHT ISOL. (3-NOP-094, 5.3.1.B.)	SAT ______ UNSAT ______
STANDARD	Applicant locates valve 1731 in the Waste Evaporator Feed Pump Room and rotates the valve clockwise until it will no longer rotate.	
CUE	Inform the Applicant that the valve operator rotates freely.	
COMMENT		
NOTE	**EVALUATOR NOTE:** Because MPAS-001 (previous step) and valve 1731 (this step) are in series, there is no adverse effect if both are closed by the Applicant.	

STEP 5 √	On the Auxiliary Building roof near the Unit 3 containment wall **PERFORM** the following: **UNLOCK** and **OPEN** MPAS-3-004, CONTAINMENT PURGE AIR RETURN ISOL VLV TO MPAS (3-NOP-094, 5.3.2 & 5.2.A.)	SAT ______ UNSAT ______
STANDARD	Applicant locates MPAS-3-004 on the AB roof near the Unit 3 containment wall, removes the locking device, and rotates the valve counter-clockwise until it will no longer rotate. Notes that the handwheel rises.	
CUE	Inform the Applicant that the valve operator rotates freely.	
COMMENT		

STEP 6 √	**CLOSE** MPAS-3-005, CNTMT INST AIR BLEED TO VENT DUCT. (3-NOP-094, 5.3.3.)	SAT ______ UNSAT ______
STANDARD	Applicant locates MPAS-3-005 and rotates the valve clockwise until it will no longer rotate. Observes the stem retract.	
CUE	Inform the Applicant that the valve operator rotates freely.	
COMMENT		

STEP 7 √	**ALIGN** Unit 3 Containment Vent Alternate Air Supply as follows: **OBTAIN** Containment Vent Alternate Air Supply Hose from the SNPO tool box located in Auxiliary Building Fan Room. (3-NOP-094, 5.3.3 & 5.3.A.)	SAT ______ UNSAT ______
STANDARD	Applicant locates the SNPO tool box located in Auxiliary Building Fan Room and removes the red hose with the tag labeled for UNIT 3 CONTAINMENT VENT ALTERNATE AIR SUPPLY HOSE.	
CUE	**EVALUATOR CUE:** Red Hose with Tan identification tag marked with procedure reference 3-ONOP-094.4 (3-ONOP-094 has been replaced with 3-NOP-094). Cue student if necessary that this hose has been verified as the correct hose iaw 3-NOP-094.	
COMMENT		

STEP 8	In the North/South hallway by the North end of the Waste Boron Control Panel, **ENSURE** 40-946, INST AIR TO N-S HALLWAY HOSE CONN ISOLATION, is CLOSED. (3-NOP-094, 5.3.B.)	SAT ______ UNSAT ______
STANDARD	Applicant locates 40-946 in the North/South hallway by the North end of the Waste Boron Control Panel and observes that the valve is closed by attempting to rotate the valve in the clockwise direction and noting that it will not rotate.	
CUE	**EVALUATOR CUE:** Inform Applicant that 40-946 will NOT rotate in the CW direction.	
COMMENT		
NOTE	**EVALUATOR NOTE:** This Step is NOT critical because the valve is already closed. There would be NO impact on the task if the Applicant failed to check 40-946.	

STEP 9 √	**CONNECT** Containment Vent Alternate Air Supply Hose to valve 40-946, INST AIR TO N-S HALLWAY HOSE CONN ISOLATION. (3-NOP-094, 5.3.C.)	SAT ______ UNSAT ______
STANDARD	Applicant connects the hose to the hallway connection.	
CUE	Inform the Applicant that there are no problems with connecting the hose.	
COMMENT		

STEP 10	**ENSURE** R-11, R-12 BACKUP AIR SAMPLER is STOPPED. (3-NOP-094, 5.3.D.)	SAT ______ UNSAT ______
STANDARD	Applicant notes that the backup sampler is not installed.	
CUE	Inform Applicant that the backup sampler is not installed.	
COMMENT		
NOTE	**EVALUATOR NOTE:** This Step is NOT critical because the backup sampler is normally STOPPED. There would be NO effect on this task if the Applicant failed to check the backup sampler.	

STEP 11	**ENSURE** 3-11-031, CONTAINMENT R-11/12 GRAB SAMPLE RETURN ISOL, is LOCKED CLOSED. (3-NOP-094, 5.3.E.)	
STANDARD	Applicant locates 3-11-031 and observes that the valve is LOCKED CLOSED by noting that the locking device is properly installed.	
CUE	**EVALUATOR CUE:** Inform the Applicant that the locking device is properly installed.	
COMMENT		
NOTE	**EVALUATOR NOTE:** This Step is NOT critical because 3-11-031 is normally LOCKED CLOSED. There would be NO effect on this task if the Applicant failed to check the valve.	

STEP 12	**ENSURE** 3-11-030, CNMT RAD MON R-3-11 & 12 GRAB SAMPLE SPLY ISOL VLV, is LOCKED CLOSED. (3-NOP-094, 5.3.F.)	SAT ______ UNSAT ______
STANDARD	Applicant locates 3-11-030 and observes that the valve is LOCKED CLOSED by noting that the locking device is properly installed.	
CUE	**EVALUATOR CUE:** Inform the Applicant that the locking device is properly installed.	
COMMENT		
NOTE	**EVALUATOR NOTE:** This Step is NOT critical because 3-11-031 is normally LOCKED CLOSED. There would be NO effect on this task if the Applicant failed to check the valve.	

STEP 13 √	**CONNECT** remaining end of Containment Vent Alternate Air Supply Hose to 3-11-035, PACV ALTERNATE AIR PRESSURIZER valve. (3-NOP-094, 5.3.G.)	SAT ______ UNSAT ______
STANDARD	Applicant connects the hose to 3-11-035.	
CUE	**EVALUATOR CUE:** Inform the Applicant that there are no problems with connecting the hose.	
COMMENT		

STEP 14 √	**OPEN** 3-11-035, PACV ALTERNATE AIR PRESSURIZER valve. (3-NOP-094, 5.3.H.)	SAT ______ UNSAT ______
STANDARD	Applicant locates 3-11-035 and rotates the valve counter-clockwise until it will no longer rotate. Applicant calls the Control Room and informs them that local actions are complete for Section 5.3 of 3-NOP-094.	
CUE	**EVALUATOR CUE:** Inform the Applicant that the valve operator rotates freely. **TERMINATING CUE:** **Evaluator informs the Applicant that another operator will complete the task. The JPM is complete.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 01053002101

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: Satisfactory/Unsatisfactory

Examiner's signature and date:

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is at 100%.
- Containment Pressure is -1.5 psig and must be increased.
- The R-11, R-12 Backup Sampler is not installed.

Initiating Cue:

- The US has directed you to make preparations for initiating containment vent alternate air pressurization, per 3-NOP-094, *Containment Post Accident Monitoring System,* Section 5.3.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 is at 100%.
- Containment Pressure is -1.5 psig and must be increased.
- The R-11, R-12 Backup Sampler is not installed.

Initiating Cue:

- The US has directed you to make preparations for initiating containment vent alternate air pressurization, per 3-NOP-094, *Containment Post Accident Monitoring System,* Section 5.3.

Acknowledge to the examiner when you are ready to begin.

<u>HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.</u>

FPL	TURKEY POINT UNIT 3	Procedure No. 3-NOP-094
	NORMAL OPERATING PROCEDURE	Revision No. 0
	SAFETY RELATED CONTINUOUS USE	Effective Date 02/18/11

Title:

CONTAINMENT POST ACCIDENT MONITORING SYSTEMS

Responsible Department: **OPERATIONS**

Special Considerations:

> This is an Upgraded Procedure. Initial use should include increased awareness because of potential technical and/or sequential changes to the procedure. After initial use of this procedure, provide comments back to the Procedure Upgrade Project.

FOR INFORMATION ONLY
Before use, verify revision and change documentation (if applicable) with a controlled index or document.
DATE VERIFIED__________ INITIAL__________

Revision	Approved By	Approval Date
0	Brian Stamp	12/08/10

UNIT #	UNIT 3
DATE	
DOCT	PROCEDURE
DOCN	3-NOP-094
SYS	
STATUS	COMPLETED
REV	0
# OF PGS	

1.0 PURPOSE

1. This procedure provides instructions for operating:
   - Containment High Radiation Monitors
   - Containment Pressure Monitors
   - Containment Water Level Monitors
   - Post Accident Sample System Heat Tracing
   - Post Accident Hydrogen Monitors
2. This procedure provides instructions for alternate air pressurization of containment to support Severe Accident Management Guidance (SAMG).

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions

1. A Neutron Badge may be required by Radiation Protection when performing valve and system alignments in the PASS Sample Room.

2.2 Limitations

1. If the oxygen gas pressure to the Hydrogen Monitors decreases to less than 20 psi, then the monitors will be non-functional.

5.3 Preparations For Initiating Containment Vent Alternate Air Pressurization

1. **PERFORM** one of the following:

   A. Outside the Unit 3 BA Evap Room:

      (1) **REMOVE** the floor cap for MPAS-001, WHT PUMP DISCHARGE TO RADWASTE BUILDING.

> **NOTE**
>
> Full travel for valve is provided in parentheses. Turning these valves beyond full travel may damage the reach rod assemblies.

      (2) **CLOSE** MPAS-001, WHT PUMP DISCHARGE TO RADWASTE BUILDING (1/4 turn).

   B. At the Waste Evaporator Feed Pump Room in the Radwaste Bldg, **CLOSE** valve 1731, WHT TO RWB WHT ISOL.

2. On the Auxiliary Building roof near the Unit 3 containment wall **PERFORM** the following:

   A. **UNLOCK** and **OPEN** MPAS-3-004, CONTAINMENT PURGE AIR RETURN ISOL VLV TO MPAS

   B. **CLOSE** MPAS-3-005, CNTMT INST AIR BLEED TO VENT DUCT.

3. **ALIGN** Unit 3 Containment Vent Alternate Air Supply as follows:

   A. **OBTAIN** Containment Vent Alternate Air Supply Hose from the SNPO tool box located in Auxiliary Building Fan Room.

   B. In the North/South hallway by the North end of the Waste Boron Control Panel, **ENSURE** 40-946, INST AIR TO N-S HALLWAY HOSE CONN ISOLATION, is CLOSED.

   C. **CONNECT** Containment Vent Alternate Air Supply Hose to valve 40-946, INST AIR TO N-S HALLWAY HOSE CONN ISOLATION.

   D. **ENSURE** R-11, R-12 BACKUP AIR SAMPLER is STOPPED.

   E. **ENSURE** 3-11-031, CONTAINMENT R-11/12 GRAB SAMPLE RETURN ISOL, is LOCKED CLOSED.

5.3 Preparations For Initiating Containment Vent Alternate Air Pressurization (continued)

3. **(continued)**

   F. **ENSURE** 3-11-030, CNMT RAD MON R-3-11 & 12 GRAB SAMPLE SPLY ISOL VLV, is LOCKED CLOSED.

   G. **CONNECT** remaining end of Containment Vent Alternate Air Supply Hose to 3-11-035, PACV ALTERNATE AIR PRESSURIZER valve.

   H. **OPEN** 3-11-035, PACV ALTERNATE AIR PRESSURIZER valve.

4. **ENSURE** CONTAINMENT ISOLATION PHASE A is RESET.

5. At R-11 and R-12 drawer, **PRESS** PUMP ON/OFF button to turn off the Sample Pump. (light out)

6. **ENSURE** SV-3-2913, SOL VLV FOR CNTMT AIR MONIT INLET ISOL, is CLOSED.

7. **PLACE** SV-3-2911, SOL VLV FOR CNTMT AIR MONIT INLET, hand switch to OPEN.

8. **CHECK** SV-3-2912, SOL VLV FOR CNTMT AIR MONIT SAMPLE RETURN, OPEN.

Facility:	Turkey Point	Task No:	14013005300
Task Title:	JPM: I.A. Dryer Operations During Loss of I.A.	JPM No:	14013005301
K/A Reference:	078 A3.01 RO 3.1 SRO 3.2		
Examinee:		NRC Examiner:	
Facility Evaluator:		Date:	
Method of Testing:			
Simulated Performance	X	Actual Performance	

Classroom ______ Simulator ______ Plant X

HAND JPM BRIEFING SHEET TO EXAMINEE AT THIS TIME!

Read to the examinee:

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Unit 3 and Unit 4 are operating at 100%
- A loss of Instrument Air is in progress.
- The Unit 3 IA Dryer is in service and is purging excessively.
- The Unit 4 IA Dryer is NOT available.
- The Instrument Air System is in a normal alignment.

Initiating Cue:

- The US has directed you to check the operation of the Instrument Air Dryers per 0-ONOP-013, Loss of Instrument Air, starting with step 8.

Task Standard:

- The Instrument Air Dryers have been aligned per 0-ONOP-013, Loss of Instrument Air, Steps 8 and 9.

Required Materials:

- 0-ONOP-013, Loss of Instrument Air

General References:

Time Critical Task: No

Validation Time: 10 minutes

Denote critical steps with an check mark (√) **Start Time** ______

STEP 1	Obtain the required reference materials.	SAT ______ UNSAT ______
STANDARD	Applicant obtains a copy of 0-ONOP-013, Loss of Instrument Air.	
CUE	Provide Applicant with a copy of 0-ONOP-013, Loss of Instrument Air.	
COMMENT		

STEP 2	Check Locally That The Instrument Air Dryers Properly Aligned And NOT Purging Excessively.	SAT ______ UNSAT ______
STANDARD	Applicant determines from the Initial Conditions that the Unit 3 Instrument Air Dryer is purging excessively.	
CUE	Inform Applicant that the dryer is purging excessively.	
COMMENT		

STEP 3	Align the Instrument Air Dryers In accordance with 3/4-NOP-013. (0-ONOP-013, RNO Step 8)	SAT ______ UNSAT ______
STANDARD	Applicant notes from the Initial Conditions that the IA System is in a normal alignment.	
CUE	Inform Applicant that the I.A. Dryers are in a normal alignment per 3/4-NOP-013.	
COMMENT		

STEP 4 √	**IF** air dryer is excessively purging, **THEN** CLOSE the associated purge exhaust block valve: U-3 (3T9): 3-40-380 U-4 (4T9): 4-40-380 (0-ONOP-013, RNO Step 8)	SAT ______ UNSAT ______
STANDARD	Applicant closes 3-40-380 by rotating the valve handle approximately 90° in the clockwise direction until it no longer rotates.	
CUE	Inform Applicant that 3-40-380 rotates freely in the clockwise direction until it no longer rotates.	
COMMENT		
NOTE	**EVALUATOR NOTE:** 3-40-380 and 4-40-380 are labeled "IA DRYER PURGE EXH BLK VLV."	

NOTE	**NOTE** • *IAS-3-012 and IAS-4-012 shall be opened AFTER the SM has ensured that System Operations has enabled the NERC load shedding contingency software.*	
STEP 5 √	**Check Locally The Pressure Drop Across The Inservice Instrument Air Dryer To Be Less Than 10 PSID** PI-*-6280 (2 ft off ground back of Instrument Air Dryer) minus PI-*-3423 **OR** PI-*-6280 minus PI-*-3424 (0-ONOP-013, Step 9)	SAT ______ UNSAT ______
STANDARD	Applicant locates PI-3-6280, PI-3-3423, and PI-3-3424 and notes pressure readings. Transitions to the RNO column. This is an Alternate Path aspect of this JPM.	
CUE	Inform Applicant that PI-3-6280 reads 108 psig by pointing to that value on the gauge. Inform Applicant that PI-3-3423 reads 85 psig by pointing to that value on the gauge.	
COMMENT		
NOTE	**EVALUATOR NOTE:** 3-3424 is RIGHT CHAMBER PRESS 3-3423 is LEFT CHAMBER PRESS	

STEP 6	Contact System Operations, ensure NERC load shedding contingency software has been enabled. (0-ONOP-013, RNO Step 9.a)	SAT ______ UNSAT ______
STANDARD	Applicant notes that Systems Operations does NOT need to be contacted since the Unit 4 Air Dryer is out of service.	
CUE	If Applicant attempts to inform System Operations, inform applicant that Systems Operations will be notified by the SM.	
COMMENT		

STEP 7 √	**IF** the air dryer is available on the opposite unit, **THEN** cross-tie the Instrument Air Systems by opening the Instrument Air Cross-tie Valves: IAS-3-012 **AND** IAS-4-012 (0-ONOP-013, RNO Step 9.b)	
STANDARD	Applicant notes from the Initial Conditions that the Unit 4 Air Dryer is NOT available. Goes to next step.	
CUE	**EVALUATOR CUE:** Inform Applicant that the Unit 4 Air Dryer is NOT available due to the temporary IA modification. There is a “CAUTION” tag on IAS-4-012.	
COMMENT		

STEP 8 √	**IF** the Air Dryer on the opposite unit is **NOT** available, **THEN** open the Instrument Air Dryer Bypass Valve to supply air to the affected unit(s). IAS-3-016 **OR** IAS-4-030 (0-ONOP-013, RNO Step 9.c)	
STANDARD	Applicant locates IAS-3-016 and rotates the valve handle approximately 90° in the counterclockwise direction until it stops rotating.	
CUE	**EVALUATOR CUE:** Inform Applicant that IAS-3-016 rotates freely in the counterclockwise direction until it stops rotating. **TERMINATING CUE:** **JPM is terminated when the Applicant returns the JPM Briefing Sheet to the Evaluator.**	
COMMENT		

Stop Time ________

Verification of Completion:

Job Performance Measure No. 14013005301

Examinee's Name: ____________________

Examiner's Name: ____________________

Date Performed: ____________________

Facility Evaluator: ____________________

Number of Attempts: ____________________

Time to Complete: ____________________

Question Documentation:

Question:

Response:

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: ____________________ __________

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Reactor Power is 100%
- A loss of Instrument Air is in progress.
- The Unit 3 IA Dryer is in service and is purging excessively.
- The Unit 4 IA Dryer is NOT available.
- The Instrument Air System is in a normal alignment.

Initiating Cue:

- The US has directed you to check the operation of the Instrument Air Dryers per 0-ONOP-013, Loss of Instrument Air, starting with step 8.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

JPM BRIEFING SHEET

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

- Reactor Power is 100%
- A loss of Instrument Air is in progress.
- The Unit 3 IA Dryer is in service and is purging excessively.
- The Unit 4 IA Dryer is NOT available.
- The Instrument Air System is in a normal alignment.

Initiating Cue:

- The US has directed you to check the operation of the Instrument Air Dryers per 0-ONOP-013, Loss of Instrument Air, starting with step 8.

Acknowledge to the examiner when you are ready to begin.

HAND THIS PAPER BACK TO YOUR EVALUATOR WHEN YOU HAVE SATISFACTORILY COMPLETED THE ASSIGNED TASK.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	**<u>WHEN</u> It Is Desired To Return An Isolated Instrument Air Compressor To Service, <u>THEN</u> Perform The Following** * For 3CM, OPEN IAC 3CM Discharge Isol Vlv IAS-3-058 * For 3CD, OPEN IAC 3CD Discharge Isol Vlv IAS-3-059 * For 4CM, OPEN IAC 4CM Discharge Isol Vlv IAS-4-058 * For 4CD, OPEN IAC 4CD Discharge Isol Vlv IAS-4-059 <u>IF</u> EC 246991, Unit 4 Instrument Air System Upgrade, is in progress, **<u>THEN</u>**: * For TC_1 (Unit 3 temporary instrument air compressor)) OPEN IAS-3-037 Supply Line Drain Valve * For TC_2 (Unit 4 temporary instrument air compressor) OPEN VC_2, TC_2 Compressor Discharge Isolation Valve * For TC_3 (Unit 4 temporary instrument air compressor) OPEN VC_3, TC_3 Compressor Discharge Isolation Valve * For TC_4 (Unit 4 temporary instrument air compressor) OPEN VC_4, TC_4 Compressor Discharge Isolation Valve	
7	**Go to Step 11**	
8	**Check Locally That The Instrument Air Dryers Properly Aligned And NOT Purging Excessively**	Align the Instrument Air Dryers In accordance with 0-NOP-013. * <u>IF</u> air dryer is excessively purging, **<u>THEN</u>** CLOSE the associated purge exhaust block valve: U-3 (3T9): 3-40-380 U-4 (4T9): 4-40-380

FOR TRAINING ONLY

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

- *IAS-3-012 and IAS-4-012 shall be opened **AFTER** the SM has ensured that System Operations has enabled the NERC load shedding contingency software.*

9 **Check Locally The Pressure Drop Across The Inservice Instrument Air Dryer To Be Less Than 10 PSID**

* PI-*-6280 (2 ft off ground back of Instrument Air Dryer) minus PI-*-3423

OR

* PI-*-6280 minus PI-*-3424

Perform the following:

a. Contact System Operations, ensure NERC load shedding contingency software has been enabled.

b. **IF** the air dryer is available on the opposite unit, **THEN** cross-tie the Instrument Air Systems by opening the Instrument Air Cross-tie Valves:

- IAS-3-012

AND

- IAS-4-012

c. **IF** the Air Dryer on the opposite unit is **NOT** available, **THEN** open the Instrument Air Dryer Bypass Valve to supply air to the affected unit(s).

* IAS-3-016

OR

* IAS-4-030

d. Notify the System Engineer to investigate cause of the high DP **AND** to coordinate immediate repairs as required.

e. Refer to 0-ONOP-013.1, INSTRUMENT AIR DRYER MALFUNCTION, for additional local actions while continuing with this procedure.

f. **WHEN** IAS-3-012 or IAS-4-012 have been closed, notify System Operations that the NERC load shedding contingency software can be disabled.

FOR TRAINING ONLY

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

- *IAS-3-012 and IAS-4-012 shall be opened* ***AFTER*** *the SM has ensured that System Operations has enabled the NERC load shedding contingency software.*

10 **Check Locally The Pressure Drop Across The Instrument Air Particulate Filters To Be Less Than 5 PSID**

- DPI-*-6282

  AND

- DPI-*-6300

RESPONSE NOT OBTAINED:

Perform the following:

a. Contact System Operations, ensure NERC load shedding contingency software has been enabled.

b. Verify the Filters are aligned in accordance with 0-NOP-013, Instrument Air System.

c. **IF** the air filter is properly aligned, the high DP still exists, **THEN** cross-tie the Instrument Air Systems by opening the Instrument Air Cross-tie Valves:

- IAS-3-012

  AND

- IAS-4-012

d. **IF** the Filters were properly aligned **AND** had a high DP, **THEN** notify the System Engineer to investigate cause of the high DP **AND** to coordinate immediate repairs to restore the system to normal.

e. **WHEN** IAS-3-012 or IAS-4-012 have been closed, notify System Operations that the NERC load shedding contingency software can be disabled.