

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-21C-3 (MODIFIED)**

**TASK:** Parallel DG to a 4KV Bus

**PURPOSE:** Evaluate the Operator's ability to parallel 0C DG to 24 4KV,  
after an emergency start

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR**

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**TASK:** Parallel DG to a 4KV Bus

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the Diesel Generator System.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR                      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE                      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

15 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

LEVEL 1

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

OI-21C

**TASK STANDARDS:**

This JPM is complete when the 0C DG has been paralleled to 24 4KV bus and loaded to 1.000 MW.

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**TASK:** Parallel DG to a 4KV Bus

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. IC-13 Unit 1 100% power.
  - b. Emergency start the OC DG.

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**TASK:** Parallel DG to a 4KV Bus

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory



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**TASK:** Parallel DG to a 4KV Bus

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

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**TASK:** Parallel DG to a 4KV Bus

**6.0 Locally starting a pump (cont'd)**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-21C-3 (MODIFIED)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

CUE:	Initial Conditions and General Precautions have been met.
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**CAUTION:** The 0C DG should not be paralleled with a 4KV Bus during periods when power is suspect (for example during a severe storm).

- |          |  |                                |
|----------|--|--------------------------------|
| _____    | Locate OI-21C, Step 6.7.B.1.   | Same as element.               |
| _____ 1. | <b>IF</b> 0C DG was paralleled to the 07 4KV Bus,  | Determines step is N/A.        |
| _____ 2. | <b>IF</b> 0C DG was emergency started,<br><b>THEN PERFORM</b> the following to select parallel mode: | Determines step is applicable. |

- |         |   |                 |
|---------|---|-----------------|
| * _____ | a. <b>DEPRESS</b> 0C DG SLOW START, 0-HS-0708, pushbutton, to clear the emergency start signal. | Same as element |
|---------|---|-----------------|

**NOTE:** The 0C DG Building Fire Panel annunciator will alarm due to the temporarily de-energized buses.

**CAUTION:**

- Opening the breaker will cause a loss of power to the 0C DG Building **AND** de-energize 0C DG support equipment.
- If the 480V crosstie breaker alignment is in effect the following may occur:

CUE:	The 480V crosstie alignment is not in effect.
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- 1A DG Building may lose power
- 1A DG Building Fire Panel annunciator may alarm
- 07 4KV Bus should be re-energized from 0C DG without delay to restore 0C DG auxiliary equipment operation (i.e. - radiator fans, lighting, HVAC, etc.

CUE:	When operated, 152-0703 indicates open.
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- |         |  |                 |
|---------|--|-----------------|
| * _____ | b. <b>PLACE</b> 0C DG OUT BKR, 0-CS-152-0703, to TRIP.   | [3]             |
| * _____ | c. <b>INSERT</b> the Sync Stick for 0C DG OUT BKR, 0-CS-152-0703, to place 0C DG in the parallel mode. | Same as element |

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ELEMENT (* = CRITICAL STEP)	STANDARD
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<div style="background-color: #cccccc; padding: 5px;"> * _____ d. <b>MOMENTARILY PLACE 0C DG SPEED CONTR, 0-CS-0705, to RAISE OR LOWER <u>AND</u> ADJUST 0C DG frequency to approximately 60 Hz.</b> </div>	Same as element
---	-----------------

CUE:	When checked, 07 4KV bus voltage is zero.
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_____ e. <b>VERIFY</b> 07 4KV Bus is de-energized by observing zero voltage on 07 4KV BUS VOLTS, 0-EI-0702.	Monitors 07 4KV bus voltage.
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_____ f. <b>CHECK</b> the Synchroscope pointer on 1C18B is <b><u>NOT</u></b> rotating.	Same as element
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<div style="background-color: #cccccc; padding: 5px;"> * _____ g. <b>PLACE 0C DG OUT BKR, 0-CS-152-0703, to CLOSE.</b> </div>	[3]
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CUE:	When checked, 0C DG frequency indicates 60 Hz.
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_____ h. <b>ADJUST</b> 0C DG frequency to approximately 60 Hz using 0C DG SPEED CONTR, 0-CS-0705.	Monitors 0C DG frequency.
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_____ i. <b>REMOVE</b> the Sync Stick from 0C DG OUT BKR, 0-CS-152-0703.	Same as element
--	-----------------

CUE:	When dispatched, PO reports all equipment running.
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_____ j. <b>VERIFY</b> the following equipment <b>RUNNING</b> by observing the associated red indicating light is illuminated on 0C188: <div style="margin-left: 40px;"> <ul style="list-style-type: none"> <li>· 0C1 HT RAD FAN SEL SW, 0-HS-10082</li> <li>· 0C2 HT RAD FAN SEL SW, 0-HS-10102</li> <li>· 0C1 FO B/U PP SEL SW, 0-HS-10051</li> <li>· 0C2 FO B/U PP SEL SW, 0-HS-10061</li> </ul> </div>	Dispatches PO to check equipment.
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ELEMENT	STANDARD
(* = CRITICAL STEP)	
_____ k. <b>RESET</b> the following bus U/V flags: . 07 4KV Bus . 07 480V Bus	Dispatches operator to reset flags
_____ l. <b>PLACE</b> the selected 0C DG 4KV Bus feeder breaker handswitch in PULL-TO-LOCK.	[3]
4KV : HANDSWITCH 11 : 0C DG 11 4KV BUS FDR, 1-CS-152-1106 14 : 0C DG 14 4KV BUS FDR, 1-CS-152-1406 21 : 0C DG 21 4KV BUS FDR 2-CS-152-2106 24 : 0C DG 24 4KV BUS FDR, 2-CS-152-2406	Places 2-CS-152-2406 in Pull-to-Lock.
<b><u>WARNING:</u></b> Improper operation of disconnects can result in serious injury. Keep body <u>AND</u> head clear of operating arc of handle. <b>DO NOT</b> release handle prior to full travel. When disconnect is opened <u>OR</u> closed, a very loud bang will be heard <u>AND</u> a switch position flag will be visible indicating disconnect position.	
<b>CUE:</b> When dispatched, PO reports Disc 189-2406 is shut.	
* _____ 3. In the associated Unit SWGR Room, <b>CLOSE</b> the selected 0C DG 4KV Bus disconnect by performing the following:	Dispatches PO to shut Disc 189-2406.
<b>CUE:</b> When operated, 152-0701 indicates closed.	
* _____ 4. <b>PLACE</b> 07 4KV BUS TIE, 0-CS-152-0701, to <b>CLOSE</b> .	[3]

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ELEMENT	STANDARD																
(* = CRITICAL STEP)																	
5.	<p><b>PLACE</b> the selected 0C DG 4KV Bus feeder breaker handswitch to NORMAL:</p> <p>[3]</p> <table><tr><td>4KV</td><td>:</td><td>HANDSWITCH</td><td rowspan="5">Place 2-CS-152-2406 in NORMAL.</td></tr><tr><td>11</td><td>:</td><td>0C DG 11 4KV BUS FDR, 1-CS-152-1106</td></tr><tr><td>14</td><td>:</td><td>0C DG 14 4KV BUS FDR, 1-CS-152-1406</td></tr><tr><td>21</td><td>:</td><td>0C DG 21 4KV BUS FDR, 2-CS-152-2106</td></tr><tr><td>24</td><td>:</td><td>0C DG 24 4KV BUS FDR, 2-CS-152-2406</td></tr></table>	4KV	:	HANDSWITCH	Place 2-CS-152-2406 in NORMAL.	11	:	0C DG 11 4KV BUS FDR, 1-CS-152-1106	14	:	0C DG 14 4KV BUS FDR, 1-CS-152-1406	21	:	0C DG 21 4KV BUS FDR, 2-CS-152-2106	24	:	0C DG 24 4KV BUS FDR, 2-CS-152-2406
4KV	:	HANDSWITCH	Place 2-CS-152-2406 in NORMAL.														
11	:	0C DG 11 4KV BUS FDR, 1-CS-152-1106															
14	:	0C DG 14 4KV BUS FDR, 1-CS-152-1406															
21	:	0C DG 21 4KV BUS FDR, 2-CS-152-2106															
24	:	0C DG 24 4KV BUS FDR, 2-CS-152-2406															
6.	<p><b>INSERT</b> the Sync Stick for the selected 0C DG 4KV Bus feeder breaker.</p> <p>Inserts into sync jack for 152-2406 0CDG 24 4kv Bus fdr</p>																
<p>CUE: When checked, incoming volts indicates 2 volts higher than running volts. When adjusted, incoming and running volts are equal.</p>																	
7.	<p><b>ADJUST INCOMING VOLTS</b> equal to <b>RUNNING VOLTS</b> using 0C DG AUTO VOLT CONTR, 0-CS-0704.</p> <p>Monitors incoming and running volts. Lowers 0C DG Auto Volt Contr as necessary to match incoming and running vlts.</p> <table><tr><td>4KV BUS</td><td>:</td><td>METERS</td></tr><tr><td>11/14</td><td>:</td><td>INCOMING VOLTS, 1-EI-4001A RUNNING VOLTS, 1-EI-4001B</td></tr><tr><td>21/24</td><td>:</td><td>INCOMING VOLTS, 2-EI-4001A RUNNING VOLTS, 2-EI-4001B</td></tr></table>	4KV BUS	:	METERS	11/14	:	INCOMING VOLTS, 1-EI-4001A RUNNING VOLTS, 1-EI-4001B	21/24	:	INCOMING VOLTS, 2-EI-4001A RUNNING VOLTS, 2-EI-4001B							
4KV BUS	:	METERS															
11/14	:	INCOMING VOLTS, 1-EI-4001A RUNNING VOLTS, 1-EI-4001B															
21/24	:	INCOMING VOLTS, 2-EI-4001A RUNNING VOLTS, 2-EI-4001B															
<p>CUE: When checked, Synchroscope is rotating slowly in the fast direction.</p>																	
8.	<p><b>ADJUST</b> 0C DG frequency so the Synchroscope pointer is rotating <u>slowly</u> in the FAST direction using 0C DG SPEED CONTR, 0-CS-0705.</p> <p>Monitors synchroscope.</p>																

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## ELEMENT

## STANDARD

(\* = CRITICAL STEP)

**NOTE:** 0C DG load must be adjusted immediately after closing the breaker to ensure minimum 0C DG load is obtained.

**CAUTION:** TABLE 1, SHUTDOWN SEQUENCER LOADS, lists equipment that receives an auto-start signal from the Shutdown Sequencer when the selected 0C DG 4KV Bus feeder breaker is closed.

**CUE:** When operated, 152-2406 indicates closed.

\* 9. **WHEN** the Synchroscope pointer is approximately 5 degrees prior to the 12 o'clock position, **THEN PLACE** the selected 0C DG 4KV Bus feeder breaker handswitch to CLOSE.

[3]

4KV BUS	HANDSWITCH
11	0C DG 11 4KV BUS FDR, 1-CS-152-1106
14	0C DG 14 4KV BUS FDR, 1-CS-152-1406
21	0C DG 21 4KV BUS FDR, 2-CS-152-2106
24	0C DG 24 4KV BUS FDR, 2-CS-152-2406

Shuts 2-CS-152-2406 at approximately 5 degrees prior to the 12 o'clock position.

**CUE:** When checked, 0C DG load indicates 1.000 MW.

10. **IMMEDIATELY ADJUST** 0C DG load using 0C DG SPEED CONTR, 0-CS-0705, to obtain between 0.45 MW **AND** 1.0 MW load on 0C DG VAR/WATT, 0-JI-0701B.

Raises 0C DG Speed Contr and monitors 0C DG MW load.

**CUE:** When checked, annunciator is in alarm.

11. **CHECK** annunciator "SEQUENCER INITIATED" alarm is received.

Checks annunciator window in alarm.

4KV BUS	PANEL
11/14	1C08
21/24	2C08

12. **REMOVE** the Sync Stick **AND RETURN** to Home Base.

Same as element

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ELEMENT (* = CRITICAL STEP)	STANDARD
_____ 13. <b>LOAD</b> 0C DG as follows:	
<b><u>CAUTION:</u></b> Do <b><u>NOT</u></b> exceed limits of 5.4 MW, 500 KVARs, <b><u>AND</u></b> 752 amps.	
_____        a. <b><u>REFER</u></b> to FIGURE 1, <b><u>0C DIESEL GENERATOR ELECTRICAL LIMITS</u></b> , <b><u>AND PERFORM</u></b> the following:	Refers to FIGURE 1, 0C DIESEL GENERATOR ELECTRICAL LIMITS.
_____            (1) <b>RAISE</b> MW load by approximately 1.0 MW, using 0C DG SPEED CONTR, 0-CS-0705.	Raises load with 0C DG SPEED CONTR, 0-CS-0705.
_____            (2) <b>MAINTAIN</b> 0 to 500 KVARs using 0C DG AUTO VOLT CONTR, 0-CS-0704 and FIGURE 1, <b><u>0C DIESEL GENERATOR ELECTRICAL LIMITS</u></b> .	
_____            (3) <b>MONITOR</b> the selected 4KV Bus voltage between 4.1 KV and 4.35 KV.	
_____            (4) <b>WAIT</b> approximately 5 minutes, <b><u>THEN REPEAT</u></b> Steps 13.a.1 through 13.a.4 until 0C DG reaches the desired load.	
_____ 14. <b>MONITOR</b> 0C while loaded to maintain MW and KVAR loads within prescribed limits.	

TIME STOP \_\_\_\_\_

<b>TERMINATING CUE:</b>	This JPM is complete when the 0C DG has been paralleled to 24 4KV bus and loaded to 1.000 MW. No further actions are required.
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## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-21C-3 (MODIFIED)

TASK: Parallel DG to a 4KV Bus

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

NOTES:

DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL  
ACTIONS/IN ACTIONS OR PROCEDURAL QUALITY?  
(If yes, provide comments below)

YES

NO

COMMENTS:

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

SATISFACTORY

UNSATISFACTORY

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. The 0C DG has been started, from the Control Room, with an Emergency Start signal.
  - b. The 0C DG is carrying 07 4KV bus and the FDR BKR (152-0704) is open.
  - c. You are performing the duties of an extra Licensed Operator.
3. Initiating Cue: The CRS directs you to parallel 0C DG to 24 4KV bus per the appropriate procedure, and load it to 1.0 MW. Are there any questions? You may begin.

**6.7 PARALLEL 0C DG TO A SAFETY RELATED 4KV BUS****A. Initial Conditions**

1. 0C DG is supplying 07 4KV Bus power **AND** will be paralleled to a Safety Related 4KV Bus from the Control Room.
2. 07 4KV BUS FDR, 152-0704, is OPEN.
3. The selected 4KV Bus Safety Related DG is **NOT** operating:

4KV Bus	:	DG
11	:	1A DG
14	:	1B DG
21	:	2A DG
24	:	2B DG

4. SIAS **AND** U/V actuation signals on the selected 4KV Bus are reset.
5. Kirk keys for the selected 4KV Bus 0C DG disconnect are available:

4KV BUS	:	DISC	:	KEYS
11	:	189-1106	:	11893, 11901, 11940, 14259
14	:	189-1406	:	11895, 11896, 11901
21	:	189-2106	:	11900, 11903, 14259
24	:	189-2406	:	11898, 11899, 11901, 14259

**6.7** PARALLEL OC DG TO A SAFETY RELATED 4KV BUS (Continued)**B.** Procedure**CAUTION**

OC DG should **NOT** be paralleled with a 4KV Bus during periods when power is suspect (for example, during a severe storm).

1. **IF** OC DG was paralleled to the 07 4KV Bus,  
**THEN PLACE** the selected 4KV Bus OC DG feeder breaker handswitch in  
**PULL-TO-LOCK**:

4KV BUS :	HANDSWITCH
11	: OC DG 11 4KV BUS FDR, 1-CS-152-1106
14	: OC DG 14 4KV BUS FDR, 1-CS-152-1406
21	: OC DG 21 4KV BUS FDR, 2-CS-152-2106
24	: OC DG 24 4KV BUS FDR, 2-CS-152-2406

**6.7.B Procedure (Continued)**

2. **IF** 0C DG was emergency started,  
**THEN PERFORM** the following to select parallel mode:
  - a. **DEPRESS** 0C DG SLOW START, 0-HS-0708, pushbutton, to clear the emergency start signal.

**NOTE**

The 0C DG Building Fire Panel annunciator will alarm due to the temporarily de-energized buses.

**CAUTION**

- Opening the breaker may cause a loss of power to the 0C DG Building **AND** de-energize 0C DG support equipment.
- If the 480V crosstie breaker alignment is in effect the following may occur:
  - 1A DG Building may lose power
  - 1A DG Building Fire Panel annunciator may alarm
- 07 4KV Bus should be re-energized from 0C DG without delay to restore 0C DG auxiliary equipment operation (i.e.- radiator fans, lighting, HVAC, etc.).

- b. **PLACE** 0C DG OUT BKR, 0-CS-152-0703, to TRIP.
- c. **INSERT** the Sync Stick for 0C DG OUT BKR, 0-CS-152-0703, to place 0C DG in the parallel mode.
- d. **MOMENTARILY PLACE** 0C DG SPEED CONTR, 0-CS-0705, to RAISE OR LOWER **AND ADJUST** 0C DG frequency to approximately 60 Hz.
- e. **VERIFY** 07 4KV Bus is de-energized by observing zero voltage on 07 4KV BUS VOLTS, 0-EI-0702.
- f. **CHECK** the Synchroscope pointer on 1C18B is **NOT** rotating.
- g. **PLACE** 0C DG OUT BKR, 0-CS-152-0703, to CLOSE.
- h. **ADJUST** 0C DG frequency to approximately 60 Hz using 0C DG SPEED CONTR, 0-CS-0705.
- i. **REMOVE** the Sync Stick from 0C DG OUT BKR, 0-CS-152-0703.

**6.7.B.2 Procedure (Continued)**

- j. **VERIFY** the following equipment **RUNNING** by observing the associated red indicating light is illuminated on OC188:
- OC1 HT RAD FAN SEL SW, 0-HS-10082
  - OC2 HT RAD FAN SEL SW, 0-HS-10102
  - OC1 FO B/U PP SEL SW, 0-HS-10051
  - OC2 FO B/U PP SEL SW, 0-HS-10061
- k. **RESET** the following bus U/V flags:
- 07 4KV Bus
  - 07 480V Bus
- l. **PLACE** the selected OC DG 4KV Bus feeder breaker handswitch in **PULL-TO-LOCK**:

4KV BUS :	HANDSWITCH
11	: OC DG 11 4KV BUS FDR, 1-CS-152-1106
14	: OC DG 14 4KV BUS FDR, 1-CS-152-1406
21	: OC DG 21 4KV BUS FDR, 2-CS-152-2106
24	: OC DG 24 4KV BUS FDR, 2-CS-152-2406

**6.7.B Procedure (Continued)****WARNING**

Improper operation of disconnects can result in serious injury. Keep body **AND** head clear of operating arc of handle. **DO NOT** release handle prior to full travel. When disconnect is opened **OR** closed, a very loud bang will be heard **AND** a switch position flag will be visible indicating disconnect position.

3. In the associated Unit SWGR Room, **CLOSE** the selected OC DG 4KV Bus disconnect by performing the following: **(P0035)**
- a. **VERIFY** the selected 4KV Bus OC DG feeder breaker is OPEN by local indication.

4KV BUS :	BREAKER
11 :	OC DG 11 4KV BUS FDR, 152-1106
14 :	OC DG 14 4KV BUS FDR, 152-1406
21 :	OC DG 21 4KV BUS FDR, 152-2106
24 :	OC DG 24 4KV BUS FDR, 152-2406

- b. **INSERT** keys **AND UNLOCK** the selected OC DG 4KV Bus disconnect:

4KV BUS :	DISC :	KEYS
11 :	189-1106 :	11893, 11901, 14259
14 :	189-1406 :	11896, 11901
21 :	189-2106 :	11903, 14259
24 :	189-2406 :	11899, 11901, 14259

- c. **CLOSE** the selected OC DG 4KV Bus disconnect.

**6.7.B.3 Procedure (Continued)**

- d. **INSERT** key **AND LOCK** the selected 0C DG 4KV Bus disconnect in the **CLOSED** position:

4KV BUS	:	DISC	:	KEY
11	:	189-1106	:	11940
14	:	189-1406	:	11895
21	:	189-2106	:	11900
24	:	189-2406	:	11898

4. **PLACE** 07 4KV BUS TIE, 0-CS-152-0701, to **CLOSE**.
5. **PLACE** the selected 0C DG 4KV Bus feeder breaker handswitch to **NORMAL**:

4KV BUS	:	HANDSWITCH
11	:	0C DG 11 4KV BUS FDR, 1-CS-152-1106
14	:	0C DG 14 4KV BUS FDR, 1-CS-152-1406
21	:	0C DG 21 4KV BUS FDR, 2-CS-152-2106
24	:	0C DG 24 4KV BUS FDR, 2-CS-152-2406

6. **INSERT** the Sync Stick for the selected 0C DG 4KV Bus feeder breaker.



**6.7.B Procedure (Continued)**

7. **ADJUST INCOMING VOLTS** equal to **RUNNING VOLTS** using  
0C DG AUTO VOLT CONTR, 0-CS-0704.

4KV BUS :	METERS
11/14 :	INCOMING VOLTS, 1-EI-4001A RUNNING VOLTS, 1-EI-4001B
21/24 :	INCOMING VOLTS, 2-EI-4001A RUNNING VOLTS, 2-EI-4001B

8. **ADJUST 0C DG frequency** so the Synchroscope pointer is rotating slowly in the  
FAST direction using 0C DG SPEED CONTR, 0-CS-0705.

**6.7.B Procedure (Continued)****NOTE**

0C DG load must be adjusted immediately after closing the breaker to ensure minimum 0C DG load is obtained.

**CAUTION**

TABLE 1, SHUTDOWN SEQUENCER LOADS, lists equipment that receives an auto-start signal from the Shutdown Sequencer when the selected 0C DG 4KV Bus feeder breaker is closed.

9. **WHEN** the Synchroscope pointer is approximately 5 degrees prior to the 12 o'clock position,  
**THEN PLACE** the selected 0C DG 4KV Bus feeder breaker handswitch to CLOSE:

4KV BUS :	HANDSWITCH
11 :	0C DG 11 4KV BUS FDR, 1-CS-152-1106
14 :	0C DG 14 4KV BUS FDR, 1-CS-152-1406
21 :	0C DG 21 4KV BUS FDR, 2-CS-152-2106
24 :	0C DG 24 4KV BUS FDR, 2-CS-152-2406

10. **IMMEDIATELY ADJUST** 0C DG load using 0C DG SPEED CONTR, 0-CS-0705, to obtain between 0.45 MW **AND** 1.0 MW load on 0C DG VAR/WATT, 0-JI-0701B.
11. **CHECK** annunciator "SEQUENCER INITIATED" alarm is received.

4KV BUS :	PANEL
11/14 :	1C08
21/24 :	2C08

12. **REMOVE** the Sync Stick **AND RETURN** to Home Base.

**6.7.B Procedure (Continued)****13. LOAD 0C DG as follows:****CAUTION**

Do **NOT** exceed limits of 5.4 MW, 500 KVARs, **AND** 752 amps.

- a. **REFER** to FIGURE 1, 0C DIESEL GENERATOR ELECTRICAL LIMITS, **AND PERFORM** the following:
  - (1) **RAISE** MW load by approximately 1.0 MW, using 0C DG SPEED CONTR, 0-CS-0705.
  - (2) **MAINTAIN** 0 to 500 KVARs using 0C DG AUTO VOLT CONTR, 0-CS-0704 **AND** FIGURE 1, 0C DIESEL GENERATOR ELECTRICAL LIMITS.
  - (3) **MONITOR** the selected 4KV Bus voltage between 4.1KV and 4.35KV. **[B0120]**
  - (4) **WAIT** approximately 5 minutes, **THEN REPEAT** Steps 13.a.1 through 13.a.4 until 0C DG reaches the desired load. **[B0254]**
14. **MONITOR** 0C DG while loaded to maintain MW **AND** KVAR loads within prescribed limits.

**6.7.B Procedure (Continued)**

15. **IF** OC DG OUT BKR, 152-0703, trips while aligned to a Safety Related 4KV bus, **THEN PERFORM** the following: [B0267]
- PLACE** 07 4KV BUS TIE, 0-CS-152-0701, to TRIP.
  - INSERT** the Sync Stick for 07 4KV BUS FDR, 0-CS-152-0704.
  - CHECK** the Synchroscope pointer on 1C18B is **NOT** rotating.
  - PLACE** 07 4KV BUS FDR, 0-CS-152-0704, to CLOSE.
  - PLACE** the selected OC DG 4KV Bus feeder breaker handswitch to TRIP:

4KV BUS :	HANDSWITCH
11 :	OC DG 11 4KV BUS FDR, 1-CS-152-1106
14 :	OC DG 14 4KV BUS FDR, 1-CS-152-1406
21 :	OC DG 21 4KV BUS FDR, 2-CS-152-2106
24 :	OC DG 24 4KV BUS FDR, 2-CS-152-2406

- EVALUATE** whether to continue load testing.
- RESET** the following bus U/V flags:
  - 07 4KV Bus
  - 07 480V Bus

**6.7.B Procedure (Continued)**

16. **PERFORM** the following to check Engine Driven Fuel Oil Pumps:  
(N/A if DG **NOT** started **PER** 6.3, OC DG SLOW START FROM CONTROL ROOM.)
- a. **VERIFY** OC1 FO B/U PP SEL SW, 0-HS-10051, in OFF.
  - b. **OBSERVE** OC1 FO FEED PRESS, 0-PI-10052, for indication of normal fuel oil pressure.
  - c. **PLACE** OC1 FO B/U PP SEL SW, 0-HS-10051, to AUTO.
  - d. **VERIFY** OC2 FO B/U PP SEL SW, 0-HS-10061, to OFF.
  - e. **OBSERVE** OC2 FO FEED PRESS, 0-PI-10062, for indication of normal fuel oil pressure.
  - f. **PLACE** OC2 FO B/U PP SEL SW, 0-HS-10061, to AUTO.
17. **RECORD** equipment operating data 15 minutes after reaching the desired load **AND** at 60 minute intervals thereafter on the OC Diesel Generator Logsheet.
18. **IF** performing PE 0-24-10-O-2A,  
**THEN GO TO** Section 6.29, TIMED EMERGENCY START AND LOAD OF OC DG ON 24 4KV BUS (PE 0-24-10-O-2A), STEP 5.
19. **WHEN** OC DG is to be stopped,  
**THEN GO TO** Section 6.12, OC DG NORMAL SHUTDOWN FROM CONTROL ROOM.

13/00

13/00

\*\*\*\* END \*\*\*\*

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

**PURPOSE:** Evaluates an Operator's Ability to Recover from Automatic Feedwater Isolation

**JOB PERFORMANCE MEASURE**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the Engineered Safety Features Actuation System.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

10 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

TRAIN/LEVEL 2

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

EOP-3

**TASK STANDARDS:**

This JPM is complete when the SGIS is reset and a condensate booster pump is running with a flowpath to the S/Gs.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.
3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. IC-13, U1, 100% power
  - b. Trip the Reactor, the Main Feed Pumps and the RCPs, cooldown using the TBVs until just before SGIS actuates, with TBV controller output at ~7%. (Process Variable on PIC4056 at 700.8 psig)
  - c. Insert Malfunctions AFW005, AFW001\_01, AFW001\_02 for the trip of 13, 11 and 12 AFW Pps
  - d. Stabilize the plant with SG levels at approximately -100" and freeze



**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

**6.0 Locally starting a pump (cont'd)**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE EOP-3-1 (BANK)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Locate EOP-3, Step IV.G.

Same as element.

CUE: Both S/G levels are currently -100" and Tcold 520°F and steady.

- \_\_\_\_\_ 1. **IF**, at ANY time, **BOTH** S/G levels are less than (-)350 inches **OR** TCOLD rises uncontrollably 5°F or greater, **THEN** initiate Once-Through-Cooling concurrently **PER** step J.

Monitors S/G levels on 1C03 or SPDS. Monitors Tcold, 1C05 or 1C06.

CUE: SGIS has already actuated.

- \_\_\_\_\_ 2. Block SGIS as follows:

Determines step is N/A. Initiates Alternate Actions.

## ALTERNATE ACTIONS

CUE: SGIS actuated as a result of the cooldown.

- \_\_\_\_\_ 2.1 **IF** SGIS actuates as a result of the cooldown **AND** the Non-Vital 4KV buses are energized, **THEN** reset the SGIS as follows:

Checks power available lights on for 12, 13, 15, 16 4kv busses

- \_\_\_\_\_ a. Place the COND BSTR PPs in PULL TO LOCK.

Places Condensate booster pump control switches in PTL.

- \* \_\_\_\_\_ b. Match handswitch positions **PER ATTACHMENT (7), SGIS VERIFICATION CHECKLIST.**

Places MSIV handswitches in SHUT. Places Feedwater isolation valve handswitches in SHUT.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE EOP-3-1 (BANK)

## ELEMENT

(\* = CRITICAL STEP)

## STANDARD

* _____	c.	Block SGIS.	Places 11 and 12 S/G SGIS keyswitches in BLOCK. Checks that Annunciators C59 and C60 (SGIS A(B) BLOCKED) actuate.
* _____	d.	Reset the SGIS signal.	Places 11 and 12 S/G SGIS keyswitches in RESET. Checks that Annunciators G09 and G10 (ACTUATION SYS SGIS A(B) TRIPPED) are clear.
_____	e.	Open the MSIV(s).	[3]
* _____	f.	Open the SG FW ISOL valve(s): 1-FW-4516-MOV 1-FW-4517-MOV	[3]
* _____	g.	Start a COND BSTR PP.	[1]

TIME STOP \_\_\_\_\_

TERMINATING CUE:	This JPM is complete when a COND BSTR PP is started and SGIS is reset. No further actions are required.
------------------	---

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE EOP-3-1 (BANK)**

**TASK:** Restore Main Feedwater

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/INACTIONS OR PROCEDURAL QUALITY?** YES NO  
(If yes, provide comments below)

**COMMENTS:**

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. A total loss of all feedwater has occurred on Unit 1.
  - b. The reactor is tripped and EOP-0 is complete.
  - c. The CRS directed the RCPs be secured and a cooldown started prior to the EOP-3 brief.
  - d. You are performing the duties of the Unit 1 CRO.
3. Initiating Cue: The CRS directs you to establish natural circulation and cooldown the RCS per EOP-3, Step IV.G. Are there any questions? You may begin.

## IV. ACTIONS

### RECOVERY ACTIONS

### ALTERNATE ACTIONS

G. COMMENCE NATURAL CIRCULATION  
RCS COOLDOWN TO T<sub>COLD</sub> LESS  
THAN 465° F.

1. **IF**, at **ANY** time, **BOTH** S/G levels are less than (-)350 inches  
**OR** T<sub>COLD</sub> rises uncontrollably 5° F or greater,  
**THEN** initiate Once-Through-Cooling concurrently **PER** step J.

2. Block SGIS as follows:

- **WHEN** the "SGIS A BLOCK PERMITTED" alarm is received,  
**THEN** block SGIS A.
- **WHEN** the "SGIS B BLOCK PERMITTED" alarm is received,  
**THEN** block SGIS B.

2.1 **IF** SGIS actuates as a result of the cooldown  
**AND** the Non-Vital 4KV buses are energized,  
**THEN** reset the SGIS as follows:

- a. Place the COND BSTR PPs in PULL TO LOCK.
- b. Match handswitch positions **PER** ATTACHMENT (7), SGIS VERIFICATION CHECKLIST.
- c. Block SGIS.
- d. Reset the SGIS signal.
- e. Open the MSIV(s).
- f. Open the SG FW ISOL valve(s):
  - 1-FW-4516-MOV
  - 1-FW-4517-MOV
- g. Start a COND BSTR PP.

(continue)



ATTACHMENT (7)  
Page 1 of 1

SGIS VERIFICATION CHECKLIST

1C03

a. 11 and 12 MSIVs:

- 1-MS-4043-CV ..... Shut\*
- 1-MS-4048-CV ..... Shut\*

b. 11 and 12 SG FW ISOL valves:

- 1-FW-4516-MOV ..... Shut\*
- 1-FW-4517-MOV ..... Shut\*

c. 11 and 12 SGFPT TRIP RESET ..... Tripped

d. 11 and 12 HTR DRN PPs ..... Off

e. 11, 12 and 13 COND BSTR PPs ..... Off

\* Handswitches required in the Post Accident Position to enable resetting SGIS.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AM-1C08-3G (UPGRADE)**

**TASK:** Verify Validity of CIS Actuation

**PURPOSE:** Evaluates an Operator's Ability to Determine the Validity of a CIS Actuation

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:**        Verify Validity of CIS Actuation

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the Engineered Safety Features Actuation System.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR                      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE                      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

**ACTUAL TIME  
TO COMPLETE JPM:**

**TIME CRITICAL TASK:**

10 MINUTES

\_\_\_\_\_ MINUTES

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

Alarm Manual 1C08, G-06

**TASK STANDARDS:**

This JPM is complete when CIS has been reset, Instrument Air and Component Cooling have been restored to Containment.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:** Verify Validity of CIS Actuation

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.
3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedures or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. Reset simulator to IC-13, 100% power
  - b. Initiate malfunctions ESFA009\_01, ESFA009\_02 and then delete the malfunctions after components reposition.
  - c. Place simulator in "freeze".
  - d. **IF** contacted to reset CIS from ESFAS, acknowledge request, but do **NOT** reset CIS.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:**        Verify Validity of CIS Actuation

9.        Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:** Verify Validity of CIS Actuation

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:**        Verify Validity of CIS Actuation

Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0    Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0    Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0    Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0   Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0   Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)

## ELEMENT

## STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Locate and reference Alarm Manual for 1C08, G-06.

Same as element.

\_\_\_\_\_ 1. **PERFORM** the following:

CUE: Containment pressure indicates 0.2 psig on 1C09.

\* \_\_\_\_\_ a. **DETERMINE** the validity of the CIS by observing alternate channels of indication for the same parameter.

Checks pressure indications for pressure &gt; 2.8 psig on 1C09.

Determines that CIS actuation is not valid.

\_\_\_\_\_ b. **IF** the CIS is valid,

No action taken - CIS invalid.

CUE: RCP parameters are as follows:

Controlled Bleedoff Temps 11A-143°F, 11B-142°F, 12A-140°F, 12B-140°F

Journal Bearing Temps 11A-130°F, 11B-135°F, 12A-130°F, 12B-135°F

Thrust Bearing Temps 11A-150°F, 11B-155°F, 12A-150°F, 12B-155°F

\_\_\_\_\_ c. **IF** the CIS is invalid  
**THEN MONITOR** the RCPs  
Controlled Bleed-off and  
bearing temperatures while  
performing the following:

Checks temperatures on 1C06 and the plant computer.

\_\_\_\_\_ (1) **IF** the RCP Controlled  
Bleed-off temperature(s)  
exceed 200°F or bearing  
temperature(s) exceed  
195°F,  
**THEN:**

Determines that Controlled Bleed Off temperature(s) are NOT exceeding 200°F AND bearing temperature(s) are NOT exceeding 195°F.

\_\_\_\_\_ d. Informs CRS that CIS is invalid,  
requests resetting CIS.



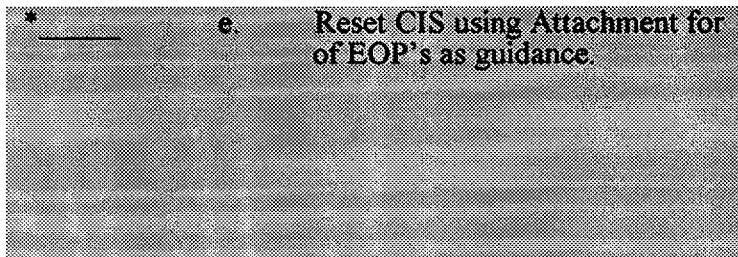
**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

ELEMENT

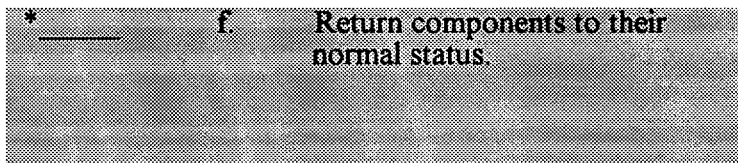
STANDARD

(\* = CRITICAL STEP)

CUE: CRS concurs, reset CIS.



Places 1-HS-3832 & 1-HS-2080 in SHUT per Attachment 4 of EOPs and reports handswitches are matched per the attachment. Depresses Channel A CIS reset pushbutton on 1C10 and verifies ACTUATION SYS CIS TRIP alarm on CO8 clears.



Places 1-HS-2080 and 1-HS 3832 in OPEN and verifies each valve opens. Verifies RCP temperatures are lowering.

CUE: CV 3832 and MOV 2080 are OPEN, RCP temperatures are trending downward.

TIME STOP \_\_\_\_\_

TERMINATING CUE: This JPM is complete when Component Cooling and Instrument Air are restored to Containment. No further actions are required.

## CCNPP LICENSED OPERATOR

**JOB PERFORMANCE MEASURE AM-1C08-3G (BANK)**

**TASK:** Verify Validity of CIS Actuation

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/INACTIONS OR PROCEDURAL QUALITY?**  
(If yes, provide comments below)

**YES**

NO

**COMMENTS:**

The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 1 is in Mode 1 at 100% power.
  - b. Annunciator 1C08 G-06 "Actuation Sys CIS Tripped" in alarm.
  - c. You are performing the duties of the Unit 1 RO and CRO.
3. Initiating Cue: The CRS directs you to respond to the alarm per the Alarm Manual for 1C08. Do you have any questions? You may begin.

**DEVICE****SETPOINT****WINDOW**

G-06

1-PT-5315A  
1-PT-5315B  
1-PT-5315C  
1-PT-5315D

2.8 PSIG (2.6 to 3.0 PSIG)(2/4 logic  
on ESFAS A or B)

ACTUATION SYS  
CIS  
TRIP

**POSSIBLE CAUSES**

- Manual initiation of CIS A or B logic
- Automatic initiation of CIS A or B logic on containment high pressure

**AUTOMATIC ACTIONS**

REFER to Attachment 4 of EOP Attachments or 1-LD-58A for a complete listing of CIS automatic actions.

CONDITION	RESPONSE
<p>1. CIS A or B actuation.</p> <p>(continued)</p>	<p>1. <b>PERFORM</b> the following:</p> <p>a. <b>DETERMINE</b> the validity of the CIS by observing alternate channels of indication for the same parameter.</p> <p>b. <b>IF</b> the CIS is valid, <b>THEN:</b></p> <p>(1) <b>ENSURE</b> the reactor has tripped.</p> <p>(2) <b>IMPLEMENT</b> EOP-0, <u>Post-Trip Immediate Actions</u>.</p> <p>(continued)</p>

(continued)

(continued)

WINDOW

G-06

CONDITION	RESPONSE
1. (continued)	<p>1. (continued)</p> <p>c. <b>IF</b> the CIS is invalid, <b>THEN MONITOR</b> the RCPs Controlled Bleed-off and bearing temperatures while performing the following:</p> <p>(1) <b>IF</b> the RCP Controlled Bleed-off temperature(s) exceed 200° F or bearing temperature(s) exceed 195° F, <b>THEN:</b></p> <p>(a) <b>TRIP</b> the reactor.</p> <p>(b) <b>IMPLEMENT</b> Reactivity Control section of EOP-0, <u>Post-Trip Immediate Actions.</u></p> <p>(c) <b>SECURE</b> the affected RCP(s).</p> <p>(d) <b>COMPLETE</b> EOP-0, <u>Post-Trip Immediate Actions.</u></p> <p>(2) With Shift Manager or Control Room Supervisor approval, <b>RESET</b> the CIS, using Attachment 4 of EOP's as guidance, and <b>RETURN</b> components to their normal status.</p> <p>d. <b>REFER</b> to RM-1-101, <u>Regulatory Reporting</u>, for reportability criteria.</p>

**ANNUNCIATOR COMPENSATORY ACTIONS**

**MONITOR** components listed under Automatic Actions for a CIS actuation.

**REFERENCES**

None

ATTACHMENT (4)  
Page 1 of 2

CIS VERIFICATION CHECKLIST

1C09, 1C10

- a. 11 and 12 PENETRATION RM VENT FANS ..... Running
- b. 11 and 12 FILT ISOL DMPRs ..... Open
- c. CC CNTMT SUPPLY and RETURN VLVs:
  - 1-CC-3832-CV ..... Shut\*
  - 1-CC-3833-CV ..... Shut\*
- d. IA CNTMT ISOL, 1-IA-2080-MOV ..... Shut\*
- e. 1-IA-2080-MOV CIS OVERRIDE, 1-HS-2080A ..... Normal\*

Administratively Controlled Valves

- a. **IF ANY** of the following administratively controlled valves are open,  
**THEN** return them to the shut position:

**NOTE**

1-PA-1040 is located inside containment. If 1-PA-1040 is open, 1-PA-1044 must be shut to establish containment isolation.

(1) Plant Air Containment Isolation Valves:

- 1-PA-1040 ..... Shut
- 1-PA-1044 ..... Shut

(2) Nitrogen Supply To SITs:

- 1-SI-612-CV ..... Shut
- 1-SI-622-CV ..... Shut
- 1-SI-632-CV ..... Shut
- 1-SI-642-CV ..... Shut

(3) DI WTR CNTMT ISOL valve, 1-DW-5460-CV ..... Shut

(4) U-1 FIRE PROT CNTMT ISOL valve, 1-FP-6200-MOV ..... Shut

- \* Handswitches required in the Post Accident Position to enable resetting CIS.

(continue)

ATTACHMENT (4)  
Page 2 of 2

CIS VERIFICATION CHECKLIST

(Continued)

**NOTE**

The PASS Return to RCDT and Hydrogen Sample Valves may be open for accident sampling. Contact Chemistry for operation of the PASS Return to RCDT and Hydrogen Sample Valves.

(5) PASS Return to RCDT, 1-PS-6529-SV ..... Shut

(6) Hydrogen Sample Valves:

• 1-PS-6507A-SV .....	Shut
• 1-PS-6507B-SV .....	Shut
• 1-PS-6507C-SV .....	Shut
• 1-PS-6507D-SV .....	Shut
• 1-PS-6507E-SV .....	Shut
• 1-PS-6507F-SV .....	Shut
• 1-PS-6507G-SV .....	Shut
• 1-PS-6540A-SV .....	Shut
• 1-PS-6540B-SV .....	Shut
• 1-PS-6540C-SV .....	Shut
• 1-PS-6540D-SV .....	Shut
• 1-PS-6540E-SV .....	Shut
• 1-PS-6540F-SV .....	Shut
• 1-PS-6540G-SV .....	Shut

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED)**

**TASK:** Verify Validity of CIS Actuation

**PURPOSE:** Evaluates an Operator's Ability to Determine the Validity of a CIS Actuation

**JOB PERFORMANCE MEASURE  
CALVERT CLIFFS NUCLEAR POWER PLANT  
LICENSED OPERATOR TRAINING**



**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED3)**

**TASK:**        Verify Validity of CIS Actuation

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the Engineered Safety Features Actuation System.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR                      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE                      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

**ACTUAL TIME  
TO COMPLETE JPM:**

**TIME CRITICAL TASK:**

10 MINUTES

\_\_\_\_\_ MINUTES

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

Alarm Manual 1C08, G-06

**TASK STANDARDS:**

This JPM is complete when the reactor coolant pumps have been tripped and the report made to the CRS.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED3)**

**TASK:** Verify Validity of CIS Actuation

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedures or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. Reset simulator to IC-13, 100% power
  - b. Initiate malfunction ESFA009\_01 and freeze simulator.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED3)**

**TASK:**        Verify Validity of CIS Actuation

9.        Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED3)**

**TASK:** Verify Validity of CIS Actuation

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED3)**

**TASK:**        Verify Validity of CIS Actuation

Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED 3)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Locate and reference Alarm Manual for 1C08, G-06.

Same as element.

\_\_\_\_\_ 1. **PERFORM** the following:

CUE: Containment pressure indicates 0.2 psig on 1C09.

\* \_\_\_\_\_ a. **DETERMINE** the validity of the CIS by observing alternate channels of indication for the same parameter.

Checks pressure indications for pressure &gt; 2.8 psig on 1C09.

Determines that CIS actuation is NOT valid.

Determines only Channel A actuated.

\_\_\_\_\_ b. **IF** the CIS is valid,

Determines step is N/A

CUE: RCP parameters are as follows:

Controlled Bleedoff Temps 11A-143°F, 11B-142°F, 12A-140°F, 12B-140°F

Journal Bearing Temps 11A-130°F, 11B-135°F, 12A-130°F, 12B-135°F

Thrust Bearing Temps 11A-150°F, 11B-155°F, 12A-150°F, 12B-155°

\_\_\_\_\_ c. **IF** the CIS is invalid  
**THEN MONITOR** the RCPs Controlled Bleed-off and bearing temperatures while performing the following:

Checks temperatures on 1C06 and the plant computer.

\_\_\_\_\_ (1) **IF** the RCP Controlled Bleed-off temperature(s) exceed 200°F or bearing temperature(s) exceed 195°F,  
**THEN:**

Determines Controlled Bleed Off temperature(s) are NOT exceeding 200°F or bearing temperature(s) are exceeding 195°F.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED 3)

## ELEMENT

## STANDARD

(\* = CRITICAL STEP)

CUE: CRS concurs and orders CIS reset.

- \_\_\_\_\_ (2) With Shift Manager or Control Room Supervisor approval, **RESET** the CIS, using Attachment 4 of EOPs as guidance, and **RETURN** components to their normal status.

Places 1-HS-3832 & 1-HS-2080 in SHUT per Attachment 4 of EOPs and reports handswitches are matched per the attachment. Depresses Channel A CIS reset pushbutton on 1C10 and notes that ACTUATION SYS CIS TRIP alarm on CO8 does NOT clear.

Notifies CRS and recommends tripping the reactor.

CUE: CRS concurs and orders a reactor trip.

**NOTE:** The following steps are from EOP-0 Reactivity Safety Function.

\* \_\_\_\_\_ (a) **TRIP** the reactor.

**EOP-0**

- A. **VERIFY THE REACTIVITY CONTROL SAFETY FUNCTION IS SATISFIED.**

Pushes Reactor Trip pushbuttons on 1C05.

CUE: When the reactor trip buttons are depressed the CEAs insert, reactor power lowers.

- \_\_\_\_\_ 1. Depress ONE set of Manual REACTOR TRIP buttons.

Pushes Reactor Trip pushbuttons on 1C05.

CUE: All indications of reactor power on 1C05 are lowering. All SUR indications on 1C05 are negative.

- \_\_\_\_\_ 2. Check the Reactor has tripped by the following:
- Prompt drop in NI power
  - Negative SUR

Checks power indications decreasing on 1C05.

Checks SUR indications negative on 1C05.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED 3)

## ELEMENT

(\* = CRITICAL STEP)

## STANDARD

CUE: All rod bottom lights are lit on the mimic. CEAPDS indicates all CEAs inserted.

3. Check that **NO** more than **ONE** CEA is **NOT** fully inserted.

Check CEA indications on the CEA mimic or on CEAPDS determines all CEAs are inserted.

4. Verify demineralized water makeup to the RCS is secured as follows:

CUE: RC makeup pumps are secured.

- 11 and 12 RC M/U PPs are secured.

{5}

CUE: 1-CVC-512 is shut.

- VCT M/U valve, 1-CVC-512-CV, is shut.

{5}

CUE: RCS makeup is not in the direct lineup.

- **IF** RCS Makeup is in Direct Lineup, **THEN** the RWT CHG PP SUCT, 1-CVC-504-MOV, is shut.

Determines RCS makeup is not in the direct lineup..  
Reports "Reactivity Complete" to the CRS

## ALARM MANUAL 1C08 G-06 1.C.(1).(c)

CUE: All RCPs indicate tripped.

\*

- (1) Secure the affected RCP(s).

{2}

Reports all RCPs tripped to CRS.

TIME STOP \_\_\_\_\_

TERMINATING CUE: This JPM is complete when the trip of all RCPs is reported to the CRS.



**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AM-1C08-5 (MODIFIED 3)**

**TASK:** 020630311 Verify Validity of CIS Actuation

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/INACTIONS OR PROCEDURAL QUALITY?** YES NO  
(If yes, provide comments below)

**COMMENTS:**

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 1 is in Mode 1 at 100% power.
  - b. Annunciator 1C08 G-06 "Actuation Sys CIS Tripped" is in alarm window G-06 is in alarm.
  - c. You are performing the duties of the Unit 1 RO and CRO.
3. Initiating Cue: The CRS directs you to respond to the alarm. Are there any questions? You may begin.

**DEVICE****SETPOINT****WINDOW**

G-06

1-PT-5315A  
1-PT-5315B  
1-PT-5315C  
1-PT-5315D

2.8 PSIG (2.6 to 3.0 PSIG)(2/4 logic  
on ESFAS A or B)

**ACTUATION SYS  
CIS  
TRIP**

**POSSIBLE CAUSES**

- Manual initiation of CIS A or B logic
- Automatic initiation of CIS A or B logic on containment high pressure

**AUTOMATIC ACTIONS**

REFER to Attachment 4 of EOP Attachments or 1-LD-58A for a complete listing of CIS automatic actions.

CONDITION	RESPONSE
<p>1. CIS A or B actuation.</p> <p>(continued)</p>	<p>1. <b>PERFORM</b> the following:</p> <p>a. <b>DETERMINE</b> the validity of the CIS by observing alternate channels of indication for the same parameter.</p> <p>b. <b>IF</b> the CIS is valid, <b>THEN:</b></p> <p>(1) <b>ENSURE</b> the reactor has tripped.</p> <p>(2) <b>IMPLEMENT</b> EOP-0, <u>Post-Trip Immediate Actions</u>.</p> <p>(continued)</p>

(continued)

(continued)

WINDOW

G-06

CONDITION	RESPONSE
<p>1. (continued)</p>	<p>1. (continued)</p> <p>c. <b>IF</b> the CIS is invalid, <b>THEN MONITOR</b> the RCPs Controlled Bleed-off and bearing temperatures while performing the following:</p> <p>(1) <b>IF</b> the RCP Controlled Bleed-off temperature(s) exceed 200° F or bearing temperature(s) exceed 195° F, <b>THEN:</b></p> <p>(a) <b>TRIP</b> the reactor.</p> <p>(b) <b>IMPLEMENT</b> Reactivity Control section of EOP-0, <u>Post-Trip Immediate Actions.</u></p> <p>(c) <b>SECURE</b> the affected RCP(s).</p> <p>(d) <b>COMPLETE</b> EOP-0, <u>Post-Trip Immediate Actions.</u></p> <p>(2) With Shift Manager or Control Room Supervisor approval, <b>RESET</b> the CIS, using Attachment 4 of EOP's as guidance, and <b>RETURN</b> components to their normal status.</p> <p>d. <b>REFER</b> to RM-1-101, <u>Regulatory Reporting</u>, for reportability criteria.</p>

**ANNUNCIATOR COMPENSATORY ACTIONS**

**MONITOR** components listed under Automatic Actions for a CIS actuation.

**REFERENCES**

None

ATTACHMENT (4)  
Page 1 of 2

CIS VERIFICATION CHECKLIST

1C09, 1C10

- |    |  |         |
|----|--|---------|
| a. | 11 and 12 PENETRATION RM VENT FANS .....     | Running |
| b. | 11 and 12 FILT ISOL DMPRs .....              | Open    |
| c. | CC CNTMT SUPPLY and RETURN VLVs:             |         |
|    | • 1-CC-3832-CV .....                         | Shut*   |
|    | • 1-CC-3833-CV .....                         | Shut*   |
| d. | IA CNTMT ISOL, 1-IA-2080-MOV .....           | Shut*   |
| e. | 1-IA-2080-MOV CIS OVERRIDE, 1-HS-2080A ..... | Normal* |

Administratively Controlled Valves

- a. **IF ANY** of the following administratively controlled valves are open,  
**THEN** return them to the shut position:

**NOTE**

1-PA-1040 is located inside containment. If 1-PA-1040 is open, 1-PA-1044 must be shut to establish containment isolation.

(1) Plant Air Containment Isolation Valves:

- |                   |      |
|-------------------|------|
| • 1-PA-1040 ..... | Shut |
| • 1-PA-1044 ..... | Shut |

(2) Nitrogen Supply To SITs:

- |                     |      |
|---------------------|------|
| • 1-SI-612-CV ..... | Shut |
| • 1-SI-622-CV ..... | Shut |
| • 1-SI-632-CV ..... | Shut |
| • 1-SI-642-CV ..... | Shut |

(3) DI WTR CNTMT ISOL valve, 1-DW-5460-CV .....

Shut

(4) U-1 FIRE PROT CNTMT ISOL valve, 1-FP-6200-MOV .....

Shut

- \* Handswitches required in the Post Accident Position to enable resetting CIS.

(continue)

ATTACHMENT (4)  
Page 2 of 2

CIS VERIFICATION CHECKLIST

(Continued)

**NOTE**

The PASS Return to RCDT and Hydrogen Sample Valves may be open for accident sampling. Contact Chemistry for operation of the PASS Return to RCDT and Hydrogen Sample Valves.

(5) PASS Return to RCDT, 1-PS-6529-SV ..... Shut

(6) Hydrogen Sample Valves:

• 1-PS-6507A-SV .....	Shut
• 1-PS-6507B-SV .....	Shut
• 1-PS-6507C-SV .....	Shut
• 1-PS-6507D-SV .....	Shut
• 1-PS-6507E-SV .....	Shut
• 1-PS-6507F-SV .....	Shut
• 1-PS-6507G-SV .....	Shut
• 1-PS-6540A-SV .....	Shut
• 1-PS-6540B-SV .....	Shut
• 1-PS-6540C-SV .....	Shut
• 1-PS-6540D-SV .....	Shut
• 1-PS-6540E-SV .....	Shut
• 1-PS-6540F-SV .....	Shut
• 1-PS-6540G-SV .....	Shut

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

**PURPOSE:** Evaluates an Operator's Ability to Restart RCPs

**JOB PERFORMANCE MEASURE**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the Initial License class classroom and simulator training.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT      \_\_\_\_\_ SIMULATOR      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

15 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

LEVEL 1 PERFORM

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

AOP-3E

**TASK STANDARDS:**

This JPM is complete when the second RCP is started.



**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.
3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. IC-11
  - b. Cool down to approximately 520°F Tc.
  - c. Place TBV controller in Auto with a setpoint of 810#
  - d. Trip feeder breaker 252-1201, place in PTL and place ADV controller in manual.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

- e. Run until CET temperatures stabilize at less than 525 degrees F.
- f. Freeze simulator.

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

- Adequate Suction Pressure
- Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check for proper Pump operation (as applicable):
- Smooth, quiet operation consistent with pump history
  - Oil level remains good
  - Proper seal leakoff
  - Proper discharge pressure
  - Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_ Locate AOP-3E Section IV Step I.7

Same as element

CUE: All restart criteria are met.

____ 7.	<b>IF</b> RCS temperature is between 525°F and 368°F, <b>THEN</b> verify that <b>ALL</b> of the following RCP restart criteria are met:	Monitors Tc, 1C05 or 1C06
	<ul style="list-style-type: none"> <li>• Verify electrical power is available to the RCPs</li> </ul>	Checks Pwr available light lit on U-2 RCP bus mimic, 1C19
	<ul style="list-style-type: none"> <li>• RCP BUS</li> <li>• MCC-115 (ALL RCPs)</li> <li>• MCC-105 (11A/11B RCP)</li> </ul>	
	<ul style="list-style-type: none"> <li>• 12/22 SERV BUS VOLTS is less than 14.8 KV</li> </ul>	Check bus voltage, 1C19
	<ul style="list-style-type: none"> <li>• 4 KV bus voltage is greater than 4100 volts</li> </ul>	Check U-2 4kv bus voltages, 2C17 & 2C18
	<ul style="list-style-type: none"> <li>• RCP CBO temperatures are less than 200°F.</li> </ul>	Check Group 9 on Plant computer
	<ul style="list-style-type: none"> <li>• RCS subcooling is greater than 30°F based on CET temperatures</li> </ul>	Check CET SCM, T1-133 & 134, 1C05
	<ul style="list-style-type: none"> <li>• At least ONE S/G available for heat removal</li> </ul>	
	<ul style="list-style-type: none"> <li>• S/G level greater than (-)170 inches</li> </ul>	Check S/G NR or WR level on 1C03 or 1C04
	<ul style="list-style-type: none"> <li>• capable if being supplied with feedwater</li> </ul>	Check SGFP operating and feeding S/G
	<ul style="list-style-type: none"> <li>• capable of being steamed</li> </ul>	Check ADVs or TBVs available

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)

ELEMENT	STANDARD
(* = CRITICAL STEP)	
<ul style="list-style-type: none"> <li>• PZR level is greater than 155 inches and NOT lowering</li> </ul>	Check Pzr lvl on LI-110X or 110Y, 1C06
<ul style="list-style-type: none"> <li>• Tcold is less than 525°F</li> </ul>	Check Tc on TI-124, 1C05
<ul style="list-style-type: none"> <li>• RCS temperature and pressure are greater than the minimum operating limits PER Attachment (1), <u>RCP PRESSURE / TEMPERATURE LIMITS</u> of the <u>EOP ATTACHMENTS</u>.</li> </ul>	Refers to EOP Attach(1) and determines RCS parameters are greater than minimum RCP operating limits.
<p><b><u>NOTE:</u></b> If 11 RCS loop is available, then a RCP in that RCS loop should be started to restore Main Spray capability.</p>	
<p><b><u>NOTE:</u></b> The second RCP in the same loop should be started within 5 minutes of starting the first RCP. This should be done due to the NPSH requirements for two RCPs in the same loop being less restrictive than NPSH requirements for single RCP operation.</p>	
<p>8. <b>WHEN</b> RCP restart is desired,  <b>AND</b> RCP restart criteria are met,  <b>THEN</b> start one RCP in a loop with a SG available for heat removal as follows:</p>	
<div style="border: 1px solid black; padding: 5px;">CUE: CVC 505-CV and 506-CV indicate open.</div>	
<p>_____ a. On 1C07, verify that the RCP BLEED-OFF ISOL valves are open:</p> <ul style="list-style-type: none"> <li>• 1-CVC-505-CV</li> <li>• 1-CVC-506-CV</li> </ul>	{5}
<div style="border: 1px solid black; padding: 5px;">CUE: Alarm is clear.</div>	
<p>_____ b. Verify that the "CCW FLOW LO" alarm is clear.</p>	Checks RCP status panel alarms clear, for RCP to be started.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**ELEMENT****STANDARD**

(\* = CRITICAL STEP)

CUE: Oil lift pump is running.
--------------------------------

* _____	c. Start the associated Oil Lift Pump.	{1}
---------	--	-----

CUE: Alarm is clear.
----------------------

_____	d. Verify that the "OIL LIFT PP PRESS LO" alarm is clear.	Checks RCP status panel alarms clear, for RCP to be started.
-------	---	--

_____	e. Operate the Oil Lift Pump for at least 60 seconds before starting the RCP.	Same as element
-------	---	-----------------

* _____	f. Insert the RCP sync stick.	Places sync stick in 252-11P02 or 252-13P02
---------	-------------------------------	---

CUE: Sync scop is not rotating.
---------------------------------

_____	g. On panel 1C19, verify that the synchroscope is NOT rotating.	Same as element
-------	---	-----------------

**CAUTION:** Starting an RCP may cause a pressurizer level transient. The potential for a pressure transient exists if an RCP is started in a loop in which no S/G is available for heat removal.

* _____	h. Start the RCP.	{1}
---------	-------------------	-----

CUE: Ampmeter pegs high and returns to about 200 amps.
--

_____	i. Verify that the RCP is NOT cavitating by observing that running current is steady.	Monitors motor ampmeter for stable current
-------	---	--

CUE: Pressurizer level is 160".
---------------------------------

_____ 9.	Operate Charging and Letdown to restore and maintain PZR level between 101 and 180 inches.	Monitor PZR Level on LI-110X or 110Y, 1C06
----------	--	--

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

ELEMENT		STANDARD
(* = CRITICAL STEP)		
CUE: Seal parameters are normal.		
10.	Monitor RCP seal parameters following pump restart.	Monitors RCP parameters on PC and 1C06
CUE: Th and Tc are 523°F.		
11.	Allow backflow to equalize temperatures in the opposite loop.	Monitors RCS temperatures, 1C06, until they are stable
12.	Start a second RCP in the same loop by performing the following actions:	
* _____	a. Ensure RCP NPSH requirements are maintained PER ATTACHMENT (1), RCP PRESSURE / TEMPERATURE LIMITS of the EOP ATTACHMENTS.	Refers to EOP Attach(1) and determines RCS parameters are greater than minimum RCP operating limits.
* _____	b. Start an RCP PER Step I.8 Page 22.	Returns to Step I.8, uses sync jack in breaker 252-13P02 or 252-11P02
TERMINATING CUE:		This JPM is complete when the second RCP is started. No further actions are required.
TIME STOP _____		



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-3E-1 (NEW)**

**TASK:** Restart RCPs

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL  
ACTIONS/INACTIONS OR PROCEDURAL QUALITY?**  
(If yes, provide comments below)

**YES**

**NO**

**COMMENTS:**

---

---

The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 1 was shutdown for short maintenance outage.
  - b. The Unit was expected to be maintained in Mode 3 per OP-4.
  - c. A short time ago the RCP feeder breaker 152-1201 tripped.
  - d. AOP-3E has been implemented.
  - e. The cause of the tripped breaker has been determined. There is no common mode failure and the breaker is being repaired.
  - f. You are performing the duties of the Unit 1 RO.
3. Initiating Cue: The CRS has directed you to start Reactor Coolant Pumps from Unit 2 power supply per AOP-3E Section IV Step I.7. Are there any questions? You may begin.

#### IV. LOSS OF ALL RCP FLOW

<u>ACTIONS</u>	<u>ALTERNATE ACTIONS</u>
<p>H. (continued)</p> <p>6. IF ANY RCP LOWER SEAL temperature is greater than 280° F, AND the RCP Controlled Bleed-off temperatures have been recorded, THEN perform the following actions:</p> <ul style="list-style-type: none"> <li>a. Shut CONTAINMENT SUPPLY HEADER ISOLATION valve, 1-CC-284, located in the 5 ft East Penetration Room.</li> <li>b. Open CC CNTMT SUPPLY valve, 1-CC-3832-CV.</li> <li>c. Slowly open 1-CC-284 to restore component cooling flow.</li> </ul>	
<p>I. EVALUATE STARTING RCPs.</p>	
<p>1. WHEN the cause of the loss of RCP flow is identified and corrected, THEN evaluate the need and desirability of restarting RCPs based on the following:</p> <ul style="list-style-type: none"> <li>• Adequacy of RCS and Core Heat Removal using Natural Circulation</li> <li>• Existing RCS pressure and temperatures in relation to SDC entry conditions</li> <li>• RCP CBO temperatures</li> </ul> <p>2. IF RCP operation is NOT desired, THEN PROCEED to Step J, Page 25, <u>Evaluate The Need For Plant Cooldown.</u></p> <p>3. IF RCPs have been exposed to excessive moisture, THEN consider meggering RCP motors.</p> <p>(continue)</p>	

0600

#### IV. LOSS OF ALL RCP FLOW

##### ACTIONS

##### ALTERNATE ACTIONS

I. (continued)

##### CAUTION

If a RCP's CBO temperature exceeds 250° F, the affected seal must be rebuilt before the RCP can be operated. Do NOT restart any RCP whose CBO temperature has exceeded 250° F.

4. Check that the CBO temperatures for the RCPs to be restarted have NOT exceeded 250° F.
5. Reduce T<sub>COLD</sub> to less than 525° F, using the ADVs or TBVs.
6. Raise PZR level to between 155 and 170 inches.

- 4.1 IF CBO temperatures do NOT allow RCP restart,  
**THEN PROCEED** to Step J, Page 25,  
Evaluate The Need For Plant Cooldown.

(continue)

## IV. LOSS OF ALL RCP FLOW

### ACTIONS

### ALTERNATE ACTIONS

I. (continued)

7. IF RCS temperature is between 525° F and 368° F, THEN verify that **ALL** of the following RCP restart criteria are met:

- Verify electrical power is available to the RCPs
  - RCP BUS
  - MCC-115 (ALL RCPs)
  - MCC-105 (11A/11B RCP)
- 12/22 SERV BUS VOLTS is less than 14.8 KV
- 4KV bus voltage is greater than 4100 volts
- RCP CBO temperatures are less than 200° F
- RCS subcooling is greater than 30° F based on CET temperatures
- At least ONE S/G available for heat removal
  - S/G level greater than (-)170 inches
  - capable of being supplied with feedwater
  - capable of being steamed
- PZR level is greater than 155 inches and **NOT** lowering
- T<sub>COLD</sub> is less than 525° F

(continue)

7.1 IF RCS temperature is less than 368° F, AND 11A or 11B RCPs are **NOT** available, THEN **PROCEED** to Step J, Page 25, Evaluate The Need For Plant Cooldown.

7.2 IF RCS temperature is less than 368° F, THEN verify that **ALL** of the following RCP restart criteria are met:

- Verify electrical power is available to the RCPs
  - RCP BUS
  - MCC-115 (ALL RCPs)
  - MCC-105 (11A/11B RCP)
- 12/22 SERV BUS VOLTS is less than 14.8 KV
- 4KV bus voltage is greater than 4100 volts
- RCP CBO temperatures are less than 200° F
- RCS subcooling is greater than 30° F based on CET temperatures
- At least ONE S/G available for heat removal
  - S/G level greater than (-)170 inches
  - capable of being supplied with feedwater
  - capable of being steamed

(continue)

0600

0600

## IV. LOSS OF ALL RCP FLOW

### ACTIONS

### ALTERNATE ACTIONS

I.7 (continued)

- RCS temperature and pressure are greater than the minimum operating limits **PER** Attachment (1), RCP PRESSURE / TEMPERATURE LIMITS of the EOP ATTACHMENTS.

I.7.2 (continued)

- A comparison has been done between temperature compensated level indication 1-LI-103 and computer point L110X! **OR** L110Y! **AND** the following conditions are met:
  - PZR level is less than 170 inches
  - PZR level indicators deviate less than 13 inches
- IF any of the above mentioned temperature compensated level indications deviate by more than 13 inches  
**THEN** contact Engineering for guidance prior to RCP start.

#### NOTE

SG temperatures may be read from Main Steam Line temperature indication at 1C03 if the SGs are generating steam. Otherwise, SG temperatures shall be read locally in Containment.

#### NOTE

RCS temperature shall be determined as follows:

- Mode 3: using RCS T<sub>AVG</sub> (the average of RCS T<sub>HOT</sub> and T<sub>COLD</sub>) from the loop with the largest delta T
  - (11 loop) 1-TI-112H, 1-TI-112C
  - (12 loop) 1-TI-122H, 1-TI-122C
- Mode 4 or 5: using the lowest RCS T<sub>COLD</sub>
  - BOTH SG temperatures are less than 30° F above RCS temperature
  - RCS pressure is between 260 and 300 PSIA

(continue)

(continue)

0600

0600

#### IV. LOSS OF ALL RCP FLOW

##### ACTIONS

I.7 (continued)

##### NOTE

If 11 RCS loop is available, then a RCP in that RCS loop should be started to restore Main Spray capability.

##### NOTE

The second RCP in the same loop should be started within 5 minutes of starting the first RCP. This should be done due to the NPSH requirements for two RCPs in the same loop being less restrictive than NPSH requirements for single RCP operation.

8. **WHEN** RCP restart is desired,  
**AND** RCP restart criteria are met,  
**THEN** start one RCP in a loop with a SG available for heat removal as follows:
  - a. On 1CO7, verify that the RCP BLEED-OFF ISOL valves are open:
    - 1-CVC-505-CV
    - 1-CVC-506-CV
  - b. Verify that the "CCW FLOW LO" alarm is clear.
  - c. Start the associated Oil Lift Pump.
  - d. Verify that the "OIL LIFT PP PRESS LO" alarm is cleared.
  - e. Operate the Oil Lift Pump for at least 60 seconds before starting the RCP.
  - f. Insert the RCP sync stick.
  - g. On panel 1C19, verify that the synchroscope is **NOT** rotating.

(continue)

##### ALTERNATE ACTIONS

I.7.2 (continued)

- RCS temperature and pressure are greater than the minimum operating limits **PER** Attachment (1), RCP PRESSURE / TEMPERATURE LIMITS of the EOP ATTACHMENTS.

## IV. LOSS OF ALL RCP FLOW

<u>ACTIONS</u>	<u>ALTERNATE ACTIONS</u>
<p>I.8 (continued)</p> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <p>Starting an RCP may cause a pressurizer level transient. The potential for a pressure transient exists if an RCP is started in a loop in which no S/G is available for heat removal.</p> <ul style="list-style-type: none"> <li>h. Start the RCP.</li> <li>i. Verify that the RCP is <b>NOT</b> cavitating by observing that running current is steady.</li> </ul> <p>9. Operate Charging and Letdown to restore and maintain PZR level between 101 and 180 inches.</p> <p>10. Monitor RCP seal parameters following pump restart.</p> <p>11. Allow backflow to equalize temperatures in the opposite loop.</p> <p>12. Start a second RCP in the same loop by performing the following actions:</p> <ul style="list-style-type: none"> <li>a. Ensure RCP NPSH requirements are maintained <b>PER ATTACHMENT (1), RCP PRESSURE / TEMPERATURE LIMITS</b> of the <b>EOP ATTACHMENTS</b>.</li> <li>b. Start an RCP <b>PER</b> Step I.8, Page 22.</li> <li>c. Monitor RCP seal parameters following pump restart.</li> </ul> <p style="text-align: center;">(continue)</p>	



#### IV. LOSS OF ALL RCP FLOW

##### ACTIONS

##### ALTERNATE ACTIONS

I. (continued)

13. **WHEN** Main Spray is available,  
**THEN** perform the following actions:
- a. Verify that Aux Spray is secured **PER**  
Step E.1.a.(6), Page 13.
  - b. Operate PRESSURIZER SPRAY VLV  
CONTROLLER, 1-HIC-100 in AUTO or  
MANUAL as desired to maintain  
required pressure.
14. **IF** the RCPs are running,  
**THEN**, with the approval of the SM/CRS,  
**IMPLEMENT** the applicable Operating  
Procedure.

0600

#### IV. LOSS OF ALL RCP FLOW

##### ACTIONS

##### ALTERNATE ACTIONS

#### J. EVALUATE THE NEED FOR PLANT COOLDOWN.

1. **WHEN** the RCS parameters have been stabilized,  
**THEN** evaluate the need for a plant cooldown based on a determination of the following:
  - a. When RCPs will be available.
  - b. Auxiliary Systems availability
  - c. Applicable Technical Specification Action Statements that may require cooldown.
2. **IF** a plant cooldown is **NOT** desired,  
**THEN** maintain stabilized plant conditions.
3. **IF** the RCPs become available,  
**THEN PROCEED** to Step I, EVALUATE STARTING RCPs, Page 18.
4. **IF** a plant cooldown is desired,  
**THEN IMPLEMENT** the applicable portion of OP-5, PLANT SHUTDOWN FROM HOT STANDBY TO COLD SHUTDOWN.

END of Section IV

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS Operability for a Waste Gas Release

**PURPOSE:** Evaluates an Operator's ability to align the Waste Gas System for a release per OI-17B

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS operability for a Waste Gas release

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the Initial License class classroom and simulator training.

**EVALUATION LOCATION:**

\_\_\_\_ PLANT      \_\_\_\_ SIMULATOR      \_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_ ACTUAL PERFORMANCE      \_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

15 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

OI-17B

**TASK STANDARDS:**

This JPM is complete it has been determined what actions are required to perform a Waste Gas release with 0-RI-2191 inoperable.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS operability for a Waste Gas release

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. IC-any
  - b. Enter Overrides
    1. Override 0-RI-2191 indication to 3.99, place arrow on indicator.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS operability for a Waste Gas release

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS operability for a Waste Gas release

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify RMS operability for a Waste Gas release

- Adequate Suction Pressure
- Identify the Control Switch and Indicating Lights, using authorized identification.
- Operate the Control Switch, to START, and check expected Indicating Light response.
- Check for proper Pump operation (as applicable):
- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
____ Locate OI-17B Section 6.4.B Step 12	Without error
CUE: WGS-2191 and 2192 indicate open.	
____ 12. <b>OPEN</b> the WF DISCH ISOL valves using {3} 0-HS-2191 <b>AND</b> 0-HS-2192 (1C33): •       0-WGS-2191-CV •       0-WGS-2191-CV	
CUE: No flow is indicated on 0-FI-2192 or 0-FI 2193.	
____ 13. <b>IF</b> a rise in flow rate is indicated on 0-FI-2192 <b>OR</b> 0-FI-2193 (1C63) <b>THEN...</b>	Directs PO to monitor flow. When report received on zero flow, determines step is N/A
____ 14. <b>IF</b> the Gaseous Waste Dishcharge Radiation Monitor 0-RI-2191 is out of service, <b>THEN...</b>	Checks 1-RI-2191 in service and determines step is N/A
____ 15. <b>PERFORM</b> an RMS operability check on 0-RI 2191 by performing the following:	
* ____ a. <b>POSITION</b> the Operator Selector Switch to CHECK SOURCE.	Places switch to CHECKSOURCE
b. <b>CHECK</b> channel response as follows:	
CUE: Meter indication does not change.	
* ____ (1) <b>ENSURE</b> a positive meter deflection above background on the radio gas channels. [B0060]	Determines no meter deflection occurred

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
<div style="background-color: #cccccc; padding: 5px;">           * _____ (2) <b>IF</b> a qualitative assessment of channel response can <b>NOT</b> be determined, <b>THEN CONSIDER</b> the monitor out of service.         </div>	Considers the monitor out of service
<b>NOTE:</b>	Recorder operation is <b>NOT</b> required by the ODCM for the rad monitor to be operable.
_____ (3)	<b>CHECK</b> the recorder responding.
	Determines step is N/A (no change in meter for recorder to respond).
_____ c.	<b>CHECK</b> automatic isolation of the release path by completing the following steps:
	(1) <b>POSITION</b> the Operator Selector Switch to PULSE CAL
	(2) <b>CHECK</b> 0-WGS-2191-CV <b>AND</b> 0-WGS-2192-CV go shut
	(3) <b>CHECK</b> the local <b>AND</b> remote HIGH ALARM is annunciated.
_____ d.	<b>RESET</b> 0-RI-2191 by completing the following:
	(1) <b>PLACE</b> the Operator Selector Switch to RESET, <b>THEN</b> to OPERATE.
	(2) <b>ENSURE</b> the remote <b>AND</b> local alarms are rest.
	(3) <b>CHECK OPEN</b> the Waste Gas Discharge Valves:

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
--------------------------------	----------

- 0-WGS-2191-CV
- 0-WGS-2192-CV

**CUE:** The RO has entered the termination criteria into the plant computer.

- e. **IF** Plant Computer is available,  
**THEN ENTER** termination  
criteria into the Plant computer  
**PER** the Gaseous Waster Permit.
16. **IF** the Gaseous Waste Discharge  
Radiation Monitor, 0-RI-2191 fails any  
part of its operability check in Step 15 **OR**  
is declared out of service in Step 14,  
**THEN COMPLETE** the following:

* _____	a. <b>CONSIDER</b> 0-RI-2191 out of service.	Same as element
_____	b. <b>ENSURE</b> the Gaseous Waste Discharge Radiation Instrument Operate Selector Switch, 0-HS-2190 in the LEVEL CAL position.	Places Operate Selector Switch in LEVEL CAL
* _____	c. <b>REFER</b> to OI-35, Section titled <b><u>RADIATION MONITOR INOPERABILITY</u></b> for alternate monitoring requirements.	Locates OI-35 Section 6.12
* _____	1. <b><u>WHEN</u></b> radiation monitoring equipment, required to be operable by Technical Specifications, TRM, ODCM or associated with primary to secondary leak detection, is declared out of service <b><u>OR</u></b> is to be taken out of service for maintenance or testing, <b><u>THEN PERFORM</u></b> the following:	

**NOTE:** Containment entry is necessary for air samples when **BOTH** containment RMS Pumps are OOS, due to the inability portable equipment to obtain a representative sample.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
* _____ a. <b>CHECK</b> Table (1) for applicability.	Determines ODCM requirement 3.3.3.9 Action 35 is required.
_____ b. <b>CHECK</b> Technical Specifications for applicability.	Determines step is N/A
_____ c. <b>CHECK</b> TRM for applicability.	Determines step is N/A
* _____ d. <b>CHECK</b> ODCM for applicability.	Checks ODCM Section 3.3.3.9 page 16

**ODCM**

* _____ (1) Refers to Table 3.3.12	Locates table and determines Action 35 is applicable
* _____ (2) Locates Action 35	Notifies CRS or Shift Manager that discharge may continue if requirements of Action 35 are met.

TERMINATING CUE:	This JPM is complete when the trainee states that the Waste Gas release can continue as long as Action 35 is completed. No further actions are required.
------------------	--

TIME STOP \_\_\_\_\_

# CCNPP LICENSED OPERATOR

**JOB PERFORMANCE MEASURE OI-17B-1 (NEW)**

**TASK:** Verify the operability for a Waste Gas release

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/INACTIONS OR PROCEDURAL QUALITY?**  
(If yes, provide comments below)

**YES**

NO

**COMMENTS:**

The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. A Waste Gas discharge permit has been approved for releasing a WGDT.
  - b. You are performing the duties of a Unit 1 CRO.
3. Initiating Cue: 13 WGDT is being aligned for discharge per OI-17B Section 6.4. Steps 6.4.B, 1 through 11 are complete. Begin on Step 12. Are there any questions? You may begin.

**6.4 WASTE GAS RELEASE****A. Initial Conditions**

1. The inlet valve for the Waste Gas Decay Tank to be released is locked shut.
2. The Gaseous Waste Discharge Radiation Monitor, 0-RI-2191, is available to support Waste Gas System operations OR alternate monitoring is implemented PER OI-35.
3. The Main Vent Gaseous Monitor 1(2)RI-5415 is in operation OR alternate monitoring is implemented PER OI-35.
4. The contents of the Waste Gas Decay Tank to be released have been sampled AND an approved Waste Gas Release Permit has been issued.
5. Only one Main Exhaust Fan for the plant vent to be used for the release is in operation.
6. Communications have been established between 1C33 AND the area of the Waste Gas Room for use during initiation of the release.
7. Chemistry has verified that the Iodine AND Particulate Samplers on the main vent skid are operable.
8. Indication of Waste Gas Decay Tank pressure is available from the Plant Computer OR locally at 1C63.

21/00

**B. Procedure**

1. **NOTIFY** Radiation Safety Supervision of the waste gas release AND the Unit being released to.
2. **ENSURE SHUT** the following valves:
  - WG DISCH HDR PSR/FLOW CONTR (SET AT 0 PSI)..0-WGS-2191-PCV
  - WG DISCH ISOL.....0-WGS-2191-CV
  - WG DISCH B/U ISOL.....0-WGS-2192-CV
  - WG DISCH FILT DRN.....0-WGS-631
  - WG DISCH FILT INTRSTG DRN.....0-WGS-632

21/00

6.4.B Procedure (Continued)**WARNING**

WGDT outlet valves SHALL be checked shut at the valve, **NOT** using the reach-rod. This will help prevent inadvertent WGDT Discharge.

3. **ENSURE LOCKED SHUT** the following valves:
  - 11 WGDT Outlet.....0-WGS-623
  - 12 WGDT Outlet.....0-WGS-624
  - 13 WGDT Outlet.....0-WGS-625
  - WG DISCH PCV & FILT BYP.....0-WGS-630
4. **DRAIN** the Waste Gas Discharge Header **PER** the following:
  - a. **UNCAP** WG DISCH HDR DRN, 0-WGS-655.
  - b. **DRAIN** to a suitable container by **OPENING** 0-WGS-655.
  - c. **WHEN** the header is drained,  
**THEN SHUT** 0-WGS-655.
5. **CONNECT** a hose from plant air to the WG DISCH HDR PURGE/VENT, 0-WGS-673.
  - **COMPLETE** an independent verification of the hose connected at 0-WGS-673.

**NOTE**

Waste gas discharge to plant vent stack valves, 0-WGS-683 **AND** 0-WGS-684 are mechanically interlocked.

6. **IF** the Waste Gas Decay Tank is to be released to Unit 1 Plant Vent Stack, **THEN ENSURE** the following lineup:
  - OPEN WG DISCH TO U-1 PLNT VENT.....0-WGS-683
  - ENSURE SHUT WG DISCH TO U-2 PLNT VENT...0-WGS-684
7. **IF** the Waste Gas Decay Tank is to be released to Unit 2 Plant Vent Stack, **THEN ENSURE** the following lineup:
  - OPEN WG DISCH TO U-2 PLNT VENT.....0-WGS-684
  - ENSURE SHUT WG DISCH TO U-1 PLNT VENT...0-WGS-683



**6.4.B Procedure (Continued)**

8. **PURGE** the Waste Gas Header by completing the following:

- a. **OPEN** the plant air supply valve which the hose was connected to in step 5.

**CAUTION**

Greater than 70 SCFM purge flow will overrange the flow meter.

21/01

- b. **THROTTLE OPEN** to a maximum of 50 SCFM, WG DISCH HDR PURGE/VENT, 0-WGS-673 to commence purging the Waste Gas Discharge Header.

9. **WHEN** the Waste Gas Discharge Header has been purged for 10 minutes, **THEN DRAIN** the Waste Gas Header Flow Transmitter by completing the following:

- a. **NOTIFY** Radiation Safety Supervision the transmitter is about to be drained.

- b. **OPEN** 0-WGS-2192 FT HP DRN, 0-WGS-1082.

- c. **OPEN** 0-WGS-2192 FT LP DRN, 0-WGS-1083.

- d. **WHEN** draining is completed,  
**THEN SHUT** 0-WGS-1082 **AND** 0-WGS-1083.

- e. **SHUT** the plant air supply valve.

- f. **VERIFY** 0-RI-2191 RMS background has not changed from the background value listed on the Gaseous Waste Permit.

- (1) **IF** 0-RI-2191 RMS background value has changed,  
**THEN NOTIFY** Plant Chemistry to determine the cause **AND** to calculate new RMS setpoint limits for the release permit.

- g. **SHUT** WG DISCH HDR PURGE/VENT, 0-WGS-673.

21/00

- h. **DISCONNECT** the air hose as follows:

- (1) **DISCONNECT** the air hose from 0-WGS-673.

- (2) **DISCONNECT** the air hose from the plant air valve.

21/00

- i. **COMPLETE** an independent verification of the hose disconnected at 0-WGS-673.

10. **ENSURE OPEN** the WG DISCH FILT OUT, 0-WGS-629.

**6.4.B Procedure (Continued)**

11. **ENSURE LOCKED SHUT** the WGD T INLET ISOL on the Waste Gas Decay Tank to be discharged:
- 11 WGD T INLET.....0-WGS-617
  - 12 WGD T INLET.....0-WGS-618
  - 13 WGD T INLET.....0-WGS-619

**NOTE**

No flow should be indicated on the Waste Gas Discharge Header Flow indicator 0-FI-2192 when the CVs are opened.

12. **OPEN** the WG DISCH ISOL valves using 0-HS-2191 **AND** 0-HS-2192 (1C33):
- 0-WGS-2191-CV
  - 0-WGS-2192-CV
13. **IF** a rise in flow rate is indicated on 0-FI-2192 **OR** 0-FI-2193 (1C63), **THEN COMPLETE** the following:
- a. **SHUT** WG DISCH ISOL valves, 0-WGS-2191-CV **AND** 0-WGS-2192-CV.
  - b. **CHECK** the Waste Gas System discharge lineup.
14. **IF** the Gaseous Waste Discharge Radiation Monitor 0-RI-2191 is out of service, **THEN PROCEED** to Step 16.

**6.4.B Procedure (Continued)**

15. **PERFORM** an RMS operability check on O-RI-2191 by performing the following:
- a. **POSITION** the Operator Selector Switch to CHECK SOURCE.
  - b. **CHECK** channel response as follows:
    - (1) **ENSURE** a positive meter deflection above background on the radio gas channels. **[B0060]**
    - (2) **IF** a qualitative assessment of channel response can **NOT** be determined,  
**THEN CONSIDER** the monitor out of service.

**NOTE**

Recorder operation is **NOT** required by the ODCM for the rad monitor to be operable.

- (3) **CHECK** the recorder responding.
- c. **CHECK** automatic isolation of the release path by completing the following steps:
  - (1) **POSITION** the Operator Selector Switch to PULSE CAL.
  - (2) **CHECK** 0-WGS-2191-CV **AND** 0-WGS-2192-CV go shut.
  - (3) **CHECK** the local **AND** remote HIGH ALARM is annunciated.
- d. **RESET** 0-RI-2191 by completing the following:
  - (1) **PLACE** the Operator Selector Switch to RESET,  
**THEN** to OPERATE.
  - (2) **ENSURE** the remote **AND** local alarms are reset.
  - (3) **CHECK OPEN** the Waste Gas Discharge Valves:
    - 0-WGS-2191-CV
    - 0-WGS-2192-CV
- e. **IF** Plant Computer is available,  
**THEN ENTER** termination criteria into the Plant Computer **PER** the Gaseous Waste Permit.

**6.4.B Procedure (Continued)**

16. **IF** the Gaseous Waste Discharge Radiation Monitor, 0-RI-2191 fails any part of its operability check in Step 15 **OR** is declared out of service in Step 14, **THEN COMPLETE** the following:
  - a. **CONSIDER** 0-RI-2191 out of service.
  - b. **ENSURE** the Gaseous Waste Discharge Radiation Instrument Operate Selector Switch, 0-HS-2190 in the LEVEL CAL position.
  - c. **REFER** to OI-35, Section titled RADIATION MONITOR INOPERABILITY for alternate monitoring requirements.
  - d. **ENSURE** the Control Room Supervisor is informed.
17. **IF** 0-WGS-2191-PCV reaches full open when commencing the discharge **AND** **NO** flow is indicated, **THEN SHUT** 0-WGS-2191-PCV **AND CHECK** the discharge lineup.
18. **COMPLETE** APPENDIX A before releasing the Waste Gas Decay Tank.
19. If at any time during the release the RMS Critical Setpoint is exceeded, **THEN IMMEDIATELY SECURE** the release **AND** contact Plant Chemistry.
20. **OPEN** the outlet valve for the Waste Gas Decay Tank to be released:
  - 11 WGDT OUTLET.....0-WGS-623
  - 12 WGDT OUTLET.....0-WGS-624
  - 13 WGDT OUTLET.....0-WGS-625
21. Slowly **OPEN** the WG DISCH HDR PSR/FLOW CONTR, 0-WGS-2191-PCV until the flow rate as read on 1C33 meets the requirements of the Waste Gas Release Permit.
22. **MONITOR** the differential pressure across the Waste Discharge Filter during the release.
  - a. **IF** the differential pressure is greater than 8 inches of water at the flow rate specified on the Waste Gas Release Permit, **THEN LOWER** the flow rate until the filter differential pressure is less than 8 inches of water.

**CAUTION**

Failure to complete Step 20 may cause the discharge header relief valve to lift discharging the Waste Gas Decay Tank to the Waste Gas Surge Tank.

23. **IF** 0-WGS-2191-CV **OR** 0-WGS-2192-CV shut during a waste gas release, **THEN SHUT** the WG DISCH HDR PSR/FLOW CONTR, 0-WGS-2191-PCV, as soon as possible.

**6.4.B Procedure (Continued)**

24. **CHECK** the Waste Gas Decay Tank pressure lowering **PER** the following:  
**[B0035]**
- IF** U-2 Plant Computer is available,  
**THEN MONITOR** 11, 12 and 13 WGDT pressure to ensure the correct tank is being released.  
  
(1) **ENTER** a Computer alarm setpoint at 5 PSIG below the current tank pressure for Waste Gas Decay tanks **NOT** being discharged.
  - IF** U-2 Plant Computer is **NOT** available,  
**THEN MONITOR** 11, 12 and 13 WGDT pressure locally at 1C63 **AND REPORT** to the CRO to ensure the correct tank is being released.
25. **RECORD** the required data on the Waste Gas Release Permit.
26. **IF** discharging the Waste Gas Decay Tank in preparation for maintenance,  
**THEN WHEN** pressure in the Waste Gas Decay Tank being released is approximately 0 PSIG **OR** the discharge is terminated for other reasons,  
**THEN SHUT** the following valves:
- WG DISCH HDR PSR/FLOW CONTR.....0-WGS-2191-PCV
  - WG DISCH ISOL.....0-WGS-2191-CV
  - WG DISCH B/U ISOL.....0-WGS-2192-CV
27. **IF** discharging the Waste Gas Decay Tank for a routine release,  
**THEN WHEN** pressure in the Waste Gas Decay Tank being released is 3 to 5 PSIG **OR** the discharge is terminated for other reasons,  
**THEN SHUT** the following valves:
- WG DISCH HDR PSR/FLOW CONTR.....0-WGS-2191-PCV
  - WG DISCH ISOL.....0-WGS-2191-CV
  - WG DISCH B/U ISOL.....0-WGS-2192-CV
28. **LOCK SHUT** the outlet valve for the Waste Gas Decay Tank being released:
- 11 WGDT OUTLET.....0-WGS-623
  - 12 WGDT OUTLET.....0-WGS-624
  - 13 WGDT OUTLET.....0-WGS-625
29. **ENSURE** the Waste Gas Release Permit is completed.
30. **NOTIFY** Radiation Safety Supervision that the release is completed.

---

**6.4.B Procedure (Continued)**

31. IF the Gaseous Waste Discharge Radiation Monitor, 0-RI-2191 was Out Of Service,  
THEN ENSURE the Gaseous Waste Discharge Radiation Instrument Operate Selector Switch, 0-HS-2190 is in the OPERATE position OR required position as designated by the CRS.
32. **RESTORE** Computer alarm setpoint for WGDT's pressure as desired.

\*\*\*\* END \*\*\*\*

**6.5 WASTE GAS SYSTEM SHUTDOWN [B0154]****A. Initial Conditions**

1. The Waste Gas System is in operation.
2. All systems that vent to the Waste Gas Surge Tank are shutdown **OR** isolated from the Waste Gas System.

**B. Procedure**

1. **CHECK** the Waste Gas Surge Tank pressure less than 2.0 PSIG **AND** the Waste Gas Compressor(s) **NOT** running.

**NOTE**

The compressor(s) should stop when the Waste Gas Surge Tank pressure is reduced to 1.0 PSIG.

2. **DEPRESS** the STOP button on both Waste Gas Compressors.
  - a. **CHECK** the white POWER ON lights are off.
3. **LOCK SHUT** the inlet valve for the in service Waste Gas Decay Tank:
  - 11 WGDT INLET.....0-WGS-617
  - 12 WGDT INLET.....0-WGS-618
  - 13 WGDT INLET.....0-WGS-619

\*\*\*\* END \*\*\*\*

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

**PURPOSE:** Evaluates an Operator's Ability to Monitor DNB During a Plant Computer Outage

**JOB PERFORMANCE MEASURE**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**LICENSED OPERATOR TRAINING**



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for Nuclear Engineering Operating Procedures.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR                      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE                      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

10 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

AOP-7H

NEOP-301

NEOP-13/Rev 14

**REFERENCE PROCEDURE(S):**

AOP-7H, NEOP-301, NEOP-13/Rev 14

**TASK STANDARDS:**

This JPM is complete when reactor power has been determined to be within the limits of NEOP-13 figure 1-IV.A.2.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.
3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. Reset Simulator to IC-13
  - b. Initiate Loss of Plant Computer malfunction
  - c. Freeze simulator

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

Operate the Control Switch, to START, and check expected Indicating Light response.  
Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Identify and locate AOP-7H  
 Section IV.E.

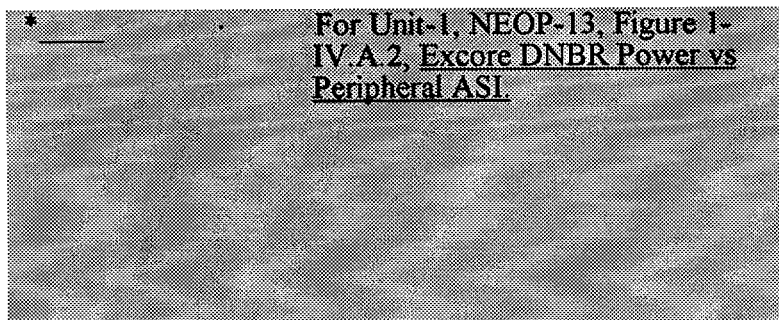
Same as element.

CUE: Reactor Engineering and GS-NPO have been notified
--

1. Notify the Reactor Engineering Work Group and GS-NPO of the need to monitor DNB parameters:
2. Determine Reactor Power is within the limits of the following:

Calls Reactor Engineering and GS-NPO or requests CRS make notifications

CUE: ASI is .04
-----------------



Locates figure 1-IV.A.2 in NEOP 13.

Uses values from RPS or indications on 1C04 for ASI

Determines power limit is 100%

Determines that no power reduction is required for DNB

TIME STOP \_\_\_\_\_

TERMINATING CUE:	This JPM is complete when Reactor Power is determined to be within required limits. No further actions are required.
------------------	--

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-3**

**TASK:** Monitor ASI using Excore NIs

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/IN ACTIONS OR PROCEDURAL QUALITY?** YES NO  
 (If yes, provide comments below)

**COMMENTS:**

---



---

The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

## CCNPP LICENSED OPERATOR

### DIRECTIONS TO TRAINEE:

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 1 is at 100% power and has been operating at full power for seven weeks.
  - b. The plant computer has "crashed" and is inoperable.
  - c. You are performing the duties of the Unit-1 RO.
3. Initiating Cue: AOP-7H has been implemented and the CRS directs you to monitor DNB per section IV. Step E. Are there any questions? You may begin.



## IV. LOSS OF PLANT COMPUTER

### ACTIONS

### ALTERNATE ACTIONS

#### E. MONITOR DNB.

1. Notify the Reactor Engineering Work Group and GS-NPO of the need to use the Excure Detector System to monitor DNB parameters.

2. Determine Reactor Power is within the limits of the following:

- For Unit 1, NEOP-13, Figure 1-IV.A.2, Excure DNBR Power vs Peripheral ASI.

OR

- For Unit 2, NEOP-23, Figure 2-IV.A.2, Excure DNBR Power vs Peripheral ASI.

#### CAUTION

The Power Ratio Calculator is NOT operable below 20% RTP.

3. IF the Power Ratio Recorder is operable, THEN perform the following:

- a. Calculate Power Ratio Recorder alarm setpoints PER ATTACHMENT (4), POWER RATIO RECORDER ALARM SETPOINTS.
- b. Adjust the Power Ratio Recorder to the new alarm setpoints.

(continue)

2.1 IF Reactor power is greater than the maximum allowed, THEN within two hours, reduce Reactor power to less than the maximum allowed PER OP-3, NORMAL POWER OPERATION.

3.1 IF the Power Ratio Recorder is NOT operable, THEN perform the following actions:

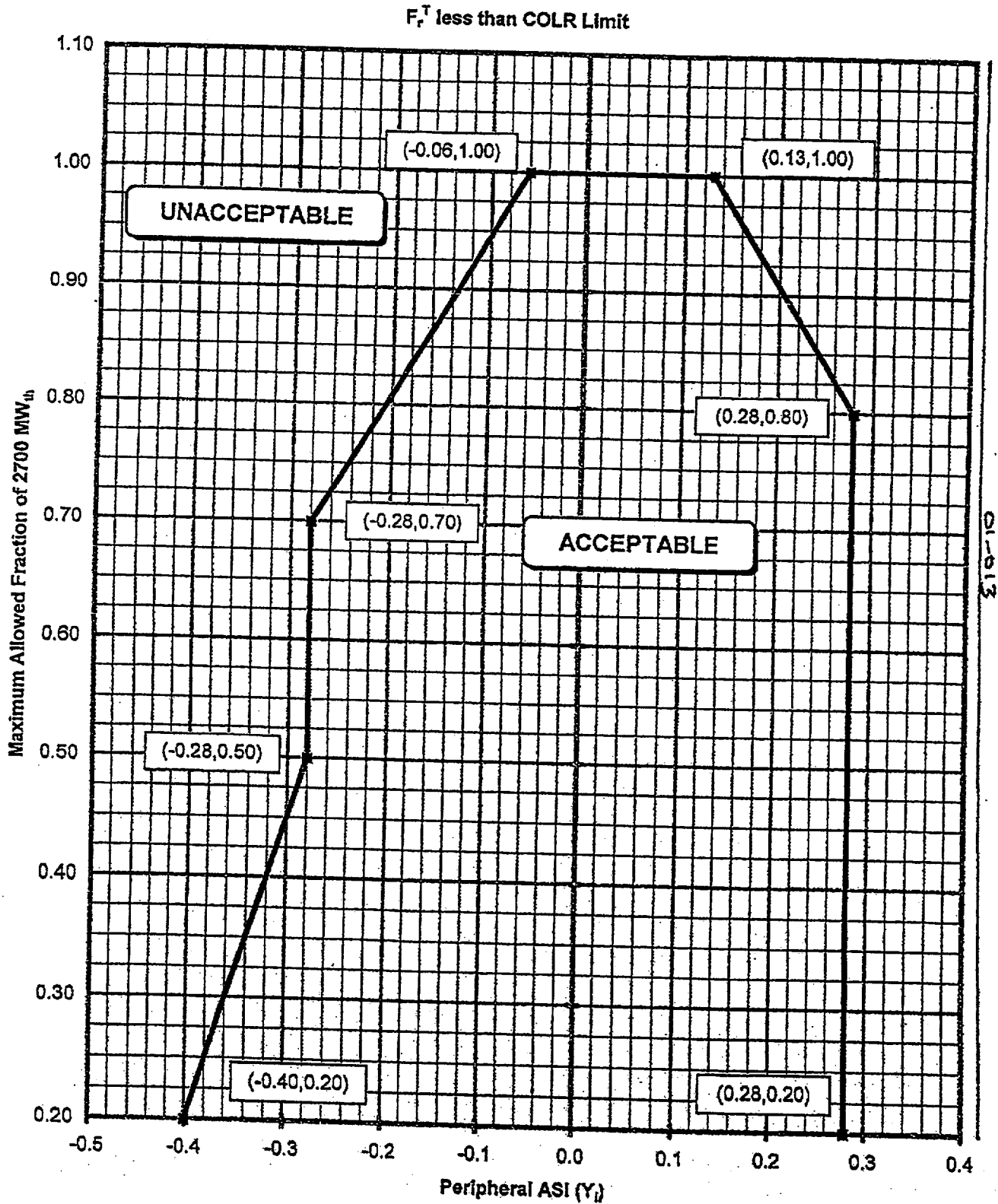
- a. Log ASI in the CRO Log at least once per 12 hours.
- b. Ensure ASI is maintained within the limits of the following:
  - For Unit 1, NEOP-13, Figure 1-IV.A.2, Excure DNBR Power vs Peripheral ASI.

OR

- For Unit 2, NEOP-23, Figure 2-IV.A.2, Excure DNBR Power vs Peripheral ASI.

(continue)

FIGURE 1-IV.A.2  
EXCORE DNBR POWER vs. PERIPHERAL ASI  
Unit 1 Cycle 15



**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:** Feed and Bleed Operation to Cool the Quench Tank

**PURPOSE:** Evaluates an Operator's Ability to Restore Quench Tank Parameters

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:**           Feed and bleed to cool the Quench Tank

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the Initial License class EOP-0 classroom and simulator training.

**EVALUATION LOCATION:**

\_\_\_\_ PLANT           \_\_\_\_ SIMULATOR           \_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_ ACTUAL PERFORMANCE   \_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

10 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

LEVEL 1 PERFORM

**TOOLS AND EQUIPMENT:**

None

**REFERENCE PROCEDURE(S):**

EOP-0

**TASK STANDARDS:**

This JPM is complete when Quench Tank parameters have been restored to their normal operating band.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:** Feed and bleed to cool the Quench Tank

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.
8. Simulator Setup
  - a. Any IC
  - b. Insert malfunction RCS027\_01 at 20% until Quench Tank level and pressure come into alarm (~5 seconds @ 100% power), then delete malfunction.
  - c. Feed and bleed quench tank until temperature is 119°F, level is 31", pressure is 10 psig (all in alarm)

## **CCNPP LICENSED OPERATOR**

### **JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:** Feed and bleed to cool the Quench Tank

d. Pump RCDT, then freeze.

9. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

#### **Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

#### **Radiation Safety**

- Preventable PCIs

#### **Personnel Safety**

- Operations near miss accident

#### **Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

#### **Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:**        Feed and bleed to cool the Quench Tank

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0    Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0    Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0    Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0    Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0    Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0    Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

**TASK:** Feed and bleed to cool the Quench Tank

- Adequate Suction Pressure
- Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check for proper Pump operation (as applicable):
- Smooth, quiet operation consistent with pump history
  - Oil level remains good
  - Proper seal leakoff
  - Proper discharge pressure
  - Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
<hr/>	
TIME START _____	
Locate Alarm Manual 1-C06, Window E-01	
1. Perform the following:	
* _____ a. SHUT any open valves listed under leaking or open Possible Causes.	Verifies all valves are shut
* _____ b. IF a PORV is leaking or open and fails to shut when RCS pressure is reduced below its lift setpoint, <u>THEN</u> .	Determines step is N/A.
* _____ c. RETURN parameter to within normal limits by venting, filling, draining or feed and bleed as necessary PER OI-1B, <u>Quench Tank Operations</u> .	Locates OI-1B, determines 6.8 is the correct section.
_____ d. REFER to Technical Specifications 3.4.11 and 3.4.12 for PORV operability requirements.	Determines step is N/A

CUE: Initial conditions are met, begin at Step 6.8.B.
---

**NOTE:** Steps 6.8.B.1 and 6.8.B.2 may be performed in any order to minimize the amount of liquid or gaseous waste.

**CAUTION:**

- Do **NOT** attempt to adjust the Quench Tank parameters until after the relief or safety valve has completed lifting.
- The Sparger Nozzles will be uncovered at approximately 24 inches indicated level and the Quench Tank may experience a rapid increase in pressure if this occurs. The amount of time the Sparger Nozzles will be uncovered should be minimized.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

<b>ELEMENT</b>	<b>STANDARD</b>
<b>(* = CRITICAL STEP)</b>	

---

1. **DRAIN** the quench tank as follows:

**CUE:** RCDT level is 10".

**Note to Evaluator:** *Pumping RCDT should not be necessary. If Trainee references this step, tell them it can be done after completion of Quench Tank operations.*

- |         |    |   |                        |
|---------|----|---|------------------------|
| _____   | a. | PUMP the RCDT PER OI-17C as necessary while draining the Quench Tank to maintain RCDT level below the Hi level alarm setpoint (45 inches) | None                   |
| * _____ | b. | OPEN QUENCH TK DRN, RC-401-CV.  | {3}                    |
| _____   | c. | <u>IF</u> a negative pressure develops in the Quench Tank <u>AND</u> prevents draining, <u>THEN</u> ...                                   | Determines step is N/A |

**NOTE:** Draining the Quench Tank below the low level alarm is acceptable during the bleed and feed due to the tank being refilled immediately.

- |         |    |   |                                  |
|---------|----|---|----------------------------------|
| _____   | d. | DRAIN the Quench Tank to the desired level but not less than 15 inches. | Same as element                  |
| * _____ | e. | SHUT QUENCH TK DRN, RC-401-CV.  | Prior to level lowering <15' {3} |

**CUE:** CRS signs locked valve deviation log.

**NOTE:** DW-5460-CV may be opened on an intermittent basis under administrative control PER T/S 3.6.4.1. This shall be controlled PER NO-1-205.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-1B-5 (NEW)**

ELEMENT (* = CRITICAL STEP)	STANDARD
--------------------------------	----------

2. **FILL** the Quench Tank as follows:

* _____	a. <b>OPEN</b> DI-WTR CNTMT ISOL, DW-5460-CV.	{3}
* _____	b. <b>FILL</b> the Quench Tank to the desired level but <b>NOT</b> greater than 35 inches.	Same as element
* _____	c. <b>SHUT</b> DI WTR CNTMT ISOL, DW-5460-CV.	{3}

**CUE:** Quench Tank temperature is 110°F, pressure is 5 psig, level is 28.5", alarm is clear.

- |    |  |  |
|----|--|--|
| 3. | <b>REPEAT</b> Steps 6.8.B.1 and 6.8.B.2 until Quench Tank temperature is less than 120°F <b>AND</b> the Quench Tank high temperature alarm is clear. | Determines repeat of steps is not necessary. |
| 4. | <b>FILL OR DRAIN</b> the Quench Tank to approximately 28.5 inches (between the high and low level alarm).  | Verifies level approximately 28.5".          |

<b>TERMINATING CUE:</b>	This JPM is complete when all alarms are clear, the DI and the quench tank drain valves are closed. No further actions are required.
-------------------------	--

**TIME STOP** \_\_\_\_\_

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. The Quench Tank is in alarm with the following parameters:
    - Pressure is 10.0 psig
    - Temperature is 119°F
    - Level is 31"
  - b. You are performing the duties of the Unit 1 CRO.
3. Initiating Cue: Respond to the Quench Tank alarm. Are there any questions? You may begin.

**6.8 BLEED AND FEED OPERATION TO COOL THE QUENCH TANK (REFERRAL USE)**

**A. Initial Conditions**

1. Quench Tank temperature is higher than normal due to leakage or discharge from any of the following:
  - Pressurizer Power Operated Relief Valve
  - Pressurizer Safety Valve
  - Safety Injection System Relief Valve
  - Pressurizer Vents
  - Reactor Vessel Head Vents
2. The Nitrogen System is aligned to the Quench Tank PER OI-4.
3. The Demineralized Water System is aligned to the Quench Tank PER OI-23B.
4. The Waste Gas System is aligned to the Quench Tank PER OI-17B.
5. The RCDT is capable of accepting liquid discharges from the Quench Tank.
6. No relief or safety valve discharge to the Quench Tank is in progress.

**B. Procedure**

**NOTE**

Steps 6.8.B.1 and 6.8.B.2 may be performed in any order to minimize the amount of liquid or gaseous waste.

**CAUTION**

- Do **NOT** attempt to adjust the Quench Tank parameters until after the relief or safety valve has completed lifting.
- The Sparger Nozzles will become uncovered at approximately 24 inches indicated level and the Quench Tank may experience a rapid increase in pressure if this occurs. The amount of time the Sparger Nozzles will be uncovered should be minimized.

1. **DRAIN** the Quench Tank as follows:
  - a. **PUMP** the RCDT PER OI-17C as necessary while draining the Quench Tank to maintain RCDT level below the Hi level alarm setpoint (45 inches).
  - b. **OPEN** QUENCH TK DRN, RC-401-CV.

6.8.B.1 Procedure (Continued)

- c. IF a negative pressure develops in the Quench Tank AND prevents draining, THEN OPEN the applicable Containment Nitrogen Supply Valve until a sufficient pressure (but no more than 10 PSIG) is established in the Quench Tank to allow draining:
  - O-N<sub>2</sub>-238 for Unit 1
  - O-N<sub>2</sub>-272 for Unit 2

**NOTE**

Draining the Quench Tank below the low level alarm is acceptable during the bleed and feed due to the tank being refilled immediately.

- d. **DRAIN** the Quench Tank to the desired level but not less than 15 inches.
- e. **SHUT QUENCH TK DRN, RC-401-CV.**

**NOTE**

DW-5460-CV may be opened on an intermittent basis under administrative control **PER** T/S 3.6.4.1. This shall be controlled **PER** NO-1-205.

2. **FILL** the Quench Tank as follows:
  - a. **OPEN** DI WTR CNTMT ISOL, DW-5460-CV.
  - b. **FILL** the Quench Tank to the desired level but NOT greater than 35 inches.
  - c. **SHUT** DI WTR CNTMT ISOL, DW-5460-CV.
3. **REPEAT** Steps 6.8.B.1 and 6.8.B.2 until Quench Tank temperature is less than 120° F AND the Quench Tank high temperature alarm is clear.
4. **FILL OR DRAIN** the Quench Tank to approximately 28.5 inches (between the high and low level alarm).
5. **ENSURE SHUT** the applicable Containment Nitrogen Supply Valve:
  - O-N<sub>2</sub>-238 for Unit 1
  - O-N<sub>2</sub>-272 for Unit 2
6. IF the Quench Tank is going to be vented THEN NOTIFY Rad Con Supervision.

## QUENCH TANK OPERATIONS

OI-1B  
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### 6.8.B Procedure (Continued)

7. **ESTABLISH** Quench Tank pressure of less than 10 PSIG by venting to the Waste Gas header as follows:

a. **OPEN** the following valves:

- WGS CNTMT ISOL.....WGS-2180-CV
- WGS CNTMT B/U ISOL.....WGS-2181-CV
- QUENCH TK VENT.....RC-400-CV

#### **NOTE**

Quench Tank normal operating pressure is 3 PSIG.

b. **WHEN** the Quench Tank is at the desired pressure,  
**THEN SHUT** the following valves:

- WGS CNTMT ISOL.....WGS-2180-CV
- WGS CNTMT B/U ISOL.....WGS-2181-CV
- QUENCH TK VENT.....RC-400-CV



6.9 **UNIT 2 QUENCH TANK REFERENCE LEG FILL [CONTINUOUS USE]**

**A. Initial Conditions**

1. The Waste Gas System is aligned to the Quench Tank PER OI-17B.
2. The Demineralized Water System is aligned to the Quench Tank PER OI-23B.

**B. Procedure**

1. **CHECK SHUT** Containment Nitrogen Supply, 0-N<sub>2</sub>-272.
2. **CHECK SHUT** QUENCH TK DRN, RC-401-CV.

**CAUTION**

DO **NOT** fill the tank longer than 10 minutes. This will prevent the possibility of cold water contacting the PORVs/Safeties.

**NOTE**

- DW-5460-CV may be opened on an intermittent basis under administrative control PER T.S. 3.6.3 This shall be controlled PER NO-1-205.
- During the fill, the Quench Tank level should go off scale and then shortly return to full scale indication of 48 inches.

3. **FILL** the Quench Tank to approximately 48 inches as follows:
  - a. **OPEN** DI WTR CNTMT ISOL, DW-5460-CV.
  - b. **IF** the Quench Tank is going to be vented  
**THEN** NOTIFY Rad Con Supervision.
  - c. **LIMIT** the Quench Tank pressure to less than 10 PSIG by opening the following valves **AND** venting the Quench Tank to the Waste Gas header:
    - WGS CNTMT ISOL.....WGS-2180-CV
    - WGS CNTMT B/U ISOL.....WGS-2181-CV
    - QUENCH TK VENT.....RC-400-CV
  - d. **WHEN** the Quench Tank level indicates off scale and then returns to 48 inches **OR** DW-5460-CV has been open for 10 minutes,  
**THEN** SHUT DI WTR CNTMT ISOL, DW-5460-CV.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:** Operate AFW

**PURPOSE:** Evaluates an Operator's Ability to Operate the AFW Pumps locally per EOP-3.

**JOB PERFORMANCE MEASURE**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:** Operate AFW

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for Auxiliary Feedwater (AFW) and AFAS.

**EVALUATION LOCATION:**

☒ PLANT                      ☐ SIMULATOR                      ☐ CONTROL ROOM

**EVALUATION METHOD:**

☐ ACTUAL PERFORMANCE                      ☐ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

10 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

☐ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

Working copy of EOP-3

**REFERENCE PROCEDURE(S):**

EOP-3

**TASK STANDARDS:**

This JPM is complete when 11 AFW pump discharge pressure is adjusted to 100 psig greater than S/G pressure.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:** Operate AFW

**DIRECTIONS TO EVALUATOR:**

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.
3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK: Operate AFW**

8. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:** Operate AFW

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:** Operate AFW

Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.  
Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).  
Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.  
Operate the Control Switch and check expected Indicating Light response.  
Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.  
Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE EOP-3-9 (NEW)

## ELEMENT

## STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Locate EOP-3, Section IV, Step H.4.b.1

\_\_\_\_\_ b1. Start 11 or 12 AFW PP locally as follows:

CUE: 1-AFW-4511 and 1-AFW-4512-CVs are shut.

\_\_\_\_\_ (1) Shut the S/G FLOW CONTR valves:

- (11 S/G) 1-AFW-4511-CV
- (12 S/G) 1-AFW-4512-CV

Calls control room to ensure 1-AFW-4511-CV &amp; 1-AFW-4512 CV are shut.

\* \_\_\_\_\_ (2) Turn the turbine governor control knob counterclockwise to the minimum position

Same as element

\_\_\_\_\_ (3) Isolate the Instrument Air to the Turbine Governor controller(s) by shutting the following valves:

CUE: 1-IA-24 and 1-IA-23 are shut.

11 AFW PP

- \* \_\_\_\_\_
- 1-AFW-3987A I/P ISOL, 1-IA-24
  - 1-AFW-3987B I/P ISOL, 1-IA-23

{8}

CUE: The filter drain for 11 AFW pump controller is open.

\* \_\_\_\_\_ (4) Open the air filter drains on controllers to allow local control.

Opens the filter drain for 11 AFW pump controller

CUE: 1-MS-109 is open.

\_\_\_\_\_ (5) Verify open 11 and 12 AFW PP Main Steam Supply Valves:

- 1-MS-109
- 1-MS-107

Verifies 1-MS-109 is open



## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE EOP-3-9 (NEW)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

CUE: 1-MS-3986 is open.

\_\_\_\_ (6) Verify open 11 **OR** 12  
THROTTLE/STOP valve:

- 1-MS-3986
- 1-MS-3988

Verifies 1-MS-3986 is open

CUE: 1-MS-102 and 1-MS-105 are open.

\* \_\_\_\_ (7) Open the AFW Steam Supply  
Bypass Valves:

- 1-MS-102
- 1-MS-105

Calls CRO or ABO to open  
1-MS-102 and 1-MS-105

CUE: 11 AFW pump discharge pressure is 100 psig greater than Steam Generator pressure.

\* \_\_\_\_ (8) Adjust and maintain the turbine  
driven discharge header pressure at  
least 100 PSI greater than S/G  
pressure using the local turbine  
governor control knob.

Adjusts governor and monitors  
discharge pressure and steam  
supply pressure.  
Contacts CRO and states AFW  
Pump is operating.

TIME STOP: \_\_\_\_\_

TERMINATING CUE: This JPM is complete 11 AFW pump is operating at 100 PSI  
greater than S/G pressure.. No further actions are required.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE EOP-3-9 (NEW)**

**TASK:**        Operate AFW

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL  
ACTIONS/INACTIONS OR PROCEDURAL QUALITY?**  
(If yes, provide comments below)

**YES**

**NO**

**COMMENTS:**

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRO.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. A complete Loss of Feed has resulted in a plant trip and EOP-3 is being entered.
  - b. 13 AFW pump has tripped and attempts to operate 11 and 12 AFW pumps from the Control Room have resulted in overspeed trips.
  - c. 11 AFW pump overspeed trip has been reset.
  - d. You are performing the duties of an extra CRO.
3. Initiating Cue: You have been instructed by the CRS to start 11 Auxiliary Feedwater pump locally per EOP-3, Section IV, Step H.4.b.1. Do you have any questions? You may begin.

## IV. ACTIONS

### RECOVERY ACTIONS

### ALTERNATE ACTIONS

#### H.4 (continued)

- b. Establish AFW flow with 11 or 12 AFW PP as follows:

- (1) Shut the S/G FLOW CONTR valves:
  - (11 S/G) 1-AFW-4511-CV
  - (12 S/G) 1-AFW-4512-CV
- (2) Verify open 11 and 12 AFW PP Main Steam Supply Valves:
  - 1-MS-109
  - 1-MS-107
- (3) Verify open 11 **OR** 12 THROTTLE/STOP valve:
  - 1-MS-3986
  - 1-MS-3988
- (4) Open 11 and 12 SG AFW STM SUPP & BYPASS valves:
  - (11 S/G) 1-MS-4070-CV,  
1-MS-4070A-CV
  - (12 S/G) 1-MS-4071-CV,  
1-MS-4071A-CV
- (5) Adjust and maintain the turbine driven discharge header pressure at least 100 PSI greater than S/G pressure:
  - (11 AFW PP SPEED CONTR) 1-HC-3987A
  - (12 AFW PP SPEED CONTR) 1-HC-3989A

(continue)

- b.1 Start 11 or 12 AFW PP locally as follows:

- (1) Shut the S/G FLOW CONTR valves:
  - (11 S/G) 1-AFW-4511-CV
  - (12 S/G) 1-AFW-4512-CV
- (2) Turn the turbine governor control knob counterclockwise to the minimum position.
- (3) Isolate the Instrument Air to the Turbine Governor Controller(s) by shutting the following valves:

#### 11 AFW PP

- 1-AFW-3987A I/P ISOL, 1-IA-24
- 1-AFW-3987B I/P ISOL, 1-IA-23

#### 12 AFW PP

- 1-AFW-3989A I/P ISOL, 1-IA-22
- 1-AFW-3989B I/P ISOL, 1-IA-21

- (4) Open the air filter drains on controllers to allow local control.
- (5) Verify open 11 and 12 AFW PP Main Steam Supply Valves:
  - 1-MS-109
  - 1-MS-107
- (6) Verify open 11 **OR** 12 THROTTLE/STOP valve:
  - 1-MS-3986
  - 1-MS-3988

(continue)

## IV. ACTIONS

### RECOVERY ACTIONS

#### H.4.b (continued)

- (6) IF Once-Through-Cooling is in progress,  
THEN PROCEED to step K.
- (7) Adjust the S/G FLOW CONTR valves to approximately 150 GPM per S/G:
  - (11 S/G) 1-AFW-4511-CV
  - (12 S/G) 1-AFW-4512-CV
- (8) Operate AFW ventilation as necessary to maintain temperature less than 130° F.

(continue)

### ALTERNATE ACTIONS

#### H.4.b.1 (continued)

- (7) Open the AFW Steam Supply Bypass Valves:
  - 1-MS-102
  - 1-MS-105
- (8) Adjust and maintain the turbine driven discharge header pressure at least 100 PSI greater than S/G pressure using the local turbine governor control knob.
- (9) IF Once-Through-Cooling is in progress,  
THEN PROCEED to step K.
- (10) Adjust the S/G FLOW CONTR valves to approximately 150 GPM per S/G:
  - (11 S/G) 1-AFW-4511-CV
  - (12 S/G) 1-AFW-4512-CV
- (11) Operate AFW ventilation as necessary to maintain temperature less than 130° F.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

**PURPOSE:** Evaluates an Operator's Ability to Verify CEA Position by Alternate Methods

**JOB PERFORMANCE MEASURE**  
**CALVERT CLIFFS NUCLEAR POWER PLANT**  
**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for Nuclear Engineering Operating Procedures.

**EVALUATION LOCATION:**

\_\_\_\_\_ PLANT                      \_\_\_\_\_ SIMULATOR                      \_\_\_\_\_ CONTROL ROOM

**EVALUATION METHOD:**

\_\_\_\_\_ ACTUAL PERFORMANCE                      \_\_\_\_\_ DEMONSTRATE PERFORMANCE

**ESTIMATED TIME  
TO COMPLETE JPM:**

**ACTUAL TIME  
TO COMPLETE JPM:**

**TIME CRITICAL TASK:**

15 MINUTES

\_\_\_\_\_ MINUTES

NO

**TASK LEVEL:**

TRAIN

**TOOLS AND EQUIPMENT:**

AOP-7H Attachment 7

**REFERENCE PROCEDURE(S):**

AOP-7H

**TASK STANDARDS:**

This JPM is complete when "full out" position indication is selected as the operable position indication system to replace pulse counting.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)

TASK: Monitor CEA Position

## DIRECTIONS TO EVALUATOR:

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.
4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.



**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

8. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

Reactivity Management

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

Radiation Safety

- Preventable PCIs

Personnel Safety

- Operations near miss accident

Reactor Safety

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

Configuration Control

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

Operate the Control Switch, to START, and check expected Indicating Light response.

Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.

Operate the Control Switch, to STOP, and check expected Indicating Light response.

Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.

Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).

Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.

Operate the Control Switch and check expected Indicating Light response.

Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.

Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).

If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.

Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).

If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

\_\_\_\_\_ Identify and locate AOP-7H  
Section IV.H.1.b.

Same as element.

CUE: Hand candidate filled out Attachment 7, explain using "part length" pulse counter readings for Group 5 CEAs as indicated. Secondary position indication is 132.5 for each CEA listed.

- 1.b Perform verification of the two  
position indications at least once  
per 4 hours to comply with TRM  
TVR 15.1.4.1:

Same as element

**ATTACHMENT (7)**

1. Record the following...

N/A, data given

CUE: Provide blank copy of Computer Outage Log page for Coil Power Programmer.

- \* \_\_\_\_\_ 2. Once every four hours compare  
the Pulse Counter Readings on  
this attachment to ensure NO  
CEAs have moved.
- \* \_\_\_\_\_ 3. IF any CEAs have moved,  
THEN discontinue using this  
method of CEA position  
monitoring.

Take Pulse Counter Readings, in  
CSR, and compares readings to  
Attachment (7) readings.

Determines CEAs have moved and  
discontinues method. Refers to  
AOP-7H Section IV.H.

**AOP-7H Alternate Action**

- \* \_\_\_\_\_ 1.1 IF two means of CEA position  
indication are NOT established,  
THEN refer to TRM 15.1.4 for  
applicable actions.

Refers to TRM 15.1.4.

**TRM Normal Condition**

- \* \_\_\_\_\_ TNC 15.1.4 Two CEA position indicator  
channels shall be operable for each  
shutdown and regulating CEA.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)

## ELEMENT

(\* = CRITICAL STEP)

## STANDARD

Any two of the following three CEA position indication channels are allowed to be operable to satisfy this TNC:

- a. Control element assembly voltage divider reed switch position indicator channel;
- b. Control element assembly "Full Out" or "Full In" reed switch position indicator channel as verified by actuation of the applicable position indicator;
- c. Control element assembly pulse counting position indicator channel.

The only time the CEA "Full In" or "Full Out" reed switch position indicator channels can be considered operable for one of the three CEA Position Indicator Channels is when the CEAs are either fully withdrawn or fully inserted.

**Non-Conformance**

- B. One or more CEA(s) per group having its CEA pulse counting position indicator channel inoperable and either the "Full Out" or "Full In" reed switch position indicator or the voltage divider reed switch position indicator channel inoperable.

Determines that CEAs should be fully withdrawn or non-conformance condition B applied.

TIME STOP \_\_\_\_\_

**TERMINATING CUE:**

This JPM is complete when it is determined that the CEAs should be fully withdrawn to comply with the TRM. No further actions are required.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-7H-2 (NEW)**

**TASK:** Monitor CEA Position

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE:** Violation of safety procedures will result in failure of the JPM.

**NOTES:**

DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL  
ACTIONS/INACTIONS OR PROCEDURAL QUALITY? YES NO  
(If yes, provide comments below)

**COMMENTS:**

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

SATISFACTORY

UNSATISFACTORY

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 1 is at 100% power and has been operating at full power for seven weeks.
  - b. The plant computer has "crashed" and is inoperable.
  - c. You are performing the duties of the Unit-1 RO.
3. Initiating Cue: AOP-7H was implemented 4 hours ago. The CRS directs you to verify CEA position per Section IV.H.1.b, Attachment 7, Step 2, using CEA pulse counter readings. For the purpose of this JPM, use the part length (retired in place) pulse counters instead of the actual Group 5 pulse counters. Are there any questions? You may begin.

## IV. LOSS OF PLANT COMPUTER

### ACTIONS

### ALTERNATE ACTIONS

#### H. VERIFY CEA POSITION.

##### **NOTE**

When the Plant Computer is out of service, the following CEA functions are lost:

- Digital display on 1(2)C05
  - Primary alarm functions
  - Computer printout
  - CEA group sequencing and overlap
1. Establish at least two means of CEA position indication per TRM 15.1.4, CEA POSITION INDICATION.
    - a. The following means may be used:
      - CEA Voltage Divider reed switch position indication
      - CEA "FULL OUT" or "FULL IN" reed switch position indication (only if the CEA is fully withdrawn or fully inserted)
      - CEA pulse counter readings **PER ATTACHMENT (6), CEA POSITION MONITORING USING DAS OR ATTACHMENT (7), CEA POSITION MONITORING USING PULSE COUNTERS**
    - b. Perform verification of the two position indications at least once per 4 hours to comply with TRM TVR 15.1.4.1.

- 1.1 **IF** two means of CEA position indication are **NOT** established, **THEN** refer to TRM 15.1.4 for applicable actions.



ATTACHMENT (7)  
Page 1 of 6

## CEA POSITION MONITORING USING PULSE COUNTERS

1. Record the following information on the tables below to establish baseline data:
  - Pulse Counter Reading on the individual breakers in the Cable Spreading Room
  - IF Secondary CEA Position is available,  
THEN record it in the appropriate column
  - IF FULL OUT indication is used,  
THEN place the letters FO in the FULL OUT/FULL IN column
  - IF FULL IN indication is used,  
THEN place the letters FI in the FULL OUT/FULL IN column
2. Once every four hours, compare the Pulse Counter readings recorded on the Computer Outage Logs with the Pulse Counter Readings on this attachment to ensure NO CEAs have moved.
3. IF any CEAs have moved,  
THEN discontinue using this method of CEA position monitoring.

Unit 1 or 2 (Circle one)

(POWER SHAPING) SIMULATED REG GRP 5			
CEA	PULSE COUNTER READING	SECONDARY CEA POSITION	FULL OUT / FULL IN
10	0006461	132.5	N/A
11	0005906	132.5	
14	0006064	132.5	
15	0011582	132.5	✓

BALTIMORE GAS & ELECTRIC COMPANY  
CALVERT CLIFFS NUCLEAR POWER PLANT  
LOSS OF PLANT COMPUTER LOGS (UNIT 1 CONTROL ROOM) LOGSHEET  
From \_\_\_/\_\_\_/\_\_\_ at \_\_\_:\_\_\_ To \_\_\_/\_\_\_/\_\_\_ at \_\_\_:\_\_\_

Page 1 of

AREA / POINTS	SPEC RANGE / NORMAL	MIN/MAX	UNITS	BASIS	08:00	14:00	20:00	02:00
<b>1C02</b>								
BEARING OIL TEMPERATURE --- TI-2343	110-120		°F	U1CR-64				
SEAL STEAM HEADER PRESSURE --- PI-4664	2-6		PSIG	U1CR-71				

<b>1C07</b>								
CHARGING FLOW--FIA-212	42-94		GPM					
VCT LEVEL--LIC-226	90-110		INCHES					
VCT PRESSURE--PIA-225	25-50		PSIG					
LETDOWN HX OUTLET TEMPERATURE-- TIC-224	100-120		°F					
LETDOWN FLOW--FIA-202	29-128		GPM					
11 BAST LEVEL--LIA-206	110-136		INCHES					
12 BAST LEVEL--LIA-208	110-136		INCHES					

**UNIT 1 COIL POWER PROGRAMMER - SEE NOTE #1**

CEA #10 PULSE COUNTER READING -10CEAPULS			NUMERIC					
CEA #11 PULSE COUNTER READING -11CEAPULS			NUMERIC					
CEA #14 PULSE COUNTER READING -14CEAPULS			NUMERIC					
CEA #15 PULSE COUNTER READING -15CEAPULS			NUMERIC					

## LOSS OF PLANT COMPUTER LOGS (UNIT 1 CONTROL ROOM) LOGSHEET

## NOTES &amp; COMMENTS PAGE

From \_\_\_/\_\_\_/\_\_\_ at \_\_\_:\_\_\_ To \_\_\_/\_\_\_/\_\_\_ at \_\_\_:\_\_\_

NOTES:

1. Record CEA Pulse Counter readings after initial Loss of the Plant Computer and following all subsequent CEA movements. CEA Position is determined by multiplying the difference in counter readings by .75 inches.
2. Attach Computer Outage Logs with the Daily Operating Logs for retention in Plant History.

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-36-1 (NEW)**

**TASK:** Starting an Alternate Purge of Containment

**PURPOSE:** Evaluates an Operator's ability to operate Containment purge handswitches locally.

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR TRAINING**

**NOTE:** *At the completion of this JPM, conduct OI-36ADMIN, before leaving the 5' level of the Auxiliary Building*

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-36-1 (NEW)**

**TASK:** Starting an Alternate Purge of Containment

**PERFORMER'S NAME:** \_\_\_\_\_

**APPLICABILITY:**

**ABO**

**PREREQUISITES:**

Completion of the Initial License classroom and simulator training.

**EVALUATION LOCATION:**

☒ **PLANT**                      ☐ **SIMULATOR**                      ☐ **CONTROL ROOM**

**EVALUATION METHOD:**

☐ **ACTUAL PERFORMANCE**                      ☒ **DEMONSTRATE PERFORMANCE**

**ESTIMATED TIME  
TO COMPLETE JPM:**

**15 MINUTES**

**ACTUAL TIME  
TO COMPLETE JPM:**

☐ **MINUTES**

**TIME CRITICAL TASK:**

**NO**

**TASK LEVEL:**

**TRAIN**

**TOOLS AND EQUIPMENT:**

**None**

**REFERENCE PROCEDURE(S):**

**OI-36**

**TASK STANDARDS:**

This JPM is complete when keyswitches on breakers 52-20231 and 52-20311 are in TEST/ALT PURGE.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-36-1 (NEW)

TASK: Starting an Alternate Purge of Containment

## DIRECTIONS TO EVALUATOR:

1. Read the "Directions to Trainee" to the trainee.
2. Note the time that the task is started. As the task proceeds, indicate completion of each element using the Standard criteria and the following notation:
  - "S" for satisfactory completion
  - "U" for unsatisfactory completion
  - "N" if not observed OR not verifiable

Critical elements must be observed or the evaluation is invalid.

3. When the Terminating Cue is reached, tell the trainee that no further actions are necessary. Note the completion time.

***NOTE: At the completion of this JPM, conduct OI-36ADMIN, before leaving the 5' level of the Auxiliary Building.***

4. Document any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools in the Notes area. Immediately correct any actions that could result in violation of a safety procedure or personnel injury. **NOTE: Violation of safety procedures will result in failure of the JPM.**
5. Questions to clarify actions taken should be asked after completion of the task.
6. Indicate whether the task was completed satisfactorily on the basis of correct performance of all critical elements and completion of the task within the Estimated Time to Complete for Time Critical tasks.
7. This JPM contains the steps, notes, cautions, and standards that are applicable to the initial conditions specified in this JPM. Steps that do not directly relate to this JPM, but appear in the procedure, are not listed here. It is the responsibility of the evaluator and/or observer to become familiar with the procedure prior to use of this JPM.

**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-36-1 (NEW)**

**TASK:** Starting an Alternate Purge of Containment

8. Document any instances of when the near miss threshold was reached due to inappropriate personnel actions/inactions or procedural quality as a result of the following:

**Reactivity Management**

- Unplanned power changes > 1%
- Reduction of boron concentration of > 5% delta rho

**Radiation Safety**

- Preventable PCIs

**Personnel Safety**

- Operations near miss accident

**Reactor Safety**

- Automatic trip near miss
  - Actions required by operators to prevent an automatic trip
  - Valid RPS trip or pre-trip alarms due to a plant transient

**Configuration Control**

- Valve mispositioning or loss of control of tagging boundary resulting in loss of system inventory

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-36-1 (NEW)**

**TASK:** Starting an Alternate Purge of Containment

**JPM STANDARDS**

(List of minimum Standard Practices for common evolutions at CCNPP)

**1.0 Starting a pump**

If non-emergency condition, dispatches a PO to verify pump is ready to be started.  
Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to START, and check expected Indicating Light response.  
Check proper pump operation (as applicable):

- Motor amps
- Pump discharge pressure
- System flow
- Activation/Clearing of applicable Annunciators (e.g.; Hi Disch Press, Lo Hdr Press)

**2.0 Stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Operate the Control Switch, to STOP, and check expected Indicating Light response.  
Check expected system response (e.g.; flow, pressure, level)

**3.0 Operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights, using authorized identification.  
Select the Control Switch to the desired position.  
Check Valve/Breaker position, using position Indicating Lights.  
Check expected system response (e.g.; flow, pressure, level, volts, amps, KW)

**4.0 Checking Valve/Breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, report Valve/Breaker position to CRS.

**5.0 Verifying valve/breaker position**

Identify the Valve/Breaker Indicating Lights, using authorized identification.  
Check the Valve/Breaker is in the correct position.  
If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

**6.0 Locally starting a pump**

Verify the following:

- Suction Valve open
- Discharge Valve position (as applicable)
- Miniflow Valve position (as applicable)
- Pump and Motor oil levels are normal
- Adequate Suction Pressure

Identify the Control Switch and Indicating Lights, using authorized identification.



**CCNPP LICENSED OPERATOR****JOB PERFORMANCE MEASURE OI-36-1 (NEW)****TASK: Starting an Alternate Purge of Containment**

Operate the Control Switch, to START, and check expected Indicating Light response.

Check for proper Pump operation (as applicable):

- Smooth, quiet operation consistent with pump history
- Oil level remains good
- Proper seal leakoff
- Proper discharge pressure
- Expected system flow

**7.0 Locally stopping a pump**

Identify the Control Switch and Indicating Lights, using authorized identification.

Operate the Control Switch, to STOP, and check expected Indicating Light response.

Check expected system response (e.g.; flow, pressure, level).

**8.0 Operating a Manual Valve**

Identify the Valve, using authorized identification.

Operate the Valve and check expected position indication change (e.g.; stem rise, pointer).

Check expected System response (e.g.; fluid flow sounds, pressure changes, tank levels).

**9.0 Locally operating Control Valves/Motor Operated Valves/Circuit Breakers**

Identify the Control Switch and Indicating Lights (if applicable), using authorized identification.

Operate the Control Switch and check expected Indicating Light response.

Check expected System response (e.g.; flow, pressure, levels, volts, amps).

**10.0 Locally checking Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.

Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).

If Valve/Breaker is not in correct position, report Valve/Breaker position to Control Room.

**11.0 Locally verifying Valve/Breaker position**

Identify the Valve/Breaker, using authorized identification.

Check the Valve/Breaker is in the correct position, using appropriate position indication (e.g.; pointer, stem rise, flags, indicating lights).

If Valve/Breaker is not in correct position, operates Valve/Breaker to correct position.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-36-1 (NEW)

ELEMENT

STANDARD

(\* = CRITICAL STEP)

TIME START \_\_\_\_\_

CUE: Initial conditions are met, begin at Step 6.7.B.1.

\_\_\_\_ Locate OI-36 Section 6.7, Step B.1

Without error

**NOTE:**

- All steps in this subsection apply only to controls and equipment on the unit to be vented.
- The key will be captured in the Test/Alt Purge position.
- The Purge Supp Fan Test/Alt Purge handswitch is located on breaker 52-10231 (52-20231).

CUE: 2-HS-5290A is in TEST/ALT PURGE.

\* \_\_\_\_\_ 1. PLACE Purge Supp Fan TEST/ALT PURGE handswitch, 1(2)-HS-5290A, in TEST/ALT PURGE.

Simulates inserting key, places 2-HS-5290A in TEST/ALT PURGE.

**NOTE:**

- The key will be captured in the Test/Alt Purge position.
- The Purge Exh Fan Test/Alt Purge handswitch is located on breaker 52-10311 (52-20311).

CUE: 2-HS-5289A is in TEST/ALT PURGE.

\* \_\_\_\_\_ 2. PLACE Purge Exh Fan TEST/ALT PURGE handswitch, 1(2)-HS-5289A, in TEST/ALT PURGE.

Simulates inserting key, places 2-HS-5289A in TEST/ALT PURGE.

TIME STOP \_\_\_\_\_

TERMINATING CUE:

This JPM is complete when the CRO is informed that HS-5289A and 5290A are in TEST/ALT PURGE. No further actions required.

**NOTE: At the completion of this JPM, conduct OI-36ADMIN, before leaving the 5' level of the Auxiliary Building.**

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-36-1 (NEW)**

**TASK:** Starting an Alternate Purge of Containment

Document below any instances of failure to comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**

**NOTES:**

**DID A NEAR MISS OCCUR DUE TO INAPPROPRIATE PERSONNEL ACTIONS/INACTIONS OR PROCEDURAL QUALITY?** YES NO  
(If yes, provide comments below)

**COMMENTS:**

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The operator's performance was evaluated against the standards contained in this JPM and determined to be

**SATISFACTORY**

**UNSATISFACTORY**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE**

**DIRECTIONS TO TRAINEE:**

1. To complete the task successfully, you must:
  - perform each critical element correctly. You must inform the evaluator of the indications you are monitoring. Where necessary, consider the evaluator to be the CRS.
  - comply with industrial safety practices, radiation safety practices and use of event free tools. **NOTE: Violation of safety procedures will result in failure of the JPM.**
2. Initial Conditions:
  - a. Unit 2 is in a refueling outage.
  - b. An approved Containment purge permit is held by the CRO.
  - c. You have been given the required keys.
  - d. You are performing the duties of Unit 2 ABO.
3. Initiating Cue: You are directed by the CRO to perform OI-36 Section 6.7, Steps B.1 and B.2. Are there any questions? You may begin.

**6.7 STARTING AN ALTERNATE PURGE OF CONTAINMENT****A. Initial Conditions**

1. RCS temperature is less than 200° F on the unit to be purged.
2. Section 6.1 has been completed for the unit to be purged.
3. One Main Exhaust Fan is in operation on the unit to be purged.
4. Main Vent Gaseous Radiation Monitor RI-5415 is in operation on the unit to be purged, **OR** appropriate compensatory action has been taken **PER** ODCM Controls 3.3.3.9.
5. An approved Gaseous Waste Release Permit for containment purge has been received from Chemistry.
6. Radiation Safety Supervision has been notified of pending containment purge.
7. **IF** performing core alterations **OR** movement of irradiated fuel assemblies within the containment, **THEN** all four channels of Containment Area Radiation Monitors RI-5316A, B, C, and D are operable on the unit to be purged. (Tech Spec 3.3.7)

**NOTE**

If Containment pressure is greater than 0.30 PSIG or less than (-)0.30 PSIG, then the H<sub>2</sub> Purge system must be used.

8. Containment pressure is no less than (-)0.30 PSIG and no greater than 0.30 PSIG on the unit to be purged. [B0200]
9. Containment Radiation Monitoring System Sample Pumps are secured. (OI-35)
10. Keys for the Purge Supp & Exh Fans Test/Alt Purge handswitches have been obtained.

**B. Procedure****NOTE**

- All steps in this subsection apply only to controls and equipment on the unit to be vented.
- The key will be captured in the Test/Alt Purge position.
- The Purge Supp Fan Test/Alt Purge handswitch is located on breaker 52-10231 (52-20231).

1. **PLACE** Purge Supp Fan TEST/ALT PURGE handswitch, 1(2)-HS-5290A, in TEST/ALT PURGE.

6.7.B Procedure (Continued)**NOTE**

- The key will be captured in the Test/Alt Purge position.
- The Purge Exh Fan Test/Alt Purge handswitch is located on breaker 52-10311 (52-20311).

2. **PLACE** Purge Exh Fan TEST/ALT PURGE handswitch, 1(2)-HS-5289A, in TEST/ALT PURGE.
3. **NOTIFY** Radiation Safety Supervision that the plant will be initiating an alternate purge of containment.
4. **ENTER** Containment Purge alarm values from the Gaseous Waste Release Permit in the Plant Computer. (R5415A! U-1, R5415B! U-2)
5. **IF** Containment Average air temperature is less than or equal to 45° F, **THEN ENSURE** plant heating is aligned to Purge Supply Fan **PER APPENDIX 2, PLANT HEATING ALIGNMENT TO CONTAINMENT PURGE. [B0782]**  

25/00  
25/03

  - a. **IF** plant heating is **NOT** available, **THEN** Purge operation is not allowable.  

25/00
6. **PLACE** handswitch CNTMT PURGE EXH FAN, 1(2)-HS-5289, in START **AND** Locally **VERIFY** CNTMT PURGE EXH AIR OPERATED DAMPER, 1(2)-CPA-5289-DAMP, is **FULL OPEN** by verifying the piston operator is fully extended (~3.5 in.).
  - a. **CHECK** the TEST/ALT PURGE amber light is illuminated.