

**CCNPP LICENSED OPERATOR**

9.

**JOB PERFORMANCE MEASURE OI-2A-(2004)**

**SYSTEM:** Chemical & Volume Control System

**TASK:** 041.002 Shift Charging Pumps K/A 004A2.22

**PURPOSE:** Evaluates an Operator's Ability to Shift Charging Pumps and Respond to a Lifting Discharge Relief Valve

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-2A-(2004)**

TASK:        041.002        Shift Charging Pumps

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

APPLICABILITY:

RO and SRO

PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the Chemical & Volume Control 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-2A  
Alarm Response Manual F-45

TASK STANDARDS:

This JPM is complete when 13 charging pump is running as the selected charging pump.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-2A-(2004)**

**TASK: 041.002 Shift Charging Pumps**

**Simulator Setup**

- a. IC-13, Unit 1, 100% with 11 charging pump aligned as the running pump.
- b. Shut 12 Charging Pump Discharge Valve, 1-CVC-172

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-2A-(2004)**

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

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

CUE: Radiation Safety Supervision has been notified
---

_____	Identify & locate OI-2A, Step 6.2.A	Same as element.
1.	<b>NOTIFY</b> Radiation Safety Supervision of Charging Pump shift and new Charging Pump lineup.	Notifies Radiation Safety.
2.	<b>IF</b> only one Charging Pump in operation, <b>THEN PERFORM</b> the following:	
_____	a. <b>IF</b> the pump is being started after maintenance to the fluid end, <b>THEN ENSURE</b> proper pressurization of the suction stabilizer and discharge desurger and vent pump <b>PER</b> Section 6.1.1, <b><u>PRESSURIZING SUCTION STABILIZERS AND DISCHARGE DESURGERS (PE 1-41-4-O-M)</u></b> .	Determines step is N/A.
_____	b. <b>IF</b> this is a routine shifting of Charging Pumps, <b>THEN CONSIDER</b> venting Charging Pumps <b>PER</b> Section 6.24, <b><u>VENTING CHARGING PUMP SUCTION DESURGER AND FLUID CYLINDER FOR PE 1-41-11-O-D</u></b> .	Determines step is N/A per Initial Conditions.
<b><u>CAUTION:</u></b> A reactivity change could occur or the rate of change of reactivity could be affected when starting or stopping a charging pump		
* _____	c. <b>START</b> the desired Charging Pump <b>AND CHECK</b> for proper operation.	Starts 12 Charging Pump.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-2A-(2004)**

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

<p><b>Note to Evaluator:</b> Candidate may notice charging header flow does not increase and request the ABO to investigate or inform the CRS that 12 Charging pump is malfunctioning. Cue the examinee to shift to 13 as the selected charging pump.</p>	
---	--

<p><b>Note to Evaluator:</b> A 2003 Tech Spec change has made this note not applicable for TS. Technical Requirements Manual, 15.2 requires 2 boric acid flow paths but the specific requirement for 2 independent power supplies above 80% power no longer requires entry into an action statement.</p>	
--	--

**NOTE:** When greater than 80% Rated Thermal Power, two operable Charging Pumps shall have independent power supplies. Placing a Charging Pump handswitch in PULL TO LOCK when greater than 80% power makes that pump inoperable.

- |       |  |   |
|-------|--|---|
| _____ | <p>d. <b>PLACE</b> the idle Charging Pump handswitch in PULL TO LOCK.</p>  | <p>Places 13 Charging Pump in PULL TO LOCK.</p> |
| _____ | <p>e. <b>PLACE</b> the BACKUP CHARGING PUMP SELECT switch in the position to have the desired Charging Pump selected as the running pump:</p> <ul style="list-style-type: none"> <li>• To run 11 Charging Pump, <b>PLACE</b> switch in 12 &amp; 13</li> <li>• To run 12 Charging Pump, <b>PLACE</b> switch in 13 &amp; 11</li> <li>• To run 13 Charging Pump, <b>PLACE</b> switch in 11 &amp; 12.</li> </ul> | <p>Places Select switch in 13 &amp; 11.</p>     |

<p><b>CUE:</b> After CHG HDR FLOW LO PRESS LOW Annunciates, or if the examinee requests investigating 12 Charging Pump malfunction, ABO Reports that 12 Charging Pump discharge relief is lifting.</p>	
--	--

- |       |  |  |
|-------|--|--|
| _____ | <p>f. <b>STOP</b> the Charging Pump that was running at the start of this section.</p> | <p>Stops 11 Charging Pump</p> <p><b>Note</b>—if examinee identifies the malfunction at step c, this step will not be performed until he is directed to start 13 Charging pump as the selected pump..</p> |
|-------|--|--|

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-2A-(2004)**

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

**Note to Evaluator:** CHG HDR FLOW LO PRESS LOW annunciates, candidate may reference Alarm Response Manual F-45.

3.	<b>LOCATE</b> ARM F-45, Perform the following:	Same as element
----	--	-----------------

_____	<b>IF</b> available, <b>THEN START</b> another Charging Pump.	Starts 13 Charging Pump and verifies alarm clears.
-------	---	--

**CUE: CRS directs starting 13 Charging Pump as the selected pump.**

* _____	d. <b>PLACE</b> the idle Charging Pump handswitch in <b>PULL TO LOCK</b> .	Places 12 Charging Pump in <b>PULL TO LOCK</b> .
---------	--	--

* _____	e. <b>PLACE</b> the <b>BACKUP CHARGING PUMP SELECT</b> switch in the position to have the desired Charging Pump selected as the running pump. <ul style="list-style-type: none"> <li>• To run 11 Charging Pump, <b>PLACE</b> switch in 12 &amp; 13</li> <li>• To run 12 Charging Pump, <b>PLACE</b> switch in 13 &amp; 11</li> <li>• To run 13 Charging Pump, <b>PLACE</b> switch in 11 &amp; 12.</li> </ul>	Places Select switch in 11 & 13.
---------	--	----------------------------------

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

**TERMINATING CUE:** This JPM is complete when 13 Charging Pump is running as the selected pump.



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

TASK: 041.002

**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.
  - b. 11 Charging Pump is selected as the operating pump.
  - c. The ABO has requested you shift to 12 Charging Pump so he can check oil levels in 11 pump. 12 Pump is ready for starting, venting is not required.
  - d. You are performing the duties of the Unit 1 RO.
3. Initiating Cue: The Control Room Supervisor has directed you to shift to 12 Charging Pump as the running pump per the OI. Are there any questions? You may begin.



**6.2 SHIFTING CHARGING PUMPS [MEMORY USE]****A. Initial Condition**

1. One or two Charging Pumps in operation.

**B. Procedure**

1. **NOTIFY** Radiation Safety Supervision of Charging Pump shift and new Charging Pump lineup.
2. **IF** only one Charging Pump in operation, **THEN PERFORM** the following:
  - a. **IF** the pump is being started after maintenance to the fluid end, **THEN ENSURE** proper pressurization of the suction stabilizer and discharge desurger and vent pump **PER** Section 6.11, PRESSURIZING SUCTION STABILIZERS AND DISCHARGE DESURGERS (PE 1-41-4-O-M) [B0427]. [B0427]
  - b. **IF** this is a routine shifting of Charging Pumps, **THEN CONSIDER** venting Charging Pumps **PER** Section 6.24, VENTING CHARGING PUMP SUCTION DESURGER AND FLUID CYLINDER FOR PE 1-41-11-O-D [B0427]. [B0427]

**CAUTION**

A reactivity change could occur or the rate of change of reactivity could be affected when starting or stopping a charging pump. [B0270]

- c. **START** the desired Charging Pump **AND CHECK** for proper operation.

**NOTE**

When greater than 80% Rated Thermal Power, two operable Charging Pumps shall have independent power supplies. Placing a Charging Pump handswitch in PULL TO LOCK when greater than 80% power makes that pump inoperable.

- d. **PLACE** the idle Charging Pump handswitch in PULL TO LOCK.
- e. **PLACE** the BACKUP CHARGING PUMP SELECT switch in the position to have the desired Charging Pump selected as the running pump:
  - To run 11 Charging Pump, **PLACE** switch in 12&13
  - To run 12 Charging Pump, **PLACE** switch in 13&11
  - To run 13 Charging Pump, **PLACE** switch in 11&12
- f. **STOP** the Charging Pump that was running at the start of this section.
- g. **PLACE** the idle Charging Pump handswitch in normal.

**6.2.B Procedure (Continued)**

3. **IF** two Charging Pumps are in operation,  
**THEN PERFORM** the following:
  - a. **IF** the pump is being started after maintenance to the fluid end,  
**THEN ENSURE** proper pressurization of the suction stabilizer and discharge desurger and vent pump **PER** Section 6.11, PRESSURIZING SUCTION STABILIZERS AND DISCHARGE DESURGERS (PE 1-41-4-O-M) [B0427]. [B0427]
  - b. **IF** this is a routine shifting of Charging Pumps,  
**THEN CONSIDER** venting Charging Pumps **PER** Section 6.24, VENTING CHARGING PUMP SUCTION DESURGER AND FLUID CYLINDER FOR PE 1-41-11-O-D [B0427]. [B0427]

**CAUTION**

A reactivity change could occur or the rate of change of reactivity could be affected when starting or stopping a Charging Pump. [B0270]

**NOTE**

When greater than 80% Rated Thermal Power, two operable Charging Pumps shall have independent power supplies. Placing a Charging Pump handswitch in PULL TO LOCK when greater than 80% power makes that pump inoperable.

- c. **STOP** the desired Charging Pump **AND PLACE** its handswitch in PULL TO LOCK.
- d. **START** the standby Charging Pump **AND CHECK** for proper operation.

**NOTE**

The following step selects the idle Charging Pump as the first backup pump.

- e. **PLACE** the BACKUP CHARGING PUMP SELECT switch to the position appropriate for plant conditions:
  - To run 11 and 12 Charging Pumps, **PLACE** switch in 13&11
  - To run 11 and 13 Charging Pumps, **PLACE** switch in 12&13
  - To run 12 and 13 Charging Pumps, **PLACE** switch in 11&12
- f. **PLACE** the idle Charging Pump handswitch in normal.

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

<u>DEVICE</u>	<u>SETPOINT</u>	<u>WINDOW</u>	F-45
1-FIA-212 1-PIA-212	25 GPM (22 to 28 GPM) 2000 PSIG (1950 to 2050 PSIG)		

<b>CHG HDR</b> • <b>FLOW LO</b> • <b>PRESS LO</b>
---

**POSSIBLE CAUSES**

- Loss of charging pump(s): **[B0427]**
  - Backup Charging Pump Select switch in wrong position for desired pump
  - Low charging pump suction pressure trip
  - Charging pump motor overload
  - Engineered Safety Features load shed
- Charging pump(s) discharge relief valve lifting **[B0427]**
- Plant cooldown and depressurization
- Charging pump(s) gas bound **[B0427]**
- Charging header pipe rupture

**AUTOMATIC ACTIONS**

None

(continued)

(continued)

**WINDOW**

**F-45**

CONDITION	RESPONSE
<p>1. Charging is lost.</p>	<p>1. <b>PERFORM</b> the following:</p> <ul style="list-style-type: none"> <li>a. <b>IF</b> available, <b>THEN START</b> another charging pump.</li> <li>b. <b>IF</b> Letdown is in service <b>AND</b> Charging can <b>NOT</b> be reestablished, <b>THEN SECURE</b> Letdown.</li> <li>c. <b>IF</b> charging pump(s) are gas bound, <b>THEN VENT</b> pump(s) <b>PER</b> Venting Charging Pump Suction Desurger and Fluid Cylinder for PE 1-41-11-O-D section of OI-2A, <u>Chemical and Volume Control System.</u> <b>[B0427]</b></li> <li>d. <b>IF</b> charging header pipe rupture is suspected, <b>THEN IMPLEMENT</b> AOP-2A, <u>Excessive Reactor Coolant Leakage.</u></li> <li>e. <b>REFER</b> to TRM 15.1.2 and 15.1.3 for charging pump availability requirements.</li> </ul>

**ANNUNCIATOR COMPENSATORY ACTIONS**

**MONITOR** Charging System operation at least hourly.

**REFERENCES**

1E-75 (61-075-C), Sh.23B

b (N/A for SN-4)

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-65-1**

**SYSTEM: SAFETY INJECTION**

**TASK: 052/061.063 Test SIS Check Valves K/A 006A4.02**

**PURPOSE: Evaluates an Operator's ability to perform STP-O-65-1**

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

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-65-1**

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

---

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

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the CEDM system.

**EVALUATION LOCATION:**

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

**EVALUATION METHOD:**

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

**ESTIMATED TIME  
TO COMPLETE JPM:**

15 MINUTES

**ACTUAL TIME  
TO COMPLETE JPM:**

\_\_\_\_\_ MINUTES

**TIME CRITICAL TASK:**

NO

**TASK LEVEL:**

RE-TRAIN

**TOOLS AND EQUIPMENT:**

Stop

**REFERENCE PROCEDURE(S):**

STP-O-65-1

**TASK STANDARDS:**

This JPM is complete when a 1-SI 446 has been tested satisfactorily per section 6.1 of STP-O-65-1.

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-65-1**

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

---

1. Simulator Setup
  - a. Initialize the simulator at 100% power. (IC-13)
  - b. Using Remote Function, Shut 11 LPSI pump normal suction, I-SI-444.
  - c. Using Remote Function, Shut 11 LPSI pump miniflow isolation, 1-SI-449.

**NOTE to driver: When candidate requests ABO shut the above valves, report valves shut after about 1 minute.**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE STP-O-65-1**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
_____ Locates STP-O-65-1 section 6.1	Same as element
<b>6.1. 11LPSI PPDISCH CKV, 1-SI-446, REVERSE FLOW TEST</b>	
<b>CUE: 1-SI-435 is open</b>	
_____ A. <b>CHECK OPEN 12 LPSI PP DISCH ISOL, 1SI-435</b>	Contacts plant operator to check 1-SI-435 OPEN.
<b>CUE: 1-SI-432 is open.</b>	
_____ B. <b>CHECK OPEN 12 LPSI PP NORM SUCT ISOL, 1-SI-432</b>	Contacts plant operator to check 1-SI-432 OPEN
_____ C. <b>PLACE 11 LPSI PP handswitch in PULL-TO-LOCK</b>	Places 11LPSI PP handswitch in PULL -TO-LOCK
<b>CUE: 1-SI-447 is open</b>	
_____ D. <b>CHECK OPEN 11 LPSI PP DISCH ISOL, 1-SI-447</b>	Contacts plant operator to check 1-SI-447 OPEN
<b>CUE: 1-SI-441 is shut</b>	
_____ E. <b>CHECK SHUT 11LPSI PP SDC SUCT ISOL, 1-SI-441</b>	Contacts plant operator to check shut 1-SI-441
<b>CUE: 1-SI-444 is shut</b>	
* _____ F. <b>SHUT 11 LPSI PP NORM SUCT ISOL, 1-SI-444</b>	Contacts plant operator to shut 1-SI-444
* _____ G. <b>RECORD 11LPSI PP discharge pressure. 1-PI-302X: _____ PSIG</b>	Records discharge pressure as 45-50 PSIG.
* _____ H. <b>START 12 LPSI PP.</b>	Starts 12 LPSI pump
* _____ I. <b>SLOWLY SHUT 11 LPSI PP MINI FLOW RTRN ISOL, 1-SI-449 AND MONITOR 11 LPSI PUMP discharge pressure at 1-PI-302-X</b>	Contacts plant operator to slowly shut 1-SI-449, monitors 1-PI-302X.



**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-65-1**

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

**NOTE:**

- A pressure of  $\leq 25$  PSIG in 2 minutes provides assurance that the LPSI pump discharge check valve leak rate is  $\leq 5$  GPM such that an actual leak rate determination is not required.
- 11 LPSI Pump Discharge Pressure should be obtained as soon as the 2 minute stabilization period has elapsed for consistent test performance. Longer stabilization times are acceptable but may cause the leak rate determination in step 6.1.L to be performed with only minimal actual check valve leakage.

\*      J.      **WHEN** 12 LPSI PP has been running at least 2 minutes, **THEN RECORD** 11 LPSI PP discharge pressure.

Waits 2 minutes and records 1-PI-302X as 45-50 PSIG, no more than 5 PSIG above pressure recorded in step G.

1-PI-302X:      PSIG

\*      K.      **CALCULATE** the rise in 11LPSI PP discharge pressure. **IF** the rise in 11LPSI PP discharge pressure is less than or equal to 25 PSIG, **THEN** N/A step 6.1 L

Calculates a rise in discharge pressure of less than 25 PSIG and determines step L is N/A.

     PSIG -      =      PSIG

step 6.1 J                  step 6.1 G

- **INDEPENDANTLY VERIFY** the calculation above

     L.                  **Calculate .....**

Determines step is N/A.

\*      M.      **STOP** 12 LPSI PP.

Stops 12 LPSI pump

**CUE:** 1-SI-449 is locked open

\*      N.      **LOCK OPEN** 1-SI-449

Contacts plant operator to lock open 1-SI-449

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE STP-O-65-1**

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

<b>CUE:</b> 1-SI-444 is locked open
-------------------------------------

* <u>    </u> O. <b>LOCK OPEN 1-SI-444</b>	Contacts plant operator to lock open 1-SI-444
<u>    </u> P. <b>IF</b> a leak rate.....	Determines step is N/A.
<u>    </u> Q. <b>ENSURE SHUT...</b> a leak rate.....	Determines step is N/A.
* <u>    </u> R. <b>RETURN 11 LPSI PP handswitch to normal</b>	Takes 11 LPSI pump handswitch out of PULL-TO-LOCK and ensures all alarms are clear.

<b>TERMINATING CUE:</b> This JPM is complete when 11 LPSI pump handswitch is returned to normal.
--

TIME STOP

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-65-1**

**TASK:** 052/061.063 Test SIS Check Valves

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:**

---

---

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. STP-O-65-1 is to be performed as a routine surveillance.
  - c. All prerequisites have been completed, plant operators have been briefed and are on station to perform steps if required
  - d. You are performing the duties of the Unit 1 CRO.
3. Initiating Cue: The CRS directs you to perform STP-O-65-1 starting at section 6.1. Are there any questions? You may begin.

**CALVERT CLIFFS NUCLEAR POWER PLANT  
SURVEILLANCE TEST PROCEDURE  
UNIT ONE**

**STP O-65-1**

**HPSI AND LPSI PP CKV CLOSURE TEST**

**REVISION 36**

**SAFETY RELATED**

**CONTINUOUS USE**

Approval Authority: \_\_\_\_\_



3-8-02

Signature/Date

Effective Date: 03-08-02



**TABLE OF CONTENTS**

<u>TITLE</u>	<u>PAGE</u>
1.0 PURPOSE .....	5
2.0 APPLICABILITY/SCOPE .....	5
3.0 REFERENCES .....	6
4.0 PREREQUISITES .....	7
5.0 PRECAUTIONS .....	8
6.0 PERFORMANCE .....	10
6.1 11 LPSI PP DISCH CKV, 1-SI-446, REVERSE FLOW TEST .....	10
6.2 12 LPSI PP DISCH CKV, 1-SI-434, REVERSE FLOW TEST .....	15
6.3 11 HPSI PP DISCH CKV, 1-SI-427, REVERSE FLOW TEST .....	19
6.4 12 HPSI PP DISCH CKV, 1-SI-414, REVERSE FLOW TEST .....	24
6.5 13 HPSI PP DISCH CKV, 1-SI-405, REVERSE FLOW TEST .....	29
7.0 POST PERFORMANCE ACTIVITIES .....	34
8.0 BASES .....	34
9.0 RECORDS .....	34
ATTACHMENT 1 LOCKED VALVE VERIFICATION .....	35

LIST OF EFFECTIVE PAGES

PAGE NUMBERS  
1-35

REVISION  
36

PROCEDURE ALTERATIONS

PAGES  
8, 12, 13, 16, 17  
19, 23, 24, 28, 29, 33

REVISION/CHANGE  
36/01



**1.0**    **PURPOSE**

- A. This STP verifies that the LPSI Pump Discharge Check Valves, 1-SI-446 and 1-SI-434, and HPSI Pump Discharge Check Valves, 1-SI-427, 1-SI-414 and 1-SI-405, will prevent reverse flow.

**2.0**    **APPLICABILITY/SCOPE**

- A. Completion of this STP satisfies, in part, the inservice testing requirements of Technical Specification 5.5.8 PER Section XI, Article IWV-3520, of the ASME Boiler and Pressure Vessel Code for LPSI and HPSI Pump Discharge Check Valves.
- B. Test Performance Requirements:
1. This STP will be performed in Modes 1 through 3, with the safety injection system aligned for normal operation.
  2. This STP shall be performed by individuals qualified on the watch stations for the affected equipment.
  3. The Shift Manager shall determine if a pre-test briefing is required and direct the SRO accordingly.
  4. The sections of this STP may be performed in any order, but the steps within each section shall be performed in the order written, in a step by step manner, unless specifically called out in this surveillance. Each step shall be initialed immediately after it is completed by either the operator performing the step or the licensed operator directing the surveillance.
  5. Locked valve manipulations shall be documented in the Locked Valve Deviation Log PER NO-1-205.
- C. This STP is written to normal plant conditions with all required equipment available. All plant conditions and configurations cannot be accounted for in a written instruction, therefore, a review of plant conditions and expected plant responses shall be performed prior to the initiation of this test.



**3.0 REFERENCES (Continued)**

**B. Procedures**

1. EN-4-104, Surveillance Test Program.
2. MN-1-110, Troubleshooting and Procedure Controlled Activities.
3. MD-1-100, Temporary Alterations.
4. MN-2-100, Control and Calibration of Measuring and Test Equipment.
5. NO-1-205, Locked Valves.
6. OI-3A, Safety Injection and Containment Spray.
7. PR-1-101, Calvert Cliffs Implementing Procedure Development and Control.

**C. Codes and Standards**

1. Technical Specifications.
2. CCNPP Pump and Valve Test Program, Units 1 and 2.
3. ASME BPV Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components.
4. Generic Letter No. 89-04.

**4.0 PREREQUISITES**

**INITIALS**

A. **PERFORM** a pre-test page check of the STP.

mead

B. Pre-test briefing requirements are as follows:

- A mandatory pre-test briefing has been held for performance of Sections 6.3, 6.4, and 6.5, HPSI PP DISCH CHV REVERSE FLOW TEST.  
(N/A if HPSI PP DISCH CHV testing will **NOT** be performed)
- A pre-test briefing has been held for Sections 6.1 and 6.2.  
(Mark N/A if Shift Manager has determined that a pre-test briefing not required)

N/A  
SRO

mead  
SRO

C. **ENSURE** calibrated stopwatch is available **AND RECORD** the following data:

Serial Number: \_\_\_\_\_

Cal Due Date: \_\_\_\_\_

D. Unit 1 is in Modes 1 through 3.

mead

**4.0 PREREQUISITES (Continued)**

**INITIALS**

- E. RCS pressure is greater than 1400 PSIA if performing sections 6.3 through 6.5. (Otherwise N/A.)
- F. **ENSURE** that the following valves are open:
  - MINI FLOW RETURN TO RWT ISOL MOV 659, 1-SI-659-MOV
  - MINI FLOW RETURN TO RWT ISOL MOV 660, 1-SI-660-MOV
- G. Graduated cylinders **AND** suitable containers are available.
- H. Suitable drain tubing/hoses are available.
- I. **NOTIFY** Radiation Safety Supervision of the intended draining and leak rate determinations to be performed.

N/A

hwl

hwl

hwl

hwl

hwl

| 36/01

**5.0 PRECAUTIONS**

- A. **STOP** the test, **STABILIZE** the plant and **NOTIFY** the Shift Manager for any of the following:
  - Equipment malfunctions
  - Out of tolerance items
  - Conditions outside those allowed by Technical Specifications
  - Unexpected plant responses
- B. In Modes 1, 2 and 3 (pressurizer pressure  $\geq$  1750 PSIA) two independent ECCS subsystems shall be **OPERABLE PER** Technical Specification 3.5.2.
- C. In Mode 3 (pressurizer pressure  $<$  1750 PSIA), one ECCS subsystem shall be **OPERABLE PER** Technical Specification 3.5.3.
- D. When the RCS temperature is  $\leq$  365° F and the RCS is vented to  $<$  8 square inches the overpressure protection requirements of LCO 3.4.12 apply.
- E. SWP requirements and good radiological work practices shall be observed. All fluids shall be treated as contaminated unless certified radiologically clean by Plant Chemistry. All components shall be treated as contaminated unless certified radiologically clean by Radiation Safety Supervision.
- F. Do **NOT** exceed the HPSI or LPSI Pump starting duty limitations listed in OI-3A.
- G. The HPSI Header isolation **MUST BE** shut to eliminate a potential runout configuration for the running HPSI pump should a SIAS event occur with **BOTH** of the HPSI Cross-connect MOVs open. The predicted flow rate for one pump, when injecting with all eight isolation MOVs, is higher than any tested flowrate. Therefore, it can not be stated that runout will not occur under these conditions. **[B0795]**

**5.0 PRECAUTIONS (Continued)**

- H. The design pressure rating of the HPSI PP suction piping is 500 PSIG. This piping has a maximum working pressure of 1433 PSIG. Pressurizing the HPSI pump suction piping to HPSI pump shutoff head pressure may cause leakage at mechanical joints. Piping rupture is not credited at this pressure. HPSI pump suction piping can be inadvertently pressurized to greater than the suction piping design pressure during reverse flow testing of the HPSI pump discharge check valves. This will occur whenever the back-leakage through the check valve is greater than the relief path provided by the pump's mini-flow line or the pump's suction vent line. Gross failure of the discharge check valve will rapidly pressurize the suction piping to greater than design pressure, regardless of the best operator actions. Close monitoring of the HPSI PP discharge pressure for the pump under test shall be performed, so that any such events will be minimized.
- ES2002001 15 stipulates required actions should the HPSI pump suction piping be pressurized above the design pressure rating. [B0795]



6.1 11 LPSI PP DISCH CKV, 1-SI-446, REVERSE FLOW TEST  
(Continued)

INITIALS

**NOTE**

- A pressure rise of  $\leq 25$  PSIG in 2 minutes provides assurance that the LPSI pump discharge check valve leak rate is  $\leq 5$  GPM such that an actual leak rate determination is not required.
- 11 LPSI Pump Discharge Pressure should be obtained as soon as the 2 minute stabilization period has elapsed for consistent test performance. Longer stabilization times are acceptable but may cause the leak rate determination in step 6.1.L to be performed with only minimal actual check valve leakage.

J. **WHEN** 12 LPSI PP has been running for at least 2 minutes,  
**THEN RECORD** 11 LPSI PP discharge pressure.

1-PI-302X: \_\_\_\_\_ PSIG

K. **CALCULATE** the rise in 11 LPSI PP discharge pressure. **IF** the  
rise in 11 LPSI PP discharge pressure is  $\leq 25$  PSIG,  
**THEN N/A** step 6.1.L.

\_\_\_\_\_ PSIG - \_\_\_\_\_ PSIG = \_\_\_\_\_ PSIG  
step 6.1.J                      step 6.1.G

- **INDEPENDENTLY VERIFY** the calculation above.





6.1 11 LPSI PP DISCH CKV, 1-SI-446, REVERSE FLOW TEST  
(Continued)

INITIALS

M. **STOP** 12 LPSI PP.

\_\_\_\_\_

N. **LOCK OPEN** 1-SI-449.

\_\_\_\_\_

O. **LOCK OPEN** 1-SI-444.

\_\_\_\_\_

P. **IF** a leak rate determination was performed,  
**THEN SLOWLY THROTTLE OPEN** 11 LPSI SUCT TEST  
CONN ISOL, 1-SI-1001.

(N/A if a leak rate determination was **NOT** performed)

- **WHEN** air free water is observed from the test connection,  
**THEN SHUT** 11 LPSI SUCT TEST CONN ISOL, 1-SI-1001.

\_\_\_\_\_

Q. **ENSURE SHUT** 1-SI-1001,  
**THEN REMOVE** the tubing/hose at 1-SI-1001 **AND INSTALL**  
the cap at the test connection.  
(N/A if tubing/hose **NOT** installed)

36/01

\_\_\_\_\_  
Removed by      Date    Time

\_\_\_\_\_  
Verified by      Date    Time

R. **RETURN** 11 LPSI PP handswitch to normal.

\_\_\_\_\_

6.1 11 LPSI PP DISCH CKV, 1-SI-446, REVERSE FLOW TEST  
(Continued)

INITIALS

S. ACCEPTANCE CRITERIA

**NOTE**

Performance of this section constitutes a supervisory review. Actual observation of equipment response by the SRO performing this review is not required. Answering YES to a step below signifies that the referenced step has been completed and signed off by a qualified operator **other than the SRO reviewer** and that the actual equipment response is acceptable and valid.

1. Was the rise in pressure on 11 LPSI PP  $\leq$  25 PSIG in step 6.1.K **OR** was the calculated leak rate  $\leq$  5 GPM in step 6.1.L?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

2. This surveillance is considered satisfactory if YES was answered in the step above.

SAT / UNSAT  
(circle one)

\_\_\_\_\_  
SRO

- a. **IF** unsat, **THEN** notify the SM, declare the affected equipment inoperable and take actions as required by administrative actions stated in EN-4-104.
- b. **INITIATE** an Issue Report for any equipment deficiencies.



**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-3B (2004)**

**TASK: 202.024 Respond to a Loss of Inventory While SDC is in Use K/A 005A1.05**

**Purpose: Evaluates an operator's ability to recognize and control a loss of inventory when initiating SDC.**

---

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-3B (2004)**

**ELEMENT** **STANDARD**  
 (\* = CRITICAL STEP) \_\_\_\_\_

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

APPLICABILITY:

RO and SRO

PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the CEDM system.

EVALUATION LOCATION:

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

EVALUATION METHOD:

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

ESTIMATED TIME  
TO COMPLETE JPM:

15 MINUTES

ACTUAL TIME  
TO COMPLETE JPM:

\_\_\_\_\_ MINUTES

TIME CRITICAL TASK:

NO

TASK LEVEL:

RE-TRAIN

TOOLS AND EQUIPMENT:

None

REFERENCE PROCEDURE(S):

OI-3B

TASK STANDARDS:

This JPM is complete when RCS leak rate has been controlled and cause of leakage is being investigated.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-3B (2004)**

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

- 
1. Simulator Setup
    - a. IC-1. Cooldown to less than 250 degrees F. Depressurize to approximately 230 PSIG. Turn off operating RCPs. Run until RCS pressure and temperature have stabilized. ( **For 2004 ILO exam, use IC-30, setup is complete**)
    - b. Align Safety Injection for Shutdown Cooling using remote functions or system commands.
    - c. Open LPSI Header Isolation Valves 1-SI-615, 625, 635 and 645 MOVs
    - d. Place second CC pump and heat exchanger in operation
    - e. Open SDC HXR CC outlet valves, 1-CC-3828 and 3830-CVs.
    - f. Place CS PP and LPSI PP handswitches in Pull to Lock.
    - g. Shut breaker 52-11466, for 1-SI-651-MOV.
    - h. Open SDC LPSI inlet, 1-SI-658- MOV.
    - i. Insert keys for 1-SI-306, 657, 651, 652, RAS overrides.
    - j. Open 11 **OR** 12 LPSI pump RWT Suction Valves, 1-SI-432 **OR** 444 to .05 (5% open).
    - k. Place the Operating Curve from SPDS on one CRT on 1C04.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-3B (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
Locates OI-3B Section 6.1.1.B .	Same as element.
6.1.1.B. <b><u>Procedure</u></b>	
____24. <b>ENSURE <u>ALL</u></b> RCPs are stopped.	Checks RCP indications.

**NOTE**

While on SDC, T115 and T125 are **NOT** accurate indications of RCS temperature.  
Variable MPT setpoint can **NOT** be used when on SDC.

**CAUTION:**

**When in SINGLE MPT ENABLE, the PORVs will open at 410 PSIA.**

25. <b>ESTABLISH</b> Single MPT protection by performing the following:	Checks pressure less than 380 PSIA and places I-hs-1406 and 1408 in "SINGLE MPT ENABLE"
* ____ a. <b>VERIFY PZR LOW RANGE PRESSURE</b> is less than 380 PSIA on 1-PI-103 and 1-PI-103-1.	
* ____ b. <b>PLACE</b> the PORV MPT PROTECTION handswitches in SINGLE MPT ENABLE:	
• 1-HS-1406	
• 1-HS-1408	
c. <b>VERIFY</b> that the Pressure-vs-Temperature Operating curve on the SPDS display changes from a variable to a single MPT setpoint curve.	

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-3B (2004)**

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

<p>___26. <b>IF</b> Plant computer is out of service, <b>THEN LOG</b> initiation of SDC flow in the Transient Tracking Log <b>PER</b> en-1-115, <u>RECORDING OF PLANT TRANSIENTS/OPERATIONAL CYCLES.</u></p>	<p>Determines this step is N/A.</p>
--	-------------------------------------

**NOTE**

Computer point P103 **OR** P103A, Critical High Alarm Limit setpoint, activates alarm E38, SDC PRESS HI.

**CUE:** The Reactor Operator will establish the computer alarms per step 27.

<p>___27. <b>ESTABLISH</b> a RCS pressure alarm for Critical High Alarm Limit on computer points P103 and P103A no greater than 250 PSIA.</p>	<p>Establishes alarm limits per OI-50A (can be from memory).</p>
---	--

**CAUTION**

Pressurizer pressure shall be less than 250 PSIA as indicated by PI-103 and PI-103-1 to prevent over pressurization of the SDC return line.

<p>* ___28. Verify RCS pressure is less than 250 PSIA.</p>	<p>Verifies RCS pressure less than 250 PSIA on PI-103 and PI-103-1.</p>
--	---

**CAUTION**

PZR level lowering during opening of the SDC MOVs indicates a loss of inventory.

Containment Spray pump discharge pressures greater than 200 PSIG during the opening of the SDC MOVs indicates unacceptable leakage past 11 LPSI PP NOM SUCT ISOL, 1-SI-444 or 12 LPSI PP NORM SUCT ISOL, 1-SI-432.

<p>___29. <b>PERFORM</b> the following on the SDC MOVs:</p>	
---	--

<p>* ___a. <b>OPEN</b> SDC HDR RETURN ISOL, 1-SI-651-MOV.</p>	<p>Opens 1-SI-651- MOV.</p>
---	-----------------------------

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-3B (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
* ____ b. JOG OPEN SDC HDR RETURN ISOL, 1-SI-652-MOV for 5-10 seconds.	Partially opens 1-SI-652.
____ c. <b>MONITOR AND EVALUATE</b> for the following conditions:	Same as element.
• ____ PZR level lowering rapidly, indicating inventory loss.	Checks PZR level.
• * ____ Containment Spray Pump discharge pressure greater than 200 PSIG, indicating unacceptable leakage.	Monitors Containment Spray Pump discharge pressure and recognizes unacceptable conditions.
____ d. <b>IF</b> there is indication of inventory loss <b>OR</b> unacceptable leakage, <b>THEN PERFORM</b> the following:	
* ____ (1) SHUT SDC HDR RETURN ISOL, 1-SI-652-MOV	Shuts 1-SI-652-MOV.
* ____ (2) SHUT SDC HDR RETURN ISOL, 1-SI-651-MOV	Shuts 1-SI-651-MOV.
* ____ (3) Determine Source of leakage	Checks containment parameters and determines leak is <b>not</b> inside containment.  Dispatches Plant Operators to determine leak location.

<b>TERMINATING CUE:</b>	This JPM is complete when the SDC HDR RETURN ISOL valves have been shut and source of leakage is being investigated. No further actions are required.
-------------------------	---

TIME STOP \_\_\_\_





**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE**

**TASK:** 202.024

**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 shutdown in Mode 4 with RCPs secured.
  - b. Preparations are being made for initiating Shutdown Cooling per OP-5 and OI-3B.
  - c. You are performing the duties of the Unit 1CRO.
3. Initiating Cue: The CRS directs you to initiate Shutdown Cooling per OI-3B, starting with step 24 of section 6.1.1B. Are there any questions? You may begin.

## SHUTDOWN COOLING

OI-3B  
Rev. 18/Unit 1  
Page 18 of 146

### 6.1.1.B Procedure (Continued)

INITIALS

24. **ENSURE ALL** RCPs are stopped. \_\_\_\_\_

#### **NOTE**

While on SDC, T115 and T125 are **NOT** accurate indications of RCS temperature. Variable MPT setpoint can **NOT** be used when on SDC.

#### **CAUTION**

When in SINGLE MPT ENABLE, the PORVs will open at 410 PSIA.

25. **ESTABLISH** Single MPT protection by performing the following:
- VERIFY** PZR LOW RANGE PRESSURE is less than 380 PSIA on 1-PI-103 and 1-PI-103-1. \_\_\_\_\_
  - PLACE** the PORV MPT PROTECTION handswitches in SINGLE MPT ENABLE:
    - 1-HS-1406 \_\_\_\_\_
    - 1-HS-1408 \_\_\_\_\_
  - VERIFY** that the Pressure-vs-Temperature Operating curve on the SPDS display, changes from a variable, to a single MPT setpoint curve. \_\_\_\_\_
26. **IF** Plant Computer is out of service,  
**THEN LOG** the initiation of SDC flow in the Transient Tracking Log  
**PER EN-1-115, RECORDING OF PLANT  
TRANSIENTS/OPERATIONAL CYCLES.** \_\_\_\_\_

#### **NOTE**

Computer point P103 **OR** P103A, Critical High Alarm Limit setpoint, activates alarm E38, SDC.PRESS HI.

27. **ESTABLISH** a RCS pressure alarm for Critical High Alarm Limit on computer points P103 and P103A no greater than 250 PSIA. \_\_\_\_\_

#### **CAUTION**

Pressurizer pressure shall be less than 250 PSIA as indicated by PI-103 and PI-103-1 to prevent over pressurization of the SDC return line.

28. **VERIFY** RCS pressure is less than 250 PSIA. \_\_\_\_\_

SHUTDOWN COOLING

6.1.1.B Procedure (Continued)

INITIALS

**CAUTION**

PZR level lowering during the opening of the SDC MOVs indicates a loss of inventory.

Containment Spray pump discharge pressures greater than 200 PSIG during the opening of the SDC MOVs indicates unacceptable leakage past 11 LPSI PP NORM SUCT ISOL, 1-SI-444, or 12 LPSI PP NORM SUCT ISOL, 1-SI-432.

29. **PERFORM** the following on the SDC MOVs:
- a. **OPEN** SDC HDR RETURN ISOL, 1-SI-651-MOV. \_\_\_\_\_
  - b. **JOG OPEN** SDC HDR RETURN ISOL, 1-SI-652-MOV for 5-10 seconds. \_\_\_\_\_
  - c. **MONITOR AND EVALUATE** for the following conditions:
    - PZR level lowering rapidly, indicating inventory loss. \_\_\_\_\_
    - Containment Spray Pump discharge pressure greater than 200 PSIG, indicating unacceptable leakage. \_\_\_\_\_
  - d. **IF** there is indication of inventory loss **OR** unacceptable leakage, **THEN PERFORM** the following:
    - (1) **SHUT** SDC HDR RETURN ISOL, 1-SI-652-MOV. \_\_\_\_\_
    - (2) **SHUT** SDC HDR RETURN ISOL, 1-SI-651-MOV. \_\_\_\_\_
    - (3) **DETERMINE** the source of leakage. \_\_\_\_\_
    - (4) **IF** required for RCS Temperature Control **OR** for compliance with TS 3.4.6.C, **THEN RESTART** RCPs **PER** OI-1A, **REACTOR COOLANT SYSTEM AND PUMP OPERATIONS**. \_\_\_\_\_
  - e. **IF** PZR level **AND** Containment Spray Pump discharge pressure indications are normal, **THEN FULLY OPEN** SDC HDR RETURN ISOL, 1-SI-652-MOV. \_\_\_\_\_

**NOTE**

SDC FLOW CONTR, 1-FIC-306 is a reverse acting controller.

30. **PLACE** the keyswitch for SDC Flow Control Valve, 1-SI-306-CV in **AUTO AND** SDC FLOW CONTR, 1-FIC-306 in **MANUAL** with 95% signal output. \_\_\_\_\_
31. **PLACE BOTH** LPSI Pump RAS Override Keyswitches in **OVERRIDE**. \_\_\_\_\_

d/(b for sec-U)

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-21A-2**

**SYSTEM:** 4160 VAC Distribution System

**TASK:** 020520206 Transfer 4KV Bus Loads from a Diesel Generator to Offsite  
Power Source K/A 064A4.06

**PURPOSE:** Evaluates an Operator's Ability to Return a Vital 4 KV Bus Being Supplied by a Diesel to Normal Operation

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-21A-2**

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

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

APPLICABILITY:

RO and SRO

PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the 4160 VAC 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-21A

TASK STANDARDS:

This JPM is complete when bus feeder breaker 152-2101 has been paralleled with 2A Diesel Generator on 4 KV bus 21.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-21A-2**

ELEMENT

STANDARD

(\* = CRITICAL STEP)

---

1. Simulator Setup
  - a. IC-13, U1, 100% or other, as required. **(For 2004 ILO exam, use IC-30, setup is complete)**
  - b. Start 2A DG and transfer 21 4KV bus to 2A DG, open 21 4KV bus normal feeder breaker

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-21A-2**

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

Time Start \_\_\_\_\_

<b>CUE:</b>	The General Precautions and Initial Conditions have been met. Begin at step 6.7.B.1.
-------------	--

_____	Identify and locate OI-21A, Step 6.7.B.1.	Same as element.
-------	---	------------------

<b>CUE:</b>	A second operator is <b>NOT</b> available to perform the transfer.
-------------	--

* _____	<b>1. MOMENTARILY PLACE 2A DG UNIT PARALLEL, 2-CS-2104, to PARA.</b>	Places 2-CS-2104 to PARA.
* _____	<b>2. ADJUST 2A frequency to approximately 60 Hz using 2A DG SPEED, 2-CS-2103.</b>	Adjusts 2A speed to maintain approximately 60 Hz.
* _____	<b>3. INSERT the Sync Stick for the 21 4KV Normal <u>OR</u> Alternate breaker handswitch.</b>	Inserts sync stick for the 21 4 KV bus Normal feeder, 2-CS-2101
_____	<b>4. CHECK the Synchroscope <u>AND</u> Sync Lights are operating</b>	Same as element

<b>NOTE:</b>	OFFSITE power voltage will be on the INCOMING voltmeter.
--------------	--

* _____	<b>5. ADJUST RUNNING VOLTS equal to INCOMING VOLTS using 2A DG AUTO VOLT CONTR, 2-CS-2102</b>	Matches INCOMING and RUNNING voltages.
---------	---	--



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-21A-2**

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

<b>NOTE:</b>	The Synchroscope works in the opposite direction when the 2A DG is the RUNNING power source.
--------------	--

<p>* <u>6.</u>     <b>ADJUST</b> 2A DG frequency so the Synchroscope is rotating <b>slowly</b> in the <b>FAST</b> (clockwise) direction using 2A SPEED CONTR, 2-CS-2103</p>	<p>Adjusts 2A DG speed such that synchroscope is rotating slowly in the clockwise direction</p>
---	---

**CAUTION:** To avoid improper paralleling, do **NOT** start **OR** stop any large loads on the 21 4KV Bus.

<p>* <u>7.</u>     <b>WHEN</b> the Synchroscope pointer is approximately 5 degrees prior to the 12 o'clock position, <b>THEN CLOSE</b> the 21 4KV Bus Normal <b><u>OR</u></b> Alternate Feeder Breaker.</p>	<p>Closes the Normal Feeder Breaker, with 2-CS-152-2101 when the synchroscope is approximately 5 degrees prior to the 12' clock position.</p>
---	---

<p><u>8.</u>     <b>REMOVE</b> the Sync Stick <b><u>AND</u></b> <b>RETURN</b> to home base.</p>	<p>Same as element</p>
---	------------------------

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

<b>TERMINATING CUE:</b>	This JPM is complete when offsite power is restored to 21 4KV bus with 2A DG paralleled at approximately 2 MW and 4.0 KV. No further actions are required.
-------------------------	--



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

**TASK:** 020520206

**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. 2A Diesel Generator is supplying power to 4 KV bus 21.
  - b. Offsite power is available, 4 KV bus 21 feeder breakers 152-2115 and 152-2101 are open.
  - c. You are performing the duties of the Unit 2 CRO.
3. Initiating Cue: The CRS directs you to parallel bus feeder breaker 152-2101 with the Diesel Generator per OI-21A in preparation to shut down the diesel. Are there any questions? You may begin

**6.7 TRANSFER 21 4KV BUS LOADS FROM 2A DG TO OFFSITE POWER SOURCE  
[B0614]****A. Initial Conditions**

1. 2A DG is powering 21 4KV Bus equipment.
2. The 21 4KV Bus Normal **AND** Alternate feeder breakers are OPEN.
3. SIAS **AND** 21 4KV Bus U/V signals are RESET.
4. One of the offsite power supplies is available to the Normal or Alternate feeder breaker.
5. DC control power is available to the selected Normal **OR** Alternate feeder breaker as observed by a handswitch position indicating light being lit.
6. All 2A DG Non-Essential Trips, (Jacket Cooling Water High Temperature, Jacket Cooling Water Low Pressure and Crankcase High Pressure), are reset.

**B. Procedure****NOTE**

Two Operators may be utilized to perform the transfer. One to operate 2A DG on 1C20A **AND** one to synchronize to 21 4KV Bus.

1. **MOMENTARILY PLACE** 2A DG UNIT PARALLEL, 2-CS-2104, to PARA.
2. **ADJUST** 2A DG frequency to approximately 60 Hz using 2A DG SPEED, 2-CS-2103.
3. **INSERT** the Sync Stick for the 21 4KV Bus Normal **OR** Alternate Feeder breaker handswitch:

HANDSWITCH
21 4KV BUS NORMAL FDR, 2-CS-152-2101
<b>OR</b>
21 4KV BUS ALT FDR, 2-CS-152-2115

4. **CHECK** the Synchroscope **AND** Sync Lights are operating.

**NOTE**

Offsite power voltage indication will be on the INCOMING voltmeter.

5. **ADJUST RUNNING VOLTS** equal to INCOMING VOLTS using 2A DG AUTO VOLT CONTR, 2-CS-2102.

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

The Synchroscope works in the opposite direction when 2A DG is the RUNNING power source.

6. **ADJUST** 2A DG frequency so the Synchroscope pointer is rotating slowly in the FAST (clockwise) direction using 2A DG SPEED CONTR, 2-CS-2103.

**CAUTION**

To avoid improper paralleling, do **NOT** start **OR** stop any large loads on 21 4KV Bus.

7. **WHEN** the Synchroscope pointer is approximately 5 degrees prior to the 12 o'clock position,  
**THEN CLOSE** the 21 4KV Bus Normal **OR** Alternate Feeder breaker:

## HANDSWITCH

21 4KV BUS NORMAL FDR, 2-CS-152-2101  
**OR**  
21 4KV BUS ALT FDR, 2-CS-152-2115

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

**NOTE**

2A DG should **NOT** be operated with LEAD KVARs under normal conditions.  
2A DG Output Breaker will automatically trip open at approximately 1000 LEADING KVARs.

9. **MONITOR** 21 4KV Bus voltage between 4.1KV and 4.35KV. [B0120]
10. **IF** continued operation of 2A DG in parallel with 21 4KV Bus is desired,  
**THEN GO TO** Section 6.6, PARALLEL 2A DIESEL GENERATOR, Step B.13.
11. **IF** 2A DG is to be stopped,  
**THEN GO TO** Section 6.8, 2A DG SHUTDOWN.

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



**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-1B-1F**

**SYSTEM:** CEDM System

**TASK:** 202.008 Respond to CEA(s) Misaligned by 15" or more K/A 003A1.02

**PURPOSE:** Evaluates an Operator's Ability to Respond 2 dropped CEAs

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-1B-1F**

**ELEMENT** **STANDARD**  
 (\* = CRITICAL STEP) \_\_\_\_\_

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

APPLICABILITY:

RO and SRO

PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the CEDM system.

EVALUATION LOCATION:

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

EVALUATION METHOD:

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

ESTIMATED TIME  
TO COMPLETE JPM:

15 MINUTES

ACTUAL TIME  
TO COMPLETE JPM:

\_\_\_\_\_ MINUTES

TIME CRITICAL TASK:

NO

TASK LEVEL:

RE-TRAIN

TOOLS AND EQUIPMENT:

None

REFERENCE PROCEDURE(S):

AOP-1B

TASK STANDARDS:

This JPM is complete when the attempt to trip the reactor is made and the ATWS is recognized.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-1B-1F**

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

---

1. Simulator Setup
  - a. Initialize the simulator at 100% power with all CEA's at ARO. (IC-13) (For 2004 ILO exam, use IC-31, set up is complete)
  - b. Insert Malfunction RPS006 (Manual Reactor Trip Failure) [**This prevents a trip so that other JPMs may be performed simultaneously**]
  - c. Insert CEA #01 to 110"to 120" withdrawn. Place CEDS control panel in OFF, and the Group 5 Inhibit Bypass to OFF.
  - d. Allow plant to stabilize.
  - e. Set up using RF's such that CEA's 01 and 34 will be fully inserted when CEA 01 is withdrawn to 130". Set CEA#1 at 130" or greater as Trigger 1. Tie CEDS malfunction for up to 2 CEAs dropped (1 and 34) to that T1.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-1B-1F**

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

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

Locates AOP-1B Section VI.B  
actions

Same as element.

**VI.B. ATTEMPT CEA REALIGNMENT**

\_\_\_\_\_ 1. **IF** the CEA alignment time has expired,  
**THEN PROCEED** to Step B.3,  
Page 24.

Determines step is N/A

**CUE:** There is 45 minutes remaining for the CEA alignment time.

**CAUTION:** CEA movement should be minimized until the cause of the misalignment has been determined.

**CUE:** The electric shop discovered and replaced a faulty power supply during the troubleshooting. The CRS directs you to continue the procedure.

\_\_\_\_\_ 2. Attempt to realign the affected  
CEA(s):

\_\_\_\_\_ a. Maintain Reactor Power as  
required by :

- Boration PER OI-2B,  
CVCS BORATION,  
DILUTION AND  
MAKEUP  
OPERATIONS.

**OR**

- Adjust Regulating  
CEAs.

**CUE:** The CRS has directed the CRO to maintain power level no higher than the present level via boration.

\*\_\_\_\_\_ b. Select the desired group. Selects group 5.

\*\_\_\_\_\_ c. Select the desired CEA. Selects CEA 01.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-1B-1F**

ELEMENT (* = CRITICAL STEP)	STANDARD
* _____ d. Selects Manual Individual Mode.	Same as element
* _____ e. IF CMI is in effect, THEN override CMI as follows:	Determines CMI is in effect.
<b>NOTE:</b> CMI will be bypassed to the affected group and applied to all other groups, and CMI bypass annunciation will alarm.	
* _____ (1) Depress the Group Inhibit Bypass pushbutton.	Same as element. Acknowledges alarm.
* _____ (2) Depress and hold the Motion Inhibit Bypass pushbutton for at least 5 seconds before AND 5 seconds after CEA motion.	Same as element.
<b>CAUTION:</b> Do NOT allow Reactor Power to rise above the power the unit was stabilized at in Section IV. <b>PRELIMINARY</b> , Step A.2, while the CEA is being realigned. Turbine load shall NOT be raised until the CEA is within its alignment requirements.	
* _____ f. Realign the CEA:	
(1) IF the CEA must be withdrawn, THEN withdraw the CEA using the "Pull and Wait" method:	
• For shutdown CEA's, pull 3.75 inches and wait 10 seconds	
<b><u>NOTE TO EVALUATOR</u></b>	<b>When the CEA 01 has been restored to 130", CEAs 01 and 34 will drop into the core, requiring the Reactor be tripped per AOP-1B Section V, UNTRIPPABLE CEAs OR TWO OR MORE CEAs MISALIGNED BY GREATER THAN 15", Step A.1.</b>

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-1B-1F**

ELEMENT (* = CRITICAL STEP)	STANDARD
* _____ • For regulating CEAs, pull 5.25 inches and wait 15 seconds.	Same as element using the CEA shim stick on 1C05. <b>(Pull no more than 6.75" on CEA #01 each time CEA is withdrawn).</b>
(2) IF the CEA must be inserted, THEN insert the CEA.	Determines step is N/A

**BOOTH OPERATOR CUE (IF USED):** When CEA 01 is 130" or greater when cued by the Evaluator, Activate F1 (CEA 01 & 34 drop).

**NOTE TO EVALUATOR:** *The reactor will not trip when the Reactor trip PB's are depressed so to not affect other JPM setups. Once the trainee takes this action, the JPM is complete with no further actions required and you should tell the trainee that this JPM is complete.*

**1C05 alarms DROPPED CEA PI, PRIMARY PPDIL, PRIMARY PDIL, SECONDARY PPDIL, SECONDARY PDIL, and the CEA deviation alarms annunciate**

Candidate secures attempts to withdraw CEA. Observes alarms. Reviews the 1C05 indications and determines that two CEAs have fallen into the core, using CEAPDS and the CEA mimic display.

Locates AOP-1B Section V actions.

This portion of the JPM should be performed from memory.

**V.A. PLANT SHUTDOWN**

- \_\_\_\_\_ 1. IF two or more CEAs are misaligned from the other CEAs in their respective group by greater than 15 inches, THEN perform the following actions:

**CUE:** If the trainee recommends tripping the reactor to the CRS, **Acknowledge and Direct** the RO to trip the reactor and implement EOP-0.

* _____ a. Trip the Reactor.	Depress the two manual reactor trip buttons on 1C05.
* _____ b. <b>IMPLEMENT EOP-0, POST TRIP IMMEDIATE ACTIONS.</b>	Examinee recognizes that the reactor failed to trip and communicates the ATWS to the

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE AOP-1B-1F**

**ELEMENT  
(\* = CRITICAL STEP)**

**STANDARD**

CRS or examiner

<b>TERMINATING CUE:</b>	This JPM is complete when the examinee informs the CRS or examiner that the reactor failed to trip. No further actions are required.
-------------------------	--

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

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE AOP-1B-1F**

**TASK:** 202.008(020600306) Respond to Regulating CEA misaligned by 15" or more

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:**

---

---

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**

TASK: 202.008(020600306)

**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. STP O-29-1, MONTHLY CEA PARTIAL MOVEMENT TEST, was in progress.
  - c. When CEA 01 was being exercised, it became misaligned from its group.
  - d. AOP-1B has been implemented and all stabilizing actions have been performed.
  - e. You are performing the duties of the Unit 1 RO.
3. Initiating Cue: The CRS directs you to realign the CEA per AOP-1B step VI.B. Are there any questions? You may begin.

## VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES

### ACTIONS

### ALTERNATE ACTIONS

C. (continued)

2. Maintain Thermal Power and ASI within the limits of the following:

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

**OR**

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

3. **IF** greater than 50% rated Thermal Power, **THEN** perform the following actions to monitor  $T_q$  within 12 hours of the last recorded  $T_q$ :

- a. Notify the Reactor Engineering Work Group and the GS-NPO  $T_q$  is to be monitored using the Excure System.
- b. **IF ALL** four Linear Power Channels are operable, **THEN** perform the following:
  - Record the readings on ATTACHMENT (1),  $T_q$  CALCULATION USING EXCURE DETECTORS
  - Calculate an upper and a lower  $T_q$  using the method in ATTACHMENT (1),  $T_q$  CALCULATION USING EXCURE DETECTORS  
**OR,**  
Using "Operations Calculation Program" on the Control Room PC.

(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**  $T_q$  can **NOT** be monitored within 12 hours of the last recorded  $T_q$ , **THEN** borate to reduce Thermal Power to less than 50% **PER OP-3, NORMAL POWER OPERATION.**

b.1 **IF** only 3 Linear Power Channels are available **AND** Reactor Power is less than 75%, **THEN** calculate  $T_q$  using three Excure detectors as follows:

- Record the readings on ATTACHMENT (1),  $T_q$  CALCULATION USING EXCURE DETECTORS
- Calculate an upper and a lower  $T_q$  using the method in ATTACHMENT (1),  $T_q$  CALCULATION USING EXCURE DETECTORS

(continue)

**VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES**

**ACTIONS**

**ALTERNATE ACTIONS**

B.3 (continued)

c. Continue attempts to realign the CEA:

- For shutdown CEAs, within 2 hours from time of misalignment
- For **ALL** CEAs, within 2 hours from when CEA realignment time expired

4. Determine the applicable Technical Specifications which may include the following:

- 3.1.4 CEA Alignment
- 3.1.5 Shutdown CEA Insertion Limits
- 3.1.6 Regulating CEA Insertion Limits
- 3.4.1 RCS Pressure, Temperature, and Flow DNB Limits

5. **IF** the CEA was realigned, **THEN IMPLEMENT** the appropriate Operating Procedure.

2900

**C. DECLARE BASSS INOPERABLE.**

1. Declare BASSS inoperable and document in the CRO log.

(continue)



## VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES

### ACTIONS

### ALTERNATE ACTIONS

B.2 (continued)

- g. **REMOVE** CMI override.
- h. **IF** necessary, update CEA status **PER** OI-50A, PLANT COMPUTER.

#### NOTE

TS 3.1.5, requires the unit be placed in Mode 3 within 6 hours if a Shutdown CEA is **NOT** restored to within limits within 2 hours.

#### NOTE

TS 3.1.4 requires the unit be placed in Mode 3 within 6 hours if CEA alignment time has expired and **EITHER** of the following conditions exist:

- Power is **NOT** reduced to less than or equal to 70% RTP within 1 hour of CEA realignment time expiration
  - The CEA is **NOT** realigned within 2 hours of CEA realignment time expiration
3. **IF** CEA realignment time has expired and the CEA was **NOT** realigned, **THEN** perform the following steps:

#### NOTE

Section VI., ONE CEA MISALIGNED BY GREATER THAN 15 INCHES, Step B.2 can be repeatedly attempted concurrent with the following steps.

- a. **IF** power is greater than 70%, **THEN** reduce power by boration **PER** OP-3, Normal Power Operation to less than or equal to 70% RTP within 1 hour from when CEA realignment time expired.
- b. Notify Reactor Engineering, the GS-NPO and Electrical Maintenance, one CEA is misaligned by greater than 15 inches.

(continue)

## VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES

### ACTIONS

### ALTERNATE ACTIONS

B.2 (continued)

- e. IF CMI is in effect,  
THEN override CMI as follows:

#### **NOTE**

CMI will be bypassed to the affected group and applied to all other groups, and CMI Bypass annunciation will alarm.

- (1) Depress the Group Inhibit Bypass pushbutton.
- (2) Depress and hold the Motion Inhibit Bypass pushbutton for at least 5 seconds before **AND** 5 seconds after CEA motion.

#### **CAUTION**

Do NOT allow Reactor Power to rise above the power the unit was stabilized at in Section IV., PRELIMINARY, Step A.2, while the CEA is being realigned. Turbine load shall NOT be raised until the CEA is within its alignment requirements.

f. Realign the CEA:

- (1) IF the CEA must be withdrawn, THEN withdraw the CEA using the "Pull and Wait" method:
  - For shutdown CEAs, pull 3.75 inches and wait 10 seconds
  - For regulating CEAs, pull 5.25 inches and wait 15 seconds
- (2) IF the CEA must be inserted, THEN insert the CEA

(continue)

f.1 IF the CEA will NOT move, THEN determine if the CEA is untrippable with input from:

- Electrical Maintenance
- System Engineer

f.2 IF the CEA is untrippable, THEN PROCEED to Section V., UNTRIPPABLE CEAs OR TWO OR MORE CEAs MISALIGNED BY GREATER THAN 15 INCHES, Page 18.

f.3 IF the CEA will NOT move due to an electrical or control system malfunction, THEN initiate an IR AND notify electrical maintenance to perform repairs.

## VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES

### ACTIONS

### ALTERNATE ACTIONS

#### A. DETERMINE THE TIME THE CEA IS PERMITTED TO BE MISALIGNED

##### **NOTE**

Block steps A and B may be performed concurrently.

1. **IF** the time the misalignment occurred can **NOT** be determined, **THEN PROCEED** to Step D.1, Page 31.

2. Determine CEA realignment time.

- a. Record the "CEA Alignment Time" from the Plant Computer CECOR/BASSS Values display:

CEA Alignment Time:  
\_\_\_\_\_minutes

- a.1 **IF** the latest premisaligned FrT is less than 5 days old, **THEN** determine CEA realignment time by referring to the COLR Figure as follows:

- For Unit 1, **REFER** to Unit 1 COLR Figure 3.1.4

**OR**

- For Unit 2, **REFER** to Unit 2 COLR Figure 3.1.4

CEA Alignment Time:  
\_\_\_\_\_minutes

- a.2 **IF** the latest prealignment FrT is older than 5 days, **THEN PROCEED** to Step B.3, Page 24.

## VI. ONE CEA MISALIGNED BY GREATER THAN 15 INCHES

### ACTIONS

### ALTERNATE ACTIONS

#### B. ATTEMPT CEA REALIGNMENT

1. IF the CEA alignment time has expired,  
**THEN PROCEED** to Step B.3, Page 24.

#### CAUTION

**CEA movement should be minimized until the cause of the misalignment has been determined.**

2. Attempt to realign the affected CEA(s):
  - a. Maintain Reactor Power as required by:
    - Boration **PER OI-2B, CVCS BORATION, DILUTION AND MAKEUP OPERATIONS.**
  - OR**
  - Adjust Regulating CEAs.
  - b. Select the desired group.
  - c. Select the desired CEA.
  - d. Select Manual Individual Mode.

(continue)

f

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE CSAS (2004)**

**SYSTEM:** Containment

**TASK:** Verify CSAS actuation K/A 026A4.01

**PURPOSE:** Evaluates an Operator's Ability to Perform the Alternate Actions Associated With the Containment Environment Safety Function

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





**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE CSAS (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
_____ Implements EOP-0, Section IV. Step F.	Identifies and locates EOP-0, Step F or uses the plaque on 1C09.
<b>F. VERIFY THE CONTAINMENT ENVIRONMENT SAFETY FUNCTION IS SATISFIED.</b>	
_____ 1. Check containment pressure is less than 0.7 PSIG.	Checks containment pressure indication on 1C09 and determines that containment pressure is greater than 0.7 PSIG.
_____ 1.1 <b>IF</b> containment pressure exceeds 0.7 PSIG, <b>THEN</b> perform the following:	
_____ a. Verify <b>ALL</b> available CNTMT AIR CLR's are operating.	Checks all four containment air coolers on 1C09/10, starts cooler that was not running in fast speed if necessary.
_____ b. Open the CNTMT CLR EMER OUT valves for the operating CNTMT AIR CLR's.	Checks valve indication 1C10 and places 1-SRW-1582-CV 1-SRW-1585-CV 1-SRW-1590-CV 1-SRW-1593-CV in open.
_____ 1.2 <b>IF</b> containment pressure exceeds 2.8 PSIG, <b>THEN</b> verify ESFAS actuation of the following:	Monitors containment pressure indication on 1C09 and recognizes containment pressure is rising towards setpoint.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE CSAS (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
* _____ • SIAS	Verifies ACTUATION SYS SIAS TRIP alarm in, 11 and 13 HPSI Pps running and Main and Aux HPSI header valves are opening. Reports SIAS verified to CRS
* _____ • CIS	Verifies ACUTUATION SYS CIS TRIP alarm in and Component Cooling Containment Supply and Return valves shut. Reports CIS verified to CRS.
<b>CUE: "The CRS has directed the RO to trip all Reactor Coolant Pumps."</b>	
_____ 1.3 IF CIS has actuated, THEN trip ALL RCPs.	Communicates requirement to secure RCPs.
* _____ 1.4 IF containment pressure exceeds 4.25 PSIG, THEN verify CSAS actuation.	Monitors Containment Pressure, recognizes CSAS does not automatically initiate.
_____ Depresses CSAS ACT CH-A	Verifies ACTUATION SYS CSAS alarm in, Spray flow is indicated and Condensate Booster Pumps secured.
_____ Depresses CSAS ACT CH-B	
	Checks Spray flow, recognizes CSAS B failed to initiate and reports to CRS.
<b>CUE: After report that CSAS failed to initiate, Direct examinee to manually initiate spray flow from 12 Containment Spray Pump</b>	
_____ Opens 1-SI-4151-CV	Places 1-HS-4151 to OPEN, verifies position and checks spray flow increasing.
_____ 2. Check containment temperature is less than 120°F.	Checks containment temperature indication on 1C09 and determines that temperature is greater than 120°F.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE CSAS (2004)**

**ELEMENT****STANDARD**

(\* = CRITICAL STEP)

**Note to Evaluator:** Actions in step F.2.1 may not be performed because these actions were taken earlier in the JPM.

The report of taking Alternate Actions can be made at the discretion of the operator but should be reported as soon as practical.

- |       |     |   |  |
|-------|-----|---|--|
| _____ | 2.1 | <b>IF</b> containment temperature exceeds 120°F, <b>THEN</b> perform the following:   |  |
| _____ | a.  | Verify <b>ALL</b> available CNTMT AIR CLR's are operating.                            | Checks all four containment air coolers on 1C09/10 to determine that all available coolers are operating (should have been started on Step 1.1). |
| _____ | b.  | Open the CNTMT CLR EMER OUT valves for the operating CNTMT AIR CLR's.                 | Checks valve indication 1C10 and places the valves in open (should have been performed in Step 1.1).   |
| _____ | 3.  | Check containment radiation monitor alarms are clear with <b>NO</b> unexplained rise. | Verifies alarm on 1C10. May state that the alarm is in due to adverse containment environment.   |
| _____ |     | Report the status of the Containment Environment Safety Function to the CRS.          | Reports to the CRS that the Containment Environment Safety Function cannot be met, alternate actions are complete                                |

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

**TERMINATING CUE:** The JPM is complete when the CRS is informed that Containment Environment cannot be met and all alternate actions have been performed. No further actions are required.



**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 transient resulting in a Reactor trip has occurred on Unit-1, EOP-0 has been entered.
  - b. You are performing the duties of an extra CRO.
3. Initiating Cue: The CRS directs you to verify that the Containment Environment Safety Function is satisfied. Are there any questions? You may begin.

## IV. ACTIONS

### IMMEDIATE ACTIONS

### ALTERNATE ACTIONS

E. (continued)

2. Verify at least ONE S/G is available for controlled heat removal:

- S/G level between (-)170 and (+)30 inches
- Main or Auxiliary Feedwater operating in Auto or Manual control to maintain level
- T<sub>COLD</sub> greater than 525° F

3. Check at least ONE RCP is operating in a loop with a S/G available for heat removal.

4. IF ANY RCPs are operating, THEN check T<sub>HOT</sub> minus T<sub>COLD</sub> is less than 10° F in the loop(s) with a S/G available for heat removal.

2.1 IF S/G WR level drops to (-)170 inches, THEN verify AFAS actuation.

2.2 IF Feedwater flow is lost OR excessive, THEN perform the following actions:

#### CAUTION

**13 AFW PP flow limit is 575 GPM.**

- Start an AFW PP.
- Trip the SGFPs.
- Shut the SG FW ISOL valves.
- Operate the AFW System to restore S/G levels to between (-)170 and (+)30 inches.

3.1 IF NO RCPs are operating in a loop with a S/G available for heat removal, THEN trip ALL RCPs.

4.1 IF T<sub>HOT</sub> minus T<sub>COLD</sub> is greater than 10° F in the loop(s) with a S/G available for heat removal, THEN trip ALL RCPs.

F. VERIFY THE CONTAINMENT ENVIRONMENT SAFETY FUNCTION IS SATISFIED.

1. Check containment pressure is less than 0.7 PSIG.

(continue)

1.1 IF containment pressure exceeds 0.7 PSIG, THEN perform the following:

- a. Verify ALL available CNTMT AIR CLR's are operating.

(continue)

0800

## IV. ACTIONS

### IMMEDIATE ACTIONS

### ALTERNATE ACTIONS

F.1 (continued)

2. Check containment temperature is less than 120° F.

3. Check containment radiation monitor alarms are clear with **NO** unexplained rise.

F.1.1 (continued)

b. Open the CNTMT CLR EMER OUT valves for the operating CNTMT AIR CLRs.

1.2 **IF** containment pressure exceeds 2.8 PSIG,  
**THEN** verify ESFAS actuation of the following:

- SIAS
- CIS

1.3 **IF** CIS has actuated,  
**THEN** trip ALL RCPs.

1.4 **IF** containment pressure exceeds 4.25 PSIG,  
**THEN** verify CSAS actuation.

2.1 **IF** containment temperature exceeds 120° F,  
**THEN** perform the following:

- a. Verify **ALL** available CNTMT AIR CLRs are operating.
- b. Open the CNTMT CLR EMER OUT valves for the operating CNTMT AIR CLRs.

#### **NOTE**

IODINE FILT 13 DISCs should be shifted, as required, to start at least **TWO** IODINE FILT FANs.

3.1 **IF ANY** valid containment radiation monitor alarm is received,  
**THEN** start **ALL** available IODINE FILT FANs.

**JOB PERFORMANCE MEASURE STP-O-33-1**

Page 1

9

**TASK: 079.010 Test Cntmt Particulate and Gaseous rad monitors K/A 073A4.03**

**Purpose: Evaluates an Operator's Ability to test process radiation monitors IAW an STP**

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

## JOB PERFORMANCE MEASURE STP-O-33-1

TASK: 079.010 Test Contmt Particulate and Gaseous rad monitors

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

## APPLICABILITY:

RO and SRO

## PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the CEDM system.

## EVALUATION LOCATION:

 PLANT  SIMULATOR  CONTROL ROOM

## EVALUATION METHOD:

 ACTUAL PERFORMANCE  DEMONSTRATE PERFORMANCEESTIMATED TIME  
TO COMPLETE JPM:

15 MINUTES

ACTUAL TIME  
TO COMPLETE JPM: MINUTES

TIME CRITICAL TASK:

NO

## TASK LEVEL:

RE-TRAIN

## TOOLS AND EQUIPMENT:

Stop

## REFERENCE PROCEDURE(S):

STP-O-33-1

## TASK STANDARDS:

This JPM is complete when the Containment Atmosphere Particulate Monitor, 1-RI-5280 has been successfully tested and then returned to service per STP-O-33-1.



**TASK: 079.010 Test Cntmt Particulate and Gaseous rad monitors**

1. Simulator setup:
  - a. Any IC (For 2004 ILO exam, use IC-30)
  - b. Verify recorder 1-RR-is ON.

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-33-1**

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

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

_____ Locates STP-O-33-1 section 6.1	Same as element
--------------------------------------	-----------------

TEST OF CONTAINMENT ATMOSPHERE PARTICULATE RADIATION MONITOR 1-RI-5280

_____ Date ____ Time ____ Mode ____	Accurately records date, time and mode
-------------------------------------	--

\* \_\_\_\_\_ A. **RECORD** the CONTAINMENT PARTICULATE MONITOR. 1-RI-5280, reading and Recorder 1-RR-11, point 18 reading:

Records 1-RI-5280 approximately 600 CPM  
1-RR-11 PT. 18 approximately 645 CPM

1-RI-5280 \_\_\_\_\_ CPM

1-RR-11, PT.18 \_\_\_\_\_ CPM

**NOTE**

The **ONLY** time the following step may be N/A is if, after placing the Selector Switch to CHECK SOURCE, the background reading is too high to determine if 1-RI-5280 meter deflects upscale.

\* \_\_\_\_\_ B. **PLACE AND HOLD** 1-RR-5280 Operation Selector Switch in the CHECK SOURCE position **AND** CHECK the meter deflects upscale.

Verifies meter deflection(~50K CPM) when Operation Selector Switch is placed in CHECK SOURCE.

\_\_\_\_\_ C. IF step 6.1.B was N/A'd, **THEN:**

Determines this step is N/A

.....

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE STP-O-33-1**

**ELEMENT**  
 (\* = CRITICAL STEP)

**STANDARD**

**NOTE**

The Selector Switch must remain in the PULSE CAL position for up to 2 min. in order to obtain a new steady state recorder trend value consistent with meter reading.

\* \_\_\_\_\_ D. **PLACE 1-RR-5280 Operation Selector Switch to PULSE CAL AND CHECK** the following:

Places 1-RI-5280 Selector Switch in PULSE CAL and verifies all actions occur.

Approximately 90,000 CPM

- \_\_\_\_\_ 1. 1-RI-5280 meter deflects upscale
- \_\_\_\_\_ 2. 1C17 "RAD MON PANEL 1C22" annunciator alarms
- \_\_\_\_\_ 3. Red HIGH ALARM light on 1-RI-5280 front panel illuminates
- \_\_\_\_\_ 4. Recorder 1-RR-11, point 18 reads consistent with meter indication.

Approximately 97,500 CPM

\* \_\_\_\_\_ E. **PLACE 1-RI-5280 Operation Selector Switch to RESET AND CHECK** the following:

Positions Selector Switch to RESET, verifies red light out and annunciator on 1C17 clears.

- Red HIGH ALARM light on 1-RI-5280 front panel extinguishes
- 1C17 "RAD MON PANEL 1C22" annunciator clears

\* \_\_\_\_\_ F. **PLACE 1-RI-5280 Operation Selector Switch to OPERATE AND**

Positions Selector Switch to OPERATE and verifies

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE STP-O-33-1**

**ELEMENT**

(\* = CRITICAL STEP)

**STANDARD**

**CHECK** the following:

- 1-RI-5280 meter returns to pretest level recorded in step 6.1.A OR 6.1.C.2 if the filter was replaced.
- Recorder 1-RR-11, point 18, returns to pretest level recorded in step 6.1.A OR 6.1.C.2 if the filter was replaced.

instrumentation returns to values recorded in step 6.1.C

**TERMINATING CUE:** This JPM is complete when the OPERATE SELECTOR SWITCH is returned to OPERATE and RMS values return to normal. No other actions are required.

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

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE STP-O-33-1**

**TASK:** 079.010 Test Cntmt Particulate and Gaseous rad monitors

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:**

---

---

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. STP-O-33-1 is to be performed as PMT.
  - b. You are performing the duties of the Unit 1 CRO.
3. Initiating Cue: The CRS directs you to perform STP-O-33-1 section 6.1. Are there any questions? You may begin.

**CALVERT CLIFFS NUCLEAR POWER PLANT  
SURVEILLANCE TEST PROCEDURE  
UNIT ONE**

**STP O-33-1**

**CONTAINMENT ATMOSPHERE RMS MONTHLY TEST**

**REVISION 5**

**SAFETY RELATED**

CONTINUOUS USE

Approval Authority: \_\_\_\_\_



8-16-99

Signature/Date

Effective Date: \_\_\_\_\_

8/19/99

SURVEILLANCE TEST PROCEDURES ADDITIONAL COVER SHEET INFORMATION

A. Test Performance

Permission to perform test:

M. J. Wason  
Shift Manager

Today  
Date

B. Test completion, results review and approval (Circle appropriate answer)

Accept. Criteria in spec?	YES NO N/A	Adjustments made?	YES NO N/A
As found results in spec?	YES NO N/A	IR submitted?	YES NO N/A
As left results in spec?	YES NO N/A	Malfunctions indicated?	YES NO N/A

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Test completed by: \_\_\_\_\_ / \_\_\_\_\_  
Date

Analysis of results: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Shift Manager review: \_\_\_\_\_ / \_\_\_\_\_  
Date

Analysis/Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Functional Surveillance  
Test Coordinator: \_\_\_\_\_ Date: \_\_\_\_\_

EQSE (if required): \_\_\_\_\_ Date: \_\_\_\_\_

\* POSRC Meeting No.: \_\_\_\_\_ Date: \_\_\_\_\_

\* Plant General Manager: \_\_\_\_\_ Date: \_\_\_\_\_

\* Required only if completed test on SR and designated NSR structures, systems and components (per Q List) identified a malfunction or were out of specification.

Attach a separate sheet, if necessary, to document additional comments.



TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
1.0 PURPOSE .....	5
2.0 APPLICABILITY/SCOPE .....	5
3.0 REFERENCES .....	6
4.0 PREREQUISITES .....	6
5.0 PRECAUTIONS .....	7
6.0 PERFORMANCE .....	8
6.1 TEST OF CONTAINMENT ATMOSPHERE PARTICULATE RADIATION MONITOR 1-RI-5280 .....	8
6.2 TEST OF CONTAINMENT ATMOSPHERE GASEOUS RADIATION MONITOR 1-RI-5281 .....	11
7.0 POST PERFORMANCE ACTIVITIES .....	14
8.0 BASES .....	14
9.0 RECORDS .....	14

LIST OF EFFECTIVE PAGES

<u>PAGE NUMBERS</u>	<u>REVISION</u>
1-14	05

PROCEDURE ALTERATIONS

<u>REVISION/CHANGE</u>	<u>PAGES</u>
05/00	5-7,10,13,14
05/01	12

**1.0**    **PURPOSE**

- A. This STP performs a functional test of the Containment Atmosphere Radiation Monitors 1-RI-5280 and 1-RI-5281 as required by Technical Specifications.

**2.0**    **APPLICABILITY/SCOPE**

- A. Completion of this STP satisfies, in part, the monthly surveillance requirements of TS 3.4.14.2. | 05/00

- B. This STP applies a test signal to Containment Atmosphere Radiation Monitors 1-RI-5280 and 1-RI-5281 to verify proper equipment response.

- C. Test Performance Requirements:

- 1. This STP shall be performed by individuals qualified on the watch station for the affected equipment.

- 2. The Shift Manager shall determine if a pretest briefing is required and direct the SRO accordingly. | 05/00

- 3. Section 6.1 and 6.2 are independent sections and may be performed separately. Each section of STP shall be followed in the order written, in a step by step manner, unless specifically called out in this STP. Each step shall be initialed immediately after it is completed and prior to performing the next step. Each step shall be initialed by either the licensed operator directing the STP or the operator performing the applicable step, except independent verification which will be signed by the performer.

- 4. A sufficient number of licensed operators shall be used to perform this test in order to preclude the use of artificial means to maintain pushbuttons, switches or contacts depressed, energized or actuated. The use of any such device is strictly forbidden.

For Training use  
only

2.0 APPLICABILITY/SCOPE (Continued)

D. Indicate the reason for performing this STP: (Check one)

- Scheduled Surveillance.
- Post Maintenance Test or Operability Verification. (Enter sections to be performed in Pre-surveillance Remarks)

MO/IR numbers: 1200400021

Pre-surveillance  
Remarks: Section 6.1 only

Determination made by: Mr. Dawson  
(SRO)

E. Performance of section 6.1 of this STP may require the support of the IM Shop.

3.0 REFERENCES

- A. Procedures
  - 1. OI-35, Radiation Monitoring System
  - 2. EN-4-104, Surveillance Testing
- B. Codes and Standards
  - 1. Technical Specifications

05/00  
05/00

4.0 PREREQUISITES

- A. A pretest briefing has been held. (N/A if Shift Manager has determined that a pretest briefing NOT required.)
- B. The monitor(s) to be tested are in operation PER OI-35.
- C. **PERFORM** a pretest page check of this STP.

INITIALS

AWA  
SRO  
WED

05/00

5.0 PRECAUTIONS

- A. WHEN any Containment Atmosphere Radiation Monitor is declared inoperable, THEN Chemistry AND Radiation Safety Supervision need to be notified to initiate the performance of any required compensatory measures. | 05/00
- B. STOP the test, STABILIZE the plant, AND NOTIFY the Shift Manager for any of the following: | 05/00
- Equipment malfunctions
  - Out of tolerance items
  - Conditions outside those allowed by Technical Specifications
  - Unexpected plant responses

6.0 PERFORMANCEINITIALS6.1 TEST OF CONTAINMENT ATMOSPHERE PARTICULATE  
RADIATION MONITOR 1-RI-5280

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Mode: \_\_\_\_\_

- A. RECORD the CONTAINMENT PARTICULATE MONITOR,  
1-RI-5280, reading and Recorder 1-RR-11, point 18 reading:

1-RI-5280 \_\_\_\_\_ CPM

1-RR-11, PT.18 \_\_\_\_\_ CPM

**NOTE**

The **ONLY** time the following step may be marked N/A is if, after placing the Selector Switch to CHECK SOURCE, the background reading is too high to determine if 1-RI-5280 meter deflects upscale.

- B. PLACE AND HOLD 1-RI-5280 Operation Selector Switch in the CHECK SOURCE position AND CHECK the meter deflects upscale.

- C. IF step 6.1.B was N/A'd,  
**THEN:**  
(N/A if meter deflection determined in previous step)

1. DIRECT IM to replace the particulate filter.

2. **WHEN** the filter has been replaced,  
**THEN RECORD** the CONTAINMENT PARTICULATE  
MONITOR, 1-RI-5280, reading and Recorder 1-RR-11,  
point 18 reading:

1-RI-5280 \_\_\_\_\_ CPM

1-RR-11, PT.18 \_\_\_\_\_ CPM

3. PLACE AND HOLD 1-RI-5280 Operation Selector Switch in the CHECK SOURCE position AND CHECK the meter deflects upscale.

6.1 TEST OF CONTAINMENT ATMOSPHERE PARTICULATE  
RADIATION MONITOR 1-RI-5280 (Continued)

INITIALS

**NOTE**  
The Selector Switch must remain in the PULSE CAL position for up to 2 min., in order to obtain a new steady state, recorder trend value consistent with the meter reading.

D. PLACE 1-RI-5280 Operation Selector Switch to PULSE CAL AND CHECK the following:

- 1. 1-RI-5280 meter deflects upscale \_\_\_\_\_
- 2. 1C17 "RAD MON PANEL 1C22" annunciator alarms [B0336] \_\_\_\_\_
- 3. Red HIGH ALARM light on 1-RI-5280 front panel illuminates \_\_\_\_\_
- 4. Recorder 1-RR-11, point 18, reads consistent with meter indication \_\_\_\_\_

E. PLACE 1-RI-5280 Operation Selector Switch to RESET AND CHECK the following:

- Red HIGH ALARM light on 1-RI-5280 front panel extinguishes \_\_\_\_\_
- 1C17 "RAD MON PANEL 1C22" annunciator clears \_\_\_\_\_

F. PLACE 1-RI-5280 Operation Selector Switch to OPERATE AND CHECK the following:

- 1-RI-5280 meter returns to pretest level recorded in step 6.1.A OR 6.1.C.2 if the filter was replaced. \_\_\_\_\_
- Recorder 1-RR-11, point 18, returns to pretest level recorded in step 6.1.A OR 6.1.C.2 if the filter was replaced. \_\_\_\_\_

6.1 TEST OF CONTAINMENT ATMOSPHERE PARTICULATE RADIATION MONITOR 1-RI-5280 (Continued)

INITIALS

G. Acceptance Criteria

**NOTE**

Performance of this section constitutes a supervisory review. Actual observation of equipment response by the SRO performing this review is not required. Answering YES to a step signifies that the referenced step has been completed and signed off by a qualified operator other than the SRO reviewer and that the actual equipment response is acceptable and valid.

1. Did 1-RI-5280 meter deflect upscale in Step 6.1.B. or 6.1.C.3?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

2. Did 1-RI-5280 meter deflect upscale in Step 6.1.D.?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

3. Did 1C17 "RAD MON PANEL 1C22" annunciator alarm in Step 6.1.D.? [B0336]

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

4. Did 1-RI-5280 red HIGH ALARM light illuminate in step 6.1.D.?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

5. This test is considered satisfactory if YES was answered in all steps above.

SAT / UNSAT  
(circle one)

\_\_\_\_\_  
SRO

- a. **IF** unsat, **THEN NOTIFY** the SM, **DECLARE** the affected equipment inoperable **AND TAKE** actions as required by Technical Specifications and administrative actions stated in EN-4-104.

- b. **INITIATE** an Issue Report for all equipment deficiencies.



6.2 TEST OF CONTAINMENT ATMOSPHERE GASEOUS RADIATION  
MONITOR 1-RI-5281INITIALS

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Mode: \_\_\_\_\_

- A. RECORD the CONTAINMENT GASEOUS MONITOR,  
1-RI-5281, reading and Recorder 1-RR-11, point 17 reading:

1-RI-5281 \_\_\_\_\_

1-RR-11, PT.17 \_\_\_\_\_

**NOTE**

The **ONLY** time the following step may be marked N/A is if, after placing the Selector Switch to CHECK SOURCE, the background reading is too high to determine if 1-RI-5281 meter deflects upscale.

- B. PLACE **AND HOLD** 1-RI-5281 Operation Selector Switch to CHECK SOURCE **AND CHECK** the meter deflects upscale. \_\_\_\_\_

- C. **IF** step 6.2.B. was N/A'd,  
**THEN:**  
(N/A if meter deflection determined in previous step)

1. PLACE the Sample Selector Switch on 1-RI-5280 front panel to OPEN PIPE **AND ALLOW** the system to purge until background reading is less than  $3 \times 10^3$  CPM. \_\_\_\_\_
2. PLACE **AND HOLD** 1-RI-5281 Operation Selector Switch to CHECK SOURCE **AND CHECK** the meter deflects upscale. \_\_\_\_\_

**NOTE**

The Selector Switch must remain in the PULSE CAL position for up to 2 min., in order to obtain a new steady state, recorder trend value consistent with the meter reading.

- D. PLACE 1-RI-5281 Operation Selector Switch to PULSE CAL **AND CHECK** the following:

1. 1-RI-5281 meter deflects upscale \_\_\_\_\_
2. 1C17 "RAD MON PANEL 1C22" annunciator alarms [B0336] \_\_\_\_\_
3. Red HIGH ALARM light on 1-RI-5281 front panel illuminates \_\_\_\_\_
4. Recorder 1-RR-11, point 17, reads consistent with meter indication \_\_\_\_\_

6.2 **TEST OF CONTAINMENT ATMOSPHERE GASEOUS RADIATION MONITOR 1-RI-5281 (Continued)**

**INITIALS**

E. **PLACE** 1-RI-5281 Operation Selector Switch to **RESET** **AND** **CHECK** the following:

- Red HIGH ALARM light on 1-RI-5281 front panel extinguishes
- 1C17 "RAD MON PANEL 1C22" annunciator clears

\_\_\_\_\_  
\_\_\_\_\_

F. **IF** sample source was changed due to high background, **THEN PLACE** the Sample Selector Switch on 1-RI-5280 front panel to **CONTAIN**. (N/A if not changed)

05/01

\_\_\_\_\_

G. **PLACE** 1-RI-5281 Operation Selector Switch to **OPERATE** **AND** **CHECK** the following:

- 1-RI-5281 meter returns to pretest level recorded in step 6.2.A.
- Recorder 1-RR-11, point 17, returns to pretest level recorded in step 6.2.A

\_\_\_\_\_  
\_\_\_\_\_

H. Independently **VERIFY** Sample Selector Switch in the **CONTAIN** position. (Licensed Operator) (N/A if **NOT** previously changed)

05/01

\_\_\_\_\_

**6.2 TEST OF CONTAINMENT ATMOSPHERE GASEOUS RADIATION  
MONITOR 1-RI-5281 (Continued)**

INITIALS

I. Acceptance Criteria

**NOTE**

Performance of this section constitutes a supervisory review. Actual observation of equipment response by the SRO performing this review is not required. Answering YES to a step signifies that the referenced step has been completed and signed off by a qualified operator other than the SRO reviewer and that the actual equipment response is acceptable and valid.

1. Did 1-RI-5281 meter deflect upscale in step 6.2.B. or 6.2.C.2.?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

2. Did 1-RI-5281 meter deflect upscale in step 6.2.D.?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

3. Did 1C17 "RAD MON PANEL 1C22" annunciator alarm in step 6.2.D.? [B0336]

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

4. Did 1-RI-5281 Red HIGH ALARM light illuminate in step 6.2.D.?

YES / NO  
(circle one)

\_\_\_\_\_  
SRO

5. This test is considered satisfactory if YES was answered in all steps above.

SAT / UNSAT  
(circle one)

\_\_\_\_\_  
SRO

- a. **IF** unsat, **THEN NOTIFY** the SM, **DECLARE** the affected equipment inoperable **AND TAKE** actions as required by Technical Specifications and administrative actions stated in EN-4-104.

- b. **INITIATE** an Issue Report for all equipment deficiencies.

**7.0 POST PERFORMANCE ACTIVITIES**

- A. **PERFORM** a post-test page check of this STP.

**8.0 BASES**

- A. **[B0336]** To ensure testing of annunciators credited as part of the success path to mitigate Design Base Accidents or transients described in the FSAR.

**9.0 RECORDS**

- A. Records generated by this procedure shall be captured and controlled. Prior to transferring records to Document Management for retention, legibility and completeness of the record shall be verified by the transmitting organization.
- B. Maintain records as defined in EN-4-104, Surveillance Test Program.

h (no only)

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-14 (2004)**

**SYSTEM:** Circulating Water System

**TASK:** 042.002 Shutdown the Circulating Water System K/A 068A3.02

**PURPOSE:** Evaluates an Operator's Ability to Secure a Circulating Water Pump

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14 (2004)**

**TASK:**            042.002            Shutdown the Circulating Water System

---

**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:**

Discharge permit

**REFERENCE PROCEDURE(S):**

OI-14A

**TASK STANDARDS:**

This JPM is complete when vacuum is broken in 11A Waterbox.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

**ELEMENT**  
**(\* = CRITICAL STEP)**

**STANDARD**

---

1. Simulator setup:

- a. Any IC with all CWPs in operation.
- b. Secure 11A amertap, then freeze.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
___ Identify and locate OI-14A	Same as element
___ Refer to OI-14A Section 6.2	Determine that Step 6.2.B is to be performed
<b>6.2 CIRCULATING WATER UNIT/SYSTEM SHUTDOWN</b>	

**CUE: The Reactor Operator has been assigned to monitor condenser Delta T, condenser vacuum and reactor power during this evolution.**

**NOTE:** The Maryland State Discharge Permit limits the Combined Daily Average Temperature Rise Across Condensers (calculated average of the 24 flow weighted hourly readings of both units for a calendar day) to 12° F. Exceeding this limit may be reportable.

- |        |  |                 |
|--------|--|-----------------|
| ___ 1. | <p><b><u>IF</u></b> a CW pump is to be shutdown during Main Turbine operation, <b><u>THEN</u></b> <b>REDUCE</b> turbine load as necessary to maintain the following, while continuing with this procedure:</p> <ul style="list-style-type: none"> <li>• Combined temperature differential average of BOTH Units less than 12° F</li> <li>• Condenser vacuum at greater than 25 in. of Hg</li> <li>• Maximum differential pressure between adjacent hoods less than or equal to 2.0 inches of Hg</li> </ul> | Monitored by RO |
|--------|--|-----------------|

**NOTE:** 300 MWe is a target value intended to prevent conditions requiring a Turbine Trip (listed in step 3) from occurring. It may be possible to stop a second pump (due to high screen d/p, etc) at higher load, depending on plant conditions.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
<b><u>CAUTION:</u></b> If the LOSS OF LOAD CHANNEL TRIP BYPASS annunciator is clear, then only ONE CW pump may be stopped in a condenser (11,12, or 13) at a time.	
___ 2.	<p><b>IF</b> it is desired to stop two or more CW pumps simultaneously, <b><u>THEN</u></b> <b>COMMENCE</b> reducing turbine load, <b>PER</b> OP-3, to approximately 300 MWE.</p> <p style="text-align: right;">Monitored by RO</p>
___ 3.	<p><b><u>IF ANY</u></b> of the following conditions occur:</p> <ul style="list-style-type: none"> <li>• Condenser vacuum is less than 26 in. Hg and Gross electrical load is less than 270 MWe</li> <li>• Condenser vacuum is less than 25 in. Hg and Gross electrical load is greater than 270 MWe</li> <li>• The differential pressure between adjacent hoods is approaching 2.0 inches of Hg</li> <li>• Two stopped CW pumps associated with the same Condenser</li> </ul> <p><b><u>THEN IMPLEMENT</u></b> the following procedures as needed:</p> <ul style="list-style-type: none"> <li>• <u>AOP-7G, LOSS OF CONDENSER VACUUM.</u></li> <li>• <u>AOP-7L, CIRCULATING WATER/INTAKE MALFUNCTIONS</u></li> </ul> <p style="text-align: right;">Monitored by RO</p>
___ 4.	<p><b>PERFORM</b> the following prior to stopping CW pumps <b><u>OR</u></b> dropping water in any waterbox:</p> <p style="text-align: right;">Verifies that no work is being performed in any other waterboxes</p> <ul style="list-style-type: none"> <li>• <b>NOTIFY</b> the contact person of any group working in the following: <ul style="list-style-type: none"> <li>• Waterboxes</li> <li>• Circulating Water discharge canals</li> </ul> </li> </ul>

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
	<ul style="list-style-type: none"> <li>• Saltwater outlet piping</li> <li>• Amertap screens</li> </ul>
	<ul style="list-style-type: none"> <li>• Visually <b>INSPECT ALL</b> open waterboxes or manhole covers to ensure that no personnel are inside.</li> <li>• <b>ENSURE</b> personnel are clear of the screen section and the manways are closed for <b>ALL</b> Amertaps.</li> </ul>
_____ 5.	<p><b>IF</b> time permits (approximately 15 minutes), <b>THEN SHUTDOWN</b> the Amertap unit for the waterbox in which the CW pump is to be secured PER OI-14C, <b>AMERTAP SYSTEM</b>.</p> <p>Verified 11A Amertap is shutdown</p>
_____ 6.	<p><b>IF</b> securing the last CW pump associated to discharge canal, <b>THEN ENSURE</b> Plant Chemistry has secured saltwater chem add prior to securing the CW pump.</p> <p>Determines step is N/A</p>

<b>CUE: When the TBO has been called, report a SW inlet temperature of 70° F.</b>
---

_____ 7.	<p><b>IF</b> steam is dumping to the condenser <b>AND</b> a SW pump is taking a suction on the intake cavity associated to the CW pump being secured and/or waterbox being dropped, <b>THEN STATION</b> an operator to monitor the SRW heat exchanger inlet temperature while securing the CW pump and/or dropping water in the waterbox <b>AND NOTIFY</b> the Control Room if one of the following SW inlet temperature limits is going to be exceeded:</p> <ul style="list-style-type: none"> <li>• Max limit of 90° F.</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• <b>IF</b> 12A or 12B SRW HX is off service, <b>THEN</b> Max limit of 80° F.</li> </ul>	<p>Calls TBO to monitor SRW HXR Inlet Temperature</p>
----------	---	---

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
<b>NOTE:</b> If the entire system is being secured, the Condenser Air Removal shell stops may be left open.	
If in Mode 4 or 5, when steam is <b>NOT</b> being dumped to the condenser, at least one Condenser Air Removal shell stop should be left open on each condenser.	
8.	<p><b>SHUT</b> the applicable CAR Condenser Shell Top to the condenser half shell:</p> <ul style="list-style-type: none"> <li>• 11A COND SHELL STOP (1-CAR-101)</li> <li>• 11B COND SHELL STOP (1-CAR-102)</li> <li>• 12A COND SHELL STOP (1-CAR-103)</li> <li>• 12B COND SHELL STOP (1-CAR-104)</li> <li>• 13A COND SHELL STOP (1-CAR-105)</li> <li>• 13B COND SHELL STOP (1-CAR-106)</li> </ul>
9.	<p><b>PLACE</b> the CNDSR HOTWELL M/U DUMP CONTROLLER, 1-LIC-4405 in MANUAL</p>
* 10.	<p><b>SHUT</b> the applicable priming valve to the condenser half shell:</p> <ul style="list-style-type: none"> <li>• 11A PRIMING VLV (1-WBP-1746-CV)</li> <li>• 11B PRIMING VLV (1-WBP-1747-CV)</li> <li>• 12A PRIMING VLV (1-WBP-1748-CV)</li> <li>• 12B PRIMING VLV (1-WBP-1749-CV)</li> <li>• 13A PRIMING VLV (1-WBP-1750-CV)</li> <li>• 13B PRIMING VLV (1-WBP-1751-CV)</li> </ul>
11.	<p><b>IF</b> it is determined max SW inlet temperature may be exceeded during the performance of steps 12, 13, or 14 due to high Bay temperatures <b>OR IF</b> at any time during the performance of steps 12, 13, or 14, the max SW inlet temperature is about to be exceeded, <b>THEN PERFORM</b> at least one of the</p>

Calls TBO to shut 1-CAR-101

Places 1-LIC-4405 in manual with a 50% output signal

Shuts 1-WBP-1746-CV

Ensures SW inlet temperatures are being monitored

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE OI-14A (2004)**

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

following actions:

- **SHIFT** affected SW header to standby SW PP PER OI-29, SALTWATER SYSTEM.

**OR**

- **IF** both sluice gates are open on the affected SW PP, **THEN ISOLATE** the applicable SW Pump Suction Sluice Gate:
  - a. **VERIFY OPEN** the adjacent SW Pump Suction Sluice Gate.
  - b. **SHUT** the applicable SW Pump Suction Sluice Gate associated to the waterbox being secured.

**OR**

- **ENTER** the Action Statements for one SRW subsystem inoperable **AND** **PERFORM ALL** applicable required actions before continuing.

12. **IF** the waterbox is **NOT** to be cleaned, **THEN PERFORM** the following steps:

*	a. <b>STOP</b> the applicable CW pump <b><u>AND</u></b> <b>ENSURE</b> the applicable Amertap unit recirculating pumps are stopped.	Stops 11 Circulating Water Pump
_____	b. <b>SHUT</b> the applicable Condenser Inlet Strainer Valve either by using its local handswitch <b><u>OR</u></b> by operating manually.	Notifies TBO to shut 1-CV-5225-MOV

**WARNING:** The supply breaker(s) shall be opened and tagged prior to manual operation of the valves

- (1) **IF** manually operating the valve, **THEN ENSURE** its 480V supply breaker is opened and tagged prior to

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
	<p>manual operation:</p> <ul style="list-style-type: none"> <li>• INL 1-CW-5225-MOV (11A Waterbox), BKR 52-10602</li> <li>• INL 1-CW-5229-MOV (11B Waterbox), BKR 52-10603</li> <li>• INL 1-CW-5233-MOV (12A Waterbox), BKR 52-10604</li> <li>• INL 1-CW-5237-MOV (12B Waterbox), BKR 52-11602</li> <li>• INL 1-CW-5241-MOV (13A Waterbox), BKR 52-11603</li> <li>• INL 1-CW-5245-MOV (13B Waterbox), BKR 52-11604</li> </ul>
<b>CUE: 5 minutes has elapsed.</b>	
_____ c.	<p><b>WAIT</b> approximately five minutes to determine effects on condenser vacuum:</p> <p>(1) <b>IF</b> necessary, <b>THEN RESTART</b> CW pump <b>PER</b> Section 6.1, CIRCULATING WATER UNIT/SYSTEM STARTUP [CONTINUOUS USE]</p> <p>(2) <b>IF</b> condenser vacuum is holding after waiting approximately five minutes, <b>THEN PROCEED</b> to step 14.</p>
_____ 13.	<p><b>IF</b> the waterbox is to be cleaned, <b>THEN PERFORM</b> the following steps:</p> <p style="text-align: right;">Determines step is N/A</p>
* _____ 14.	<p><b>OPEN</b> the applicable water box vacuum breaker:</p> <ul style="list-style-type: none"> <li>• 11A WATERBOX VAC BKR VLV (1-CW-5228-CV)</li> <li>• 11B WATERBOX VAC BKR VLV (1-CW-5232-CV)</li> </ul> <p style="text-align: right;">Opens 1-CW-5228-CV</p>

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-14A (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
<ul style="list-style-type: none"><li>• 12A WATERBOX VAC BKR VLV (1-CW-5236-CV)</li><li>• 12B WATERBOX VAC BKR VLV (1-CW-5240-CV)</li><li>• 13A WATERBOX VAC BKR VLV (1-CW-5244-CV)</li><li>• 13B WATERBOX VAC BKR VLV (1-CW-5248-CV)</li></ul>	
15. <b><u>IF</u></b> desired, <b><u>THEN PLACE</u></b> the CNDSR HOTWELL M/U / DUMP CONTR, 1-LIC-4405 in AUTO	Places 1-LIC-4405 in Auto

<b>TERMINATING CUE:</b>	This JPM is complete when 1-LIC-4405 is returned to Auto. No further actions are required.
-------------------------	--

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



**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. Both Units are at 100% power.
  - b. The System Engineer has requested 11 Circulating Water Pump be secured to allow inspection of the diode ring. The inspection is expected to take approximately 25 minutes.
  - c. The Amertap unit for the associated waterbox has been secured per the OI.
  - d. You are performing the duties of the Unit-1 CRO.
  
3. Initiating Cue: The CRS directs you to secure 11 CWP per OI-14A. Are there any questions? You may begin.



**6.2.B Procedure (Continued)**

10. **SHUT** the applicable priming valve to the condenser half shell:

- 11A PRIMING VLV ..... 1-WBP-1746-CV
- 11B PRIMING VLV ..... 1-WBP-1747-CV
- 12A PRIMING VLV ..... 1-WBP-1748-CV
- 12B PRIMING VLV ..... 1-WBP-1749-CV
- 13A PRIMING VLV ..... 1-WBP-1750-CV
- 13B PRIMING VLV ..... 1-WBP-1751-CV

11. **IF** it is determined max SW inlet temperature may be exceeded during the performance of steps 12, 13, or 14 due to high Bay temperatures  
**OR IF** at any time during the performance of steps 12, 13, or 14, the max SW inlet temperature is about to be exceeded,  
**THEN PERFORM** at least one of the following actions:

- **SHIFT** affected SW header to standby SW PP PER OI- 29, SALTWATER SYSTEM.

**OR**

- **IF** both sluice gates are open on the affected SW PP,  
**THEN ISOLATE** the applicable SW Pump Suction Sluice Gate:
  - a. **VERIFY OPEN** the adjacent SW Pump Suction Sluice Gate.
  - b. **SHUT** the applicable SW Pump Suction Sluice Gate associated to the waterbox being secured.

**OR**

- **ENTER** the Action Statements for one SRW subsystem inoperable  
**AND PERFORM ALL** applicable required actions before continuing.

**6.2.B Procedure (Continued)**

12. **IF** the waterbox is **NOT** to be cleaned,  
**THEN PERFORM** the following steps:
- a. **STOP** the applicable CW pump  
**AND ENSURE** the applicable Amertap unit recirculating pumps are stopped.
  - b. **SHUT** the applicable Condenser Inlet Strainer Valve either by using its local handswitch **OR** by operating manually.

**WARNING**

The supply breaker(s) shall be opened and tagged prior to manual operation of the valve(s).

- (1) **IF** manually operating the valve,  
**THEN ENSURE** its 480V supply breaker is opened and tagged prior to manual operation:
  - INL 1-CW-5225-MOV (11A Waterbox), BKR 52-10602
  - INL 1-CW-5229-MOV (11B Waterbox), BKR 52-10603
  - INL 1-CW-5233-MOV (12A Waterbox), BKR 52-10604
  - INL 1-CW-5237-MOV (12B Waterbox), BKR 52-11602
  - INL 1-CW-5241-MOV (13A Waterbox), BKR 52-11603
  - INL 1-CW-5245-MOV (13B Waterbox), BKR 52-11604
- c. **WAIT** approximately five minutes to determine effects on condenser vacuum:
  - (1) **IF** necessary,  
**THEN RESTART** CW pump **PER** Section 6.1,  
**CIRCULATING WATER UNIT/SYSTEM STARTUP [CONTINUOUS USE]**.
  - (2) **IF** condenser vacuum is holding after waiting approximately five minutes,  
**THEN PROCEED** to Step 14.

**6.2 CIRCULATING WATER UNIT/SYSTEM SHUTDOWN [B0154] [CONTINUOUS USE]****A. Initial Conditions**

1. The Circulating Water Unit/System is operating.

**B. Procedure****NOTE**

The Maryland State Discharge Permit limits the Combined Daily Average Temperature Rise Across Condensers (calculated average of the 24 flow weighted hourly readings of both units for a calendar day) to 12° F. Exceeding this limit may be reportable. [B0633]

1. **IF** a CW pump is to be shutdown during Main Turbine operation, **THEN REDUCE** turbine load as necessary to maintain the following, while continuing with this procedure:
  - Combined temperature differential average of BOTH Units less than 12° F
  - Condenser vacuum at greater than 25 in. of Hg
  - Maximum differential pressure between adjacent hoods less than or equal to 2.0 inches of Hg

**NOTE**

300 MWe is a target value intended to prevent conditions requiring a Turbine Trip (listed in step 3) from occurring. It may be possible to stop a second pump (due to high screen d/p, etc) at higher load, depending on plant conditions.

**CAUTION**

If the LOSS OF LOAD CHANNEL TRIP BYPASS annunciator is clear, then only **ONE** CW pump may be stopped in a condenser (11, 12, or 13) at a time.

2. **IF** it is desired to stop two or more CW pumps simultaneously, **THEN COMMENCE** reducing turbine load, **PER OP-3**, to approximately 300 MWe.

**6.1.B Procedure (Continued)**

29. **IF** a discharge permit is active,  
**THEN UPDATE** the discharge permit for the number of CW pumps operating.

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

**6.2.B Procedure (Continued)**

7. **IF** steam is dumping to the condenser **AND** a SW pump is taking a suction on the intake cavity associated to the CW pump being secured and/or waterbox being dropped, **THEN STATION** an operator to monitor the SRW heat exchanger inlet temperature while securing the CW pump and/or dropping water in the waterbox **AND NOTIFY** the Control Room if one of the following SW inlet temperature limits is going to be exceeded:

- Max limit of 90° F.

**OR**

- **IF** 12A or 12B SRW HX is off service, **THEN** Max limit of 80° F.

**NOTE**

- If the entire system is being secured, the Condenser Air Removal shell stops may be left open.
- If in Mode 4 or 5, when steam is **NOT** being dumped to the condenser, at least one Condenser Air Removal shell stop should be left open on each condenser.

1500

8. **SHUT** the applicable CAR Condenser Shell Stop to the condenser half shell:

- 11A COND SHELL STOP ..... 1-CAR-101
- 11B COND SHELL STOP ..... 1-CAR-102
- 12A COND SHELL STOP ..... 1-CAR-103
- 12B COND SHELL STOP ..... 1-CAR-104
- 13A COND SHELL STOP ..... 1-CAR-105
- 13B COND SHELL STOP ..... 1-CAR-106

9. **PLACE** the CNDSR HOTWELL M/U / DUMP CONTROLLER, 1-LIC-4405 in **MANUAL**.

**6.2.B Procedure (Continued)**

3. **IF ANY** of the following conditions occur:

- Condenser vacuum is less than 26 in. Hg and Gross electrical load is less than 270 MWe
- Condenser vacuum is less than 25 in. Hg and Gross electrical load is greater than 270 MWe
- The differential pressure between adjacent hoods is approaching 2.0 inches of Hg
- Two stopped CW pumps associated with the same Condenser

**THEN IMPLEMENT** the following procedures as needed:

- AOP-7G, LOSS OF CONDENSER VACUUM.
- AOP-7L, CIRCULATING WATER / INTAKE MALFUNCTIONS.

4. **PERFORM** the following prior to stopping CW pumps **OR** dropping water in any waterbox:

- **NOTIFY** the contact person of any group working in the following:
  - Waterboxes
  - Circulating Water discharge canals
  - Saltwater outlet piping
  - Amertap screens
- Visually **INSPECT ALL** open waterboxes or manhole covers to ensure that no personnel are inside.
- **ENSURE** personnel are clear of the screen section and the manways are closed for **ALL** Amertaps.

5. **IF** time permits (approximately 15 minutes), **THEN SHUTDOWN** the Amertap unit for the waterbox in which the CW pump is to be secured **PER OI-14C, AMERTAP SYSTEM.**

6. **IF** securing the last CW pump associated to a discharge canal, **THEN ENSURE** Plant Chemistry has secured saltwater chem add prior to securing the CW pump.

**6.2.B Procedure (Continued)**

14. **OPEN** the applicable water box vacuum breaker:
  - 11A WATERBOX VAC BKR VALVE ..... 1-CW-5228-CV
  - 11B WATERBOX VAC BKR VALVE ..... 1-CW-5232-CV
  - 12A WATERBOX VAC BKR VALVE ..... 1-CW-5236-CV
  - 12B WATERBOX VAC BKR VALVE ..... 1-CW-5240-CV
  - 13A WATERBOX VAC BKR VALVE ..... 1-CW-5244-CV
  - 13B WATERBOX VAC BKR VALVE ..... 1-CW-5248-CV
15. **IF** desired,  
**THEN PLACE** the CNDSR HOTWELL M/U / DUMP CONTR, 1-LIC-4405 in  
**AUTO.**
16. **ENSURE** the three pump motor heaters and one exciter heater are energized  
for the appropriate CW pump motor, by observing the red light on the CW pump  
heater junction box is illuminated.
17. **REPEAT** Steps 1 through 16 for each additional circulating water unit to be  
shutdown.

**NOTE**

Main Turbine vibration should be monitored closely during the power rise.

18. **IF** it is desired after two or more CW pumps have been stopped at power,  
**THEN REFER** to OP-3 to slowly raise gross electrical load to a maximum of 400  
MWE, provided the following conditions are met:
  - Condenser vacuum is greater than 25 inches of Hg.
  - Maximum differential pressure between adjacent hoods is less than or equal  
to 2.0 inches of Hg.
19. **IF** the entire Circulating Water System is shutdown,  
**THEN SHUTDOWN** the Waterbox Priming System **PER** OI-14B, WATERBOX  
PRIMING SYSTEM.

**NOTE**

If the temporary exciter heater is **NOT** energized, the Electric Shop may have to megger  
the CW pump exciter prior to starting.

20. **IF** securing a CW pump with a Temporary exciter heater,  
**THEN PLUG IN**  
**AND TURN ON** the portable heater to help prevent moisture in the exciter.

**6.2.B Procedure (Continued)**

13. **IF** the waterbox is to be cleaned,  
**THEN PERFORM** the following steps:
- a. **SHUT** the applicable Condenser Inlet Strainer Valve by either using its local handswitch **OR** by operating manually.

**WARNING**

The supply breaker(s) shall be opened and tagged prior to manual operation of the valve(s).

- (1) **IF** the valve is to be operated manually,  
**THEN ENSURE** its 480V supply breaker is opened and tagged prior to manual operation:
- INL 1-CW-5225-MOV (11A Waterbox), BKR 52-10602
  - INL 1-CW-5229-MOV (11B Waterbox), BKR 52-10603
  - INL 1-CW-5233-MOV (12A Waterbox), BKR 52-10604
  - INL 1-CW-5237-MOV (12B Waterbox), BKR 52-11602
  - INL 1-CW-5241-MOV (13A Waterbox), BKR 52-11603
  - INL 1-CW-5245-MOV (13B Waterbox), BKR 52-11604
- b. **STOP** the applicable CW pump, immediately after the condenser inlet strainer valve is shut,  
**AND ENSURE** the applicable Amertap unit recirculating pumps are stopped.
- c. **WAIT** approximately five minutes to determine effects on condenser vacuum:
- (1) **IF** necessary,  
**THEN RESTART** CW pump **PER** Section 6.1,  
**CIRCULATING WATER UNIT/SYSTEM STARTUP [CONTINUOUS USE]**.
- (2) **IF** condenser vacuum is holding after waiting approximately five minutes,  
**THEN PROCEED** to Step 14.



**6.2.B Procedure (Continued)**

21. **IF** a discharge permit is active,  
**THEN UPDATE** the discharge permit for the number of CW pumps operating.
22. **PERFORM** the following actions as applicable:
- **EXIT** any Action Statements entered due to exceeding the max SW inlet temperature.
  - **OPEN** the SW Pump Suction Sluice Gate shut in Step 11.
  - **SHIFT** SW PPs **PER** OI-29, section titled, Shifting Saltwater Pumps.
23. **IF** any of the following waterboxes will remain drained for greater than 5 days,
- 11B
  - 12B
  - 13A
  - 13B

**THEN**, if desired, **RINSE** the waterbox and tubes with fresh water from the Plant Service Water system or Fire Main.

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

---

**6.3 MONITORING CONDENSER DIFFERENTIAL TEMPERATURE [REFERRAL USE]**

**A. Initial Conditions**

1. Unit 1 hourly average condenser temperature differential is greater than or equal to 12° F.

**B. Procedure**

1. **PERFORM Section APPENDIX A, DETERMINATION OF COMBINED HOURLY AND DAILY AVERAGE CONDENSER DELTA T.**

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

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-9A-4**

**SYSTEM:** Saltwater System

**TASK:** (012.019) Manually override SW valves using hand valves K/A 068AA1.21

**PURPOSE:** Evaluates an Operator's Ability to Override Saltwater to the SRW Heat Exchangers During a Control Room Evacuation

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

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE AOP-9A-4**

**TASK:** 012.019 Manually override SW valves using hand valves K/A 068AA1.21

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

**APPLICABILITY:**

RO and SRO

**PREREQUISITES:**

Completion of the knowledge requirement of the Initial License class training program for the Saltwater 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

**TOOLS AND EQUIPMENT:**

Working copy of AOP-9A

**REFERENCE PROCEDURE(S):**

AOP-9A

**TASK STANDARDS:**

This JPM is complete when Saltwater has been overridden to the Service Water Heat Exchangers.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-9A-4**

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

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

\_\_\_\_\_ Locate AOP-9A Step AO.

CUE: Give operator a copy of AOP-9A.
--------------------------------------

* _____ 1.	<b>WHEN</b> notified to override Saltwater to the Service Water Heat Exchangers, <b>THEN</b> insert the Key into 1-HS-5149 and place the Saltwater System Emergency Overboard, 1-CV-5149, to <b>OVERRIDE TO CLOSE</b> .	Inserts key and places 1-HS-5149 in <b>OVERRIDE TO CLOSE</b> position.
------------	---	--

CUE: When the handvalves are rotated they point to override.
--

* _____ 2.	Place the following Handvalves to <b>OVERRIDE</b> (from left to right):	Locates all listed handvalves and places in <b>OVERRIDE</b> (not necessarily in order listed.)
------------	---	--

- East HV transfer stanchion

_____ a.	11B SRW HX SW OUTLET, 1-HV-5210	
_____ b.	11A SRW HX SW OUTLET, 1-HV-5209	
_____ c.	11A & 11B SRW HXs SW BYPASS, 1-HV-5154	
_____ d.	11B SRW HX SW STNR FLUSH, 1-HV-5151A	
_____ e.	11B SRW HX SW STNR DIVERTER, 1-HV-5151	
_____ f.	11A SRW HX SW STNR FLUSH, 1-HV-5148A	
_____ g.	11A SRW HX SW STNR DIVERTER, 1-HV-5148	

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE AOP-9A-4**

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

_____	h.	12A & 12B SRW HXs SW AUX OUT 1-HV-5155
_____	i.	12A & 12B SRW HX SW AUX B/U OUT, 1-HV-5156
_____	j.	11A & 11B SRW HXs SW INLET, 1-HV-5150

- West HV transfer stanchion

_____	a.	12A SRW HX SW STNR DIVERTER, 1-HV-5158
_____	b.	12A SRW HX SW STNR FLUSH, 1-HV-5158A
_____	c.	12B SRW HX SW STNR DIVERTER, 1-HV-5159
_____	d.	12B SRW HX SW STNR FLUSH, 1-HV-5159A
_____	e.	12A & 12B SRW HXs SW INLET, 1-HV-5152
_____	f.	12A & 12B SRW HXs SW B/U OUT, 1-HV-5153
_____	g.	12A & 12B SRW HXs SW BYPASS, 1-HV-5157
_____	h.	12A SRW HX SW OUTLET, 1-HV-5211
_____	i.	12B SRW HX SW OUTLET, 1-HV-5212

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

<b>TERMINATING CUE:</b>	This JPM is complete when Saltwater has been overridden to the Service Water Heat Exchangers. No further actions are required.
-------------------------	--

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE AOP-9A-4**

**TASK:** Manually override SW valves using hand valves K/A 068AA1.21

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:

---

---

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 severe fire has resulted in a control room evacuation and AOP-9A implementation.
  - b. The main turbine and SGFPs are tripped.
  - c. Condenser makeup is isolated.
  - d. AFW flow control has been established at 1C43
  - e. You are performing the duties of the Unit 1 TBO for Control Room Evacuation.
3. Initiating Cue: You have been informed that the Saltwater Pumps have been secured and the Shift Manager directs you to override Saltwater to the Service Water heat exchangers in accordance with AOP-9A Step AO. Are there any questions? You may begin



**IV. ACTIONS**

AN. (continued)

3. Place the following Local Control handswitches to **STOP OR TRIP**:

- BKR 152-1102 U-440-11B SERVICE TRANSF.....1-HS-1102B
- BKR 152-1103 11-17 4KV BUS TIE.....1-HS-1103B
- BKR 152-1104 11 LPSI PUMP.....1-HS-302XC
- BKR 152-1105 11 SW PUMP.....1-HS-5199B
- BKR 152-1109 11 SRW PUMP.....1-HS-1570B
- BKR 152-1111 13 SRW PUMP.....1-HS-1572D
- BKR 152-1112 13 SW PUMP.....1-HS-5201D

4. Notify 1C43 of the following:

- 4KV Bus 11 is electrically isolated from the Control Room.
- Loads are secured that support energizing 11 4KV Bus

5. Have 1C43 notify the TBO to override Saltwater to the Service Water Heat Exchangers **PER** Step AO.

6. Perform Step AS.

**AO. (TBO) OVERRIDE SALTWATER TO THE SERVICE WATER HEAT EXCHANGERS**

1. **WHEN** notified to override Saltwater to the Service Water Heat Exchangers, **THEN** insert the Key into 1-HS-5149 and place the Saltwater System Emergency Overboard, 1-CV-5149, to **OVERRIDE TO CLOSE**.

(continue)

1C43.....3501/5625/3511	AFW.....4768	1A DG...5320	ADVs.....5626
27' SWGR.....5463/5464	SRW UL/LL..5575/5576	1B DG...5631	INTAKE.....5498
2C43....3502/5652/3522	CC RM.....5587	2A DG...5630	13KV MC...5655
72' CMPTR RM.....4404	0C DG.....5302	2B DG...5642	U-1 NSSS...5635
69' SWGR.....5675	MCC-104.....5635	MCC-114...5675	

## IV. ACTIONS

AO. (continued)

2. Place the following Handvalves to OVERRIDE (from left to right):

- East HV transfer stanchion
  - a. 11B SRW HX SW OUTLET, 1-HV-5210
  - b. 11A SRW HX SW OUTLET, 1-HV-5209
  - c. 11A & 11B SRW HXs SW BYPASS, 1-HV-5154
  - d. 11B SRW HX SW STNR FLUSH, 1-HV-5151A
  - e. 11B SRW HX SW STNR DIVERter, 1-HV-5151
  - f. 11A SRW HX SW STNR FLUSH, 1-HV-5148A
  - g. 11A SRW HX SW STNR DIVERter, 1-HV-5148
  - h. 12A & 12B SRW HXs SW AUX OUT, 1-HV-5155
  - i. 12A & 12B SRW HXs SW AUX B/U OUT, 1-HV-5156
  - j. 11A & 11B SRW HXs SW INLET, 1-HV-5150
- West HV transfer stanchion
  - a. 12A SRW HX SW STNR DIVERter, 1-HV-5158
  - b. 12A SRW HX SW STNR FLUSH, 1-HV-5158A
  - c. 12B SRW HX SW STNR DIVERter, 1-HV-5159
  - d. 12B SRW HX SW STNR FLUSH, 1-HV-5159A
  - e. 12A & 12B SRW HXs SW INLET, 1-HV-5152
  - f. 12A & 12B SRW HXs SW B/U OUT, 1-HV-5153
  - g. 12A & 12B SRW HXs SW BYPASS, 1-HV-5157
  - h. 12A SRW HX SW OUTLET, 1-HV-5211
  - i. 12B SRW HX SW OUTLET, 1-HV-5212

3. Perform the next TBO assigned step.

1C43.....3501/5625/3511	AFW.....4768	1A DG...5320	ADVs.....5626
27' SWGR.....5463/5464	SRW UL/LL..5575/5576	1B DG...5631	INTAKE.....5498
2C43....3502/5652/3522	CC RM.....5587	2A DG...5630	13KV MC...5655
72' CMPTR RM.....4404	OC DG.....5302	2B DG...5642	U-1 NSSS...5635
69' SWGR.....5675	MCC-104.....5635	MCC-114...5675	

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-34-1**

**SYSTEM:** Engineered Safety Feature Actuation System

**TASK:** 048.004 Remove an ESFAS Sensor Cabinet from Service K/A 013K2.01

**PURPOSE:** Evaluates an Operator's Ability to Remove Sensor Cabinet ZF from Service During Mode 5

**JOB PERFORMANCE MEASURE**

**CALVERT CLIFFS NUCLEAR POWER PLANT**

**LICENSED OPERATOR TRAINING**

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-34-1**

ELEMENT STANDARD  
 (\* = CRITICAL STEP)

---

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

APPLICABILITY:

RO and SRO

PREREQUISITES:

Completion of the knowledge requirement of the Initial License class training program for the Engineered Safety Feature 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

TOOLS AND EQUIPMENT:

None

REFERENCE PROCEDURE(S):

OI-34

TASK STANDARDS:

This JPM is complete when sensor cabinet ZF (2C93) is shut down.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-34-1**

ELEMENT

STANDARD

(\* = CRITICAL STEP)

---

1. Provide the operator with a copy of Appendix B from OI-34, after the Operator has determined that OI-34 is the correct procedure.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-34-1**

ELEMENT	STANDARD
(* = CRITICAL STEP)	

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

CUE:	Initial Conditions and General Precautions have been met. Begin at Step B.1 of Appendix B.
------	--

_____	Identify and locate OI-34, Appendix B Step B.1.	Same as element.
-------	---	------------------

CUE:	TU-9 on RPS Channel C is bypassed
------	-----------------------------------

_____	1. BYPASS Trip Unit 9, HI CONT PRESS, on the associated RPS channel, PER OI-6.	Calls control room to ensure TU-9 is bypassed on Channel C RPS
_____	2. <b><u>IF</u></b> the Sensor Cabinet is being removed from service due to a loss of power, <b><u>THEN MARK N/A</u></b> Steps 3 through 6 <b><u>AND PROCEED</u></b> to Step 7.	Determines sensor cabinet is not being removed due to a loss of power.

**NOTE:** When performing lamp tests of the ESFAS cabinets, a lamp test of the spare modules is **NOT** required due to nuisance alarms that may occur.

**CAUTION:**

- De-energization of a Sensor Cabinet with a trip present on another Sensor Cabinet will result in an Actuation Channel trip.
- De-energization of a Sensor Cabinet with another Sensor Cabinet de-energized will result in an Actuation Channel trip.
- The following steps must be performed in order.

CUE:	When checked, all lamps illuminate. (NOTE: It is not necessary to simulate testing all 3 cabinets. After demonstrating proper lamp test, inform trainee all lamps test satisfactory.)
------	---

_____	3. <b>PERFORM</b> a lamp test on <b><u>ALL</u></b> powered sensor channels.	Depresses each lamp on Sensor Cabinets ZD, ZE, ZG and checks lamp is illuminated. {3}
-------	---	---

**NOTE:** If the unit is shutdown, trips such as SG High Level and Reactor Trip Bus UV are expected.

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-34-1**

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

CUE: When checked, Turbine UV Modules are in alarm on Sensor Cabinets ZD, ZE, ZF, ZG.
---

- |    |   |  |
|----|---|--|
| 4. | <b>ENSURE</b> no unexpected trips are present on any other Sensor Cabinets. | Checks sensor cabinets and determines that no unexpected trips are in alarm. |
|----|---|--|

CUE: When checked, Turbine UV trip is present on Logic Cabinet BL.
--

- |    |   |   |
|----|---|---|
| 5. | <b>ENSURE</b> no unexpected trips <b>OR</b> trip inputs from any other Sensor Cabinets are present on the Logic Cabinets. | Checks Logic Cabinets for unexpected trip inputs. |
|----|---|---|

CUE: Sensor Cabinets ZD, ZE, ZF, ZG are energized.
--

- |    |  |  |
|----|--|--|
| 6. | <b>ENSURE</b> no other Sensor Cabinets are deenergized <b>OR</b> the Actuation Cabinets have been removed from service prior to deenergizing more than one Sensor Channel. | Checks Sensor Cabinet power supply switches and breaker positions. |
|----|--|--|

CUE: When the following switches are placed in OFF, report that the applicable voltage indicator goes to zero.
--

- |      |   |                               |
|------|---|-------------------------------|
| * 7. | <b>PLACE</b> the 28 VDC On-Off switch in OFF. | Places the 28 VDC switch OFF. |
|------|---|-------------------------------|

- |      |   |                               |
|------|---|-------------------------------|
| * 8. | <b>PLACE</b> the 15 VDC On-Off switch in OFF. | Places the 15 VDC switch OFF. |
|------|---|-------------------------------|

- |      |   |                               |
|------|---|-------------------------------|
| * 9. | <b>PLACE</b> the 48 VDC On-Off switch in OFF. | Places the 48 VDC switch OFF. |
|------|---|-------------------------------|

- |       |  |                              |
|-------|--|------------------------------|
| * 10. | <b>PLACE</b> the 5 VDC On-Off switch in OFF. | Places the 5 VDC switch OFF. |
|-------|--|------------------------------|

- |     |   |                                  |
|-----|---|----------------------------------|
| 11. | <b>PLACE</b> the Fan Power switch in OFF. | Places the Fan Power switch OFF. |
|-----|---|----------------------------------|

- |     |   |                                      |
|-----|---|--------------------------------------|
| 12. | <b>PLACE</b> the Control Power switch in OFF. | Places the Control Power switch OFF. |
|-----|---|--------------------------------------|

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-34-1**

ELEMENT

STANDARD

(\* = CRITICAL STEP)

<b>CUE:</b> <b>When the main breaker is taken to OFF, the red light below it illuminates.</b>
---

* 13. PLACE the Main Breaker in OFF.	Places the Main Breaker OFF.
--------------------------------------	------------------------------

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

<b>TERMINATING CUE:</b> This JPM is complete when the Main Breaker is Off . No further actions are required.
--





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

TASK: 048.004

**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 Mode 5 for a maintenance outage.
  - b. ESFAS sensor cabinet ZF is to be shutdown for cleaning and inspection.
  - c. Technical Specifications have been consulted.
3. Initiating Cue: The CRS directs you to shutdown Unit 2 ESFAS sensor cabinet ZF per the Operating Instruction. *For the purpose of this JPM the sensor cabinet will not be opened and actions will be simulated.* Are there any questions? You may begin.

**6.0 PERFORMANCE****6.1 DE-ENERGIZING ESFAS****A. Initial Conditions**

1. Refer to Initial Conditions of the applicable Appendix.

**B. Procedure****NOTE**

This section is for de-energizing **ALL** of ESFAS. If it is desired to remove a single Sensor **OR** Logic cabinet from service, then proceed to the applicable appendix.

1. **DE-ENERGIZE** the ESFAS logic cabinets **PER** Appendix A.
2. **REMOVE** the ESFAS sensor cabinets from service **PER** Appendix B.

**6.2 RE-ENERGIZING ESFAS****A. Initial Conditions**

1. Refer to Initial Conditions of the applicable appendix.

**B. Re-energizing Sensor Cabinets****NOTE**

If low RCS pressure and low SG pressure conditions exist, Pressurizer Pressure (SIAS) and Steam Generator Pressure (SGIS) Sensor Channel modules will **NOT** reset on the sensor cabinets. Also, the Steam Generator High Level and UV Turbine (Reactor Trip Bus) Sensor Channel modules may be tripped. All other sensor channel trips should reset.

1. **PLACE** the ESFAS sensor cabinets in service **PER** Appendix C.

**C. Re-energizing Logic Cabinets**

1. **IF** normal RCS and SG pressure conditions exist,  
**THEN RE-ENERGIZE** the ESFAS logic cabinets **PER** Appendix D.
2. **IF** low RCS and SG pressure conditions exist,  
**THEN RE-ENERGIZE** the ESFAS logic cabinets **PER** Appendix E.

**REMOVING AN ESFAS SENSOR CABINET FROM SERVICE**

Unit \_\_\_\_\_ Mode \_\_\_\_\_ Date/Time \_\_\_\_\_ / \_\_\_\_\_

Sensor Cabinet \_\_\_\_\_

INIT

**A. Initial Conditions**

1. Shift Manager approval has been obtained. \_\_\_\_\_

**NOTE**

**IF** the Sensor Cabinet is being removed from service due to a loss of power to the Vital AC Bus,  
**THEN** Initial Conditions 2 and 3 do **NOT** apply.

2. The CRS has reviewed the equipment operability requirements of the following Technical Specifications for equipment which will be rendered inoperable during performance of this evolution:  
(N/A if de-fueled)  
  - 3.3.1, Reactor Protection Instrumentation - Operating (RPS High Containment Pressure Channel)
  - 3.3.3, RPS Logic and Trip Initiation (RPS High Containment Pressure Channel)
  - 3.3.4, ESFAS Instrumentation
  - 3.3.5, ESFAS Logic and Manual Actuation
  - 3.3.6, DG - Loss of Voltage Start
  - 3.3.7, Containment Radiation Signal
  - 3.3.9, CVCS Isolation Signal
3. **IF** the Reactor Vessel is in a de-fueled condition, **THEN** a Spent Fuel Pool Cooling Pump is available with its power supply capable of being supplied by a Diesel Generator which can be manually started and loaded.
  - 11 SFP Cooling Pump, Breaker 52-1411
  - 12 SFP Cooling Pump, Breaker 52-2411.
4. The required keys have been obtained to unlock and open the Sensor Cabinet and Actuation Logic Cabinet doors. \_\_\_\_\_

**REMOVING AN ESFAS SENSOR CABINET FROM SERVICE****A. Initial Conditions (continued)**

5. This appendix has been page checked against the LIST OF EFFECTIVE PAGES. [M0002]

**B. Procedure**

1. BYPASS Trip Unit 9 ,HI CONT PRESS, on the associated RPS channel, PER OI-6. (N/A if TCBs are open)
2. **IF** the Sensor Cabinet is being removed from service due to a loss of power, **THEN MARK** N/A Steps 3 through 6 **AND PROCEED** to Step 7.

**NOTE**

When performing lamp tests of the ESFAS cabinets, a lamp test of the spare modules is **NOT** required due to nuisance alarms that may occur.

**CAUTION**

- De-energization of a Sensor Cabinet with a trip present on another Sensor Cabinet will result in an Actuation Channel trip.
- De-energization of a Sensor Cabinet with another Sensor Cabinet de-energized will result in an Actuation Channel trip.
- The following steps must be performed in order.

3. **PERFORM** a lamp test on ALL powered sensor channels.

**NOTE**

If the unit is shutdown, trips such as SG High Level and Reactor Trip Bus UV are expected.

4. **ENSURE** no unexpected trips are present on any other Sensor Cabinets. [B0068]
5. **ENSURE** no unexpected trips **OR** trip inputs from any other Sensor Cabinets are present on the Logic Cabinets. [B0068]
6. **ENSURE** no other Sensor Cabinets are deenergized **OR** the Actuation Cabinets have been removed from service prior to deenergizing more than one Sensor Channel.
7. **PLACE** the 28 VDC On-Off switch in OFF.

**REMOVING AN ESFAS SENSOR CABINET FROM SERVICE**

**B. Procedure (continued)**

- 8. PLACE the 15 VDC On-Off switch in OFF. \_\_\_\_\_
- 9. PLACE the 48 VDC On-Off switch in OFF. \_\_\_\_\_
- 10. PLACE the 5 VDC On-Off switch in OFF. \_\_\_\_\_
- 11. PLACE the Fan Power switch in OFF. \_\_\_\_\_
- 12. PLACE the Control Power switch in OFF. \_\_\_\_\_
- 13. PLACE the Main Breaker in OFF. \_\_\_\_\_
- 14. LOG the completion of this appendix in the CRO Log IAW NO-1-204. \_\_\_\_\_
- 15. NOTIFY the Shift Manager of completion of this appendix. \_\_\_\_\_
- 16. This appendix has been page checked against the LIST OF EFFECTIVE PAGES. [M0002] \_\_\_\_\_

Appendix performed by:

NAME (print)

INITIALS

DATE/TIME

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

Performance supervised by:

NAME (print)

INITIALS

DATE/TIME

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

(SRO)

*K/j for upgrades*

**CCNPP LICENSED OPERATOR  
JOB PERFORMANCE MEASURE OI-17flush (2004)**

**TASK:** Discharge a RCWMT K/A 068A3.02  
**PURPOSE:** Evaluates an Operator's ability to perform a flush of liquid waste RMS

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

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17flush (2004)**

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

---

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-17C-4

TASK STANDARDS:


This JPM is complete when restarting the previously running RCWMT pump has been simulated.



**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17flush (2004)**

ELEMENT (* = CRITICAL STEP)	STANDARD
TIME START _____	
<b>CUE: Provide copy of OI-17C-4 Section 6.2.B Step 23.</b>	
____ Locate OI-17C-4 Section 6.2.B Step 23. a.	Locates proper section and step of procedure
____ 1. <b>VERIFY</b> MWRT less than 60 inches.	Checks 0-LIA-2196, MWRT level on 1C63 panel.
* ____ 2. <b>OPEN</b> MWRT INLET ISOL, 0-MWS-480.	SIMULATES opening 0-MWS-480.
* ____ 3. <b>SHUT</b> MWRT INLET ISOL, 0-MWS-501	SIMULATES shutting 0-MWS-501
____ 4. <b>ENSURE SHUT</b> MWRT PP RECIRC TO MWRT, 0-MWS-437	Same as element
* ____ 5. <b>OPEN</b> LIQ WASTE RECIRC TO MWS RECIRC HDR, 0-MWS-533	SIMULATES opening 0-MWS-533.
____ 6. <b>ENSURE SHUT</b> LIQ WASTE DISCH B/U ISOL, 0-MWS-2202-CV	Same as element
* ____ 7. <b>SHUT</b> LIQ WASTE RMS OUTLET, 0-MWS-528	SIMULATES shutting 0-MWS-528
<b>Note to evaluator: 0-MWS-2201-CV must be operated from the Control Room, not locally on step 8.</b>	
<b>CUE: When Control Room has been contacted, report 0-MWS-2201-CV is open</b>	
* ____ 8. <b>OPEN</b> LIQ WASTE DISCH ISOL, 0-MWS-2201-CV.	SIMULATES calling Control Room to have 0-MWS-2201- CV opened.
* ____ 9. <b>START</b> the selected RCWMT pump.	SIMULATES starting 12

**CCNPP LICENSED OPERATOR**  
**JOB PERFORMANCE MEASURE OI-17flush (2004)**

<b>ELEMENT</b> <b>(* = CRITICAL STEP)</b>	<b>STANDARD</b>
	RCWMT from 1C63 panel.

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-17flush (2004)

ELEMENT	STANDARD
(* = CRITICAL STEP)	
<b>CUE: 0-FI-2199 indicates 120 GPM (after candidate simulates throttling open 0-MWS-528)</b>	
* ____ 10. <b>THROTTLE LIQ WASTE RMS OUTLET, 0-MWS-528, as necessary to maintain a discharge flow as close to 120 GPM as read on 0-FI-2199, without exceeding 120 GPM or cavitating the pump.</b>	SIMULATES throttling 0-MWS-528 and monitors 0-FI-2199 to maintain proper flow.
<b>CUE: 0-RI-2201 indicates <math>4 \times 10^3</math> CPM.</b>	
____ 11. <b>INFORM</b> Chemistry of the readings on 0-RI-2201.	Simulates calling Chemistry with RMS reading.
<p><b>Note to evaluator: The cue is to indicate a spike on the RMS that causes the alarm condition and then returns to normal. Step 13 should be started, give the cue below, and the examinee must return to step 12.</b></p>	
<b>CUE: 0-MWS-2201- CV HAS JUST GONE SHUT. The red alarm light is on, 0- RI-2201 indicates <math>7 \times 10^4</math> CPM and slowly lowering.</b>	
____ 13. <b><u>WHEN</u></b> the 2 minute flush is complete, <b><u>THEN STOP</u></b> the running RCWMT pump.	Candidate times flush.  <b>NOTE—give the following CUE prior to completion of the 2 minute flush</b>
* ____ 12. <b><u>IF</u></b> during the flush, Radiation Monitor, 0-RI-2201 automatically shuts LIQ WASTE DISCH ISOL, 0-MWS-2201-CV, <b><u>THEN PERFORM</u></b> the following:	Determines this step is applicable.
<b>CUE: 0-RI-2201 indicates <math>4 \times 10^3</math> CPM.</b>	
____ (a). <b>NOTE</b> the reading on Radiation Monitor, 0-RI-2201	Same as element.
* ____ (b). <b>STOP</b> the running RCWMT pump.	Simulates stopping 12 RCWMT pump at 1C63

## CCNPP LICENSED OPERATOR

## JOB PERFORMANCE MEASURE OI-17flush (2004)

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

* ____ (c) SHUT LIQ WASTE OUTLET, 0-MWS-528.	panel. SIMULATES shutting 0-MWS-528.
--	---

**CUE: Chemistry has given approval for you to continue.**

* ____ (d). CONTACT Chemistry for approval to continue.	SIMULATES contacting Chemistry for approval.
____ (e). <u>IF</u> approvals are obtained, <u>THEN</u> <b>PERFORM</b> the following:	Determines this step is applicable.

Note to evaluator: 0-RI-2201 must be reset from the control room.

**CUE: 0-RI-2201 has been reset, the red light is out.**

* ____ 1) RESET Radiation Monitor 0-RI-2201	SIMULATES contacting Control Room to reset 0-RI-2201.
* ____ 2) Manually <b>OVERRIDE OPEN, LIQ WASTE DISCH ISOL, 0-MWS-2201-CV</b>	SIMULATES overriding 0-MWS-2201-CV.
* ____ 3) <b>RESTART</b> previously running RCWMT pump.	SIMULATES starting 12 RCWMT pump from 1C63 panel.

<b>TERMINATING CUE:</b>	This JPM is complete when the RCWMT pump has been restarted. No further action is required.
-------------------------	---

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

**CCNPP LICENSED OPERATOR**

**JOB PERFORMANCE MEASURE OI-17flush (2004)**

**TASK:** Discharge an RCWMT

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:**

---

---

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 Liquid Waste discharge permit has been approved for releasing 12 RCWMT.
  - b. You are performing the duties of an extra operator.
3. Initiating Cue: 12 RCWMT is being aligned for discharge using 12 RCWMT Pump per OI-17C-4 Section 6.2.B. You have been instructed to perform a flush of 0-RI-2201 per step 23.a. Are there any questions? You may begin.

DISCHARGING REACTOR COOLANT WASTE TANKS TO THE ENVIRONMENT

6.2.B Procedure (Continued)

INITIALS

**NOTE**

Step 21 can **NOT** be performed if the RCW Metering Pump is used for discharge.

21. **IF** a RCWMT Pump is to be used, **THEN PLACE** the Low Level Tank Cut-off handswitch for the pump to be used in the TANK 12 position.

- 11 RCWMT PP, 0-HS-4292

**OR**

- 12 RCWMT PP, 0-HS-4293

22. **ENSURE SHUT EFF DISCH HDR TO RCWIX, 0-RCW-261.**

**NOTE**

- Step 23 can **NOT** be performed if the RCW Metering Pump is used for discharge.
- Step 23.a is the preferred method of flushing. Step 23.b should **NOT** be performed if Step 23.a can be completed.

23. **PERFORM** a flush of 0-RI-2201, Disch Rad Monitor **PER** one of the following unless waived by the GS of Plant Chemistry:

- a. **FLUSH** Discharge Header to MWRT as follows:  
(N/A if MWMT is used)

- (1) **VERIFY** MWRT less than 60 inches.
- (2) **OPEN** MWRT INLET ISOL, 0-MWS-480.
- (3) **SHUT** MWMT INLET ISOL, 0-MWS-501.
- (4) **ENSURE SHUT** MWRT PP RECIRC TO MWRT, 0-MWS-437.
- (5) **OPEN** LIQ WASTE RECIRC TO MWS RECIRC HDR, 0-MWS-533.
- (6) **ENSURE SHUT** LIQ WASTE DISCH B/U ISOL, 0-MWS-2202-CV.
- (7) **SHUT** LIQ WASTE RMS OUTLET, 0-MWS-528.
- (8) **OPEN** LIQ WASTE DISCH ISOL, 0-MWS-2201-CV.
- (9) **START** the selected RCWMT Pump.

**DISCHARGING REACTOR COOLANT WASTE TANKS TO  
THE ENVIRONMENT**

6.2.B.23.a	<u>Procedure (Continued)</u>	<u>INITIALS</u>
	(10) <b>THROTTLE</b> LIQ WASTE RMS OUTLET, 0-MWS-528, as necessary to maintain a discharge flow as close as possible to 120 GPM, as read on 0-FI-2199, without exceeding 120 GPM or cavitating the pump.	_____
	(11) <b>INFORM</b> Chemistry of the readings on 0-RI-2201. (N/A if 0-RI-2201 is unavailable)	_____   10/00
	(12) <b>IF</b> during the flush , Radiation Monitor, 0-RI-2201 automatically shuts LIQ WASTE DISCH ISOL, 0-MWS-2201-CV, <b>THEN PERFORM</b> the following: (N/A if <b>NOT</b> automatically shut)	
	(a) <b>NOTE</b> the reading on Radiation Monitor 0-RI-2201. (N/A if 0-RI-2201 is unavailable)	_____   10/00
	(b) <b>STOP</b> the running RCWMT Pump.	_____
	(c) <b>SHUT</b> LIQ WASTE RMS OUTLET, 0-MWS-528.	_____
	(d) <b>CONTACT</b> Chemistry for necessary approvals to continue.	_____
	(e) <b>IF</b> approvals are obtained, <b>THEN PERFORM</b> the following:	
	1) <b>RESET</b> Radiation Monitor 0-RI-2201. (N/A if 0-RI-2201 is unavailable)	_____   10/00
	2) Manually <b>OVERRIDE OPEN</b> , LIQ WASTE DISCH ISOL, 0-MWS-2201-CV	_____
	3) <b>RESTART</b> previously running RCWMT pump.	_____
	4) <b>THROTTLE</b> LIQ WASTE RMS OUTLET, 0-MWS-528 as necessary to maintain a discharge flow as close as possible to 120 GPM, as read on 0-FI-2199, without exceeding 120 GPM or cavitating the pump.	_____
	(f) <b>IF</b> it is determined the discharge can <b>NOT</b> be performed, <b>THEN PROCEED</b> to step 24. (N/A if discharge will be performed)	_____
	(13) <b>WHEN</b> the 2 minute flush is complete, <b>THEN STOP</b> the running RCWMT Pump.	_____
	(14) <b>SHUT</b> LIQ WASTE RMS OUTLET, 0-MWS-528.	_____



DISCHARGING REACTOR COOLANT WASTE TANKS TO  
THE ENVIRONMENT

6.2.B.23.a

Procedure (Continued)

INITIALS

- (15) **IF** 0-MWS-2201-CV was manually overridden,  
**THEN RESET** 0-RI-2201  
**AND DISENGAGE** the manual operator.  
(N/A if **NOT** overridden) \_\_\_\_\_
- (16) **IF** Radiation Monitor, 0-RI-2201 reading was greater than  
**OR** equal to the Critical High setpoint,  
**THEN PERFORM** the following:  
(N/A if less than Critical High setpoint **OR** if 0-RI-2201 is  
unavailable) \_\_\_\_\_
- (a) **NOTIFY** the Shift Manager and Chemistry the tank  
activity level is too high to discharge at the specified  
rate. \_\_\_\_\_
- (b) **IF** it is determined the discharge can **NOT** be  
performed,  
**THEN PROCEED** to step 24.  
(N/A if discharge will be performed) \_\_\_\_\_
- (17) **SHUT** LIQ WASTE RECIRC TO MWS RECIRC HDR,  
0-MWS-533. \_\_\_\_\_
- (18) **SHUT** MWRT INLET ISOL, 0-MWS-480. \_\_\_\_\_
- (19) **OPEN** MWMT INLET ISOL, 0-MWS-501. \_\_\_\_\_

OR

- b. **FLUSH** Discharge Header to the MWMT as follows:  
(N/A if MWRT is used)
- (1) **ENSURE** MWMT level is less than 60 inches. \_\_\_\_\_
- (2) **ENSURE SHUT** EFF DISCH HDR TO RCWIX, 0-RCW-261. \_\_\_\_\_
- (3) **ENSURE SHUT** MWRT INLET, 0-MWS-480. \_\_\_\_\_
- (4) **ENSURE OPEN** MWMT RECIRC HDR ISOL, 0-MWS-501. \_\_\_\_\_
- (5) **OPEN** LIQ WASTE RECIRC TO MWS RECIRC HDR,  
0-MWS-533. \_\_\_\_\_
- (6) **ENSURE SHUT** LIQ WASTE DISCH B/U ISOL,  
0-MWS-2202-CV. \_\_\_\_\_
- (7) **ENSURE SHUT** LIQ WASTE RMS OUTLET, 0-MWS-528. \_\_\_\_\_
- (8) **OPEN** LIQ WASTE DISCH ISOL, 0-MWS-2201-CV. \_\_\_\_\_
- (9) **START** the RCWMT Pump aligned for discharge. \_\_\_\_\_