

Facility: <b>Oconee</b>		Date of Examination: <b>06/09/14</b>
Exam Level: <b>RO</b> <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <b>1</b>
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. <b>CRO-310 Perform Required Actions for a Failed LPI Train</b> EOP Enclosure 5.1 (ES Actuation) [KA: EPE 011 EA1.04 (4.4/4.4)] (10 min)	M, A, S, E, L, EN	<b>3</b>
b. <b>CRO-407 Establish EFDW Flow Through Startup Valves</b> EOP, Encl. 5.27 (Alternate Methods for Controlling EFDW Flow) [KA: APE-054 AA2.04 (4.2/4.3)] (15 min)	D, A, S, E, L	<b>4S</b>
c. <b>CRO-602 Live Bus Transfer of MFB Power From CT-1 To CT-4</b> (15 min) OP/0/A/1106/019, Enclosure 4.11 (Live Bus Transfer Of MFB Power From CT4 To CT1) [KA: 062 A4.01 (3.3/3.1)] (15 min)	D, S, L	<b>6</b>
d. <b>CRO-111 Withdrawal of Safety Rod Group 1 to 50%</b> OP/1/A/1105/019 Encl. 4.3 (Withdrawal of Safety Rod Group 1 to 50%) [KA: 001 G2.2.2 (4.6/4.1)] (12 min)	D, A, S, L	<b>1</b>
e. <b>CRO-225 Align letdown with 1HP-14 failed in "Bleed"</b> AP/1/A/170/002 (Excessive RCS Leakage) [KA: 002 A2.01 (4.3/4.4)] (14 min)	N, E, S	<b>2</b>
f. <b>CRO-408a Start fourth Reactor Coolant Pump</b> OP/1/A/1103/006 Encl. 4.4 (Starting 1B2 RCP) [KA:003 A4.06 (2.9*/2.9)] (15 min)	D, A, L, S	<b>4P</b>
g. <b>CRO-508 Pump the Quench Tank</b> OP/1/A/1104/017 Encl. 4.1 (Pumping QT) [KA: 007 A1.01 (2.9/3.1)] (10 min)	M, L, S	<b>5</b>
h. <b>CRO-801b Align Intake Canal for Recirc on Dam Failure</b> (15 min) AP/1/A/1700/13 (Dam Failure) [KA: 075 A2.01 (3.0*/3.2)] (15 min)	M, A, L, S	<b>8</b>

In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. <b>AO-710 Place Reactor Building Hydrogen Analyzers in Service</b> EOP Encl 5.2 (Placing RB Hydrogen Analyzers In Service) [KA: 028 A4.03 (3.1/3.3)] (12 min)	D, R, E	5
j. <b>CRO-805 OATC Actions for Control Room Evacuation</b> AP/3/A/1700/050 Encl. 5.5 (OATC Actions for Control Room Evacuation) [KA: BW/A06 AA1.10 (3.7*/3.9)] (25 min)	N	8
k. <b>AO-427 Reset an Emergency Feedwater Pump Turbine</b> EOP Encl 5.26 (Manual Start of TDEFWP) [KA: 061 A2.04 (3.4/3.8)] (8 min)	D,E	4S
<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	<p>4-6 / 4-6 / 2-3</p> <p><math>\leq 9 / \leq 8 / \leq 4</math></p> <p><math>\geq 1 / \geq 1 / \geq 1</math></p> <p>- / - / <math>\geq 1</math> (control room system)</p> <p><math>\geq 1 / \geq 1 / \geq 1</math></p> <p><math>\geq 2 / \geq 2 / \geq 1</math></p> <p><math>\leq 3 / \leq 3 / \leq 2</math> (randomly selected)</p> <p><math>\geq 1 / \geq 1 / \geq 1</math></p>	

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Exam Level: <b>RO</b> <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <b>1</b>
Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. <b>CRO-310 Perform Required Actions for a Failed LPI Train</b> EOP Enclosure 5.1 (ES Actuation) [KA: EPE 011 EA1.04 (4.4/4.4)] (10 min)	M, A, S, E, L, EN	<b>3</b>
b. <b>CRO-407 Establish EFDW Flow Through Startup Valves</b> EOP, Encl. 5.27 (Alternate Methods for Controlling EFDW Flow) [KA: APE-054 AA2.04 (4.2/4.3)] (15 min)	D, A, S, E, L	<b>4S</b>
c. <b>CRO-602 Live Bus Transfer of MFB Power From CT-1 To CT-4</b> (15 min) OP/0/A/1106/019, Enclosure 4.11 (Live Bus Transfer Of MFB Power From CT4 To CT1) [KA: 062 A4.01 (3.3/3.1)] (15 min)	D, S, L	<b>6</b>
d. <b>N/A</b>		
e. <b>N/A</b>		
f. <b>N/A</b>		
g. <b>N/A</b>		
h. <b>N/A</b>		

In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. <b>AO-710 Place Reactor Building Hydrogen Analyzers in Service</b> EOP Encl 5.2 (Placing RB Hydrogen Analyzers In Service) [KA: 028 A4.03 (3.1/3.3)] (12 min)	D, R, E	5
j. <b>CRO-805 OATC Actions for Control Room Evacuation</b> AP/3/A/1700/050 Encl. 5.5 (OATC Actions for Control Room Evacuation) [KA: BW/A06 AA1.10 (3.7*/3.9)] (25 min)	N	8
k. <b>N/A</b>		
@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path	4-6 / 4-6 / 2-3	
(C)ontrol room		
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$	
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$	
(EN)gineered safety feature	- / - / $\geq 1$ (control room system)	
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$	
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$	
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)	
(R)CA	$\geq 1 / \geq 1 / \geq 1$	
(S)imulator		

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-310  
PERFORM REQUIRED ACTIONS FOR A FAILED LPI TRAIN**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Perform Required Actions For A Failed LPI Train

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-004

**K/A Rating(s):**

System: EPE 011

K/A: EA1.04

Rating: 4.4/4.4

**Task Standard:**

1A and 1B LPI pumps are started when RCS pressure decreases below LPI pump discharge pressure and 1LP-17 is closed after 1A LPI pump fails.

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

EOP Enclosure 5.1, ES Actuation

**Validation Time: 10 minutes**

**Time Critical: NO**

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**Candidate:** \_\_\_\_\_  
NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

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**COMMENTS**

**SIMULATOR OPERATOR INSTRUCTIONS:**

1. **RECALL** Snap 208
2. **IMPORT** files for CRO-310
3. **WHEN** directed by Lead Examiner, Go to **RUN**

**Tools/Equipment/Procedures Needed:**

EOP Enclosure 5.1, ES Actuation

**READ TO OPERATOR**

**DIRECTION TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS:**

- A LOCA has been in progress that initially stabilized RCS Pressure at 1000 psig.
- ES Channels 1-8 have actuated on high RB pressure, the LPI pumps were secured as directed by Enclosure 5.1 (ES Actuation) to prevent pump damage.
- Enclosure 5.1(ES Actuation) has been completed up to Step 52 with outstanding IAATs.
- The LOCA CD Tab in progress.
- Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by the OATC.
- RCS pressure is decreasing rapidly.

**INITIATING CUES:**

The Control Room SRO instructs you, the Balance of Plant Operator, to continue in Enclosure 5.1 (ES Actuation).

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

<p><u>STEP 1:</u>      Step 52 REFER TO Enclosure 5.1 IAAT Steps prior to Step 52 (since this was the exit point earlier).</p> <p><u>STANDARD:</u>    Checks IAAT steps to determine if any apply Determine that IAAT Step 19 applies once RCS pressure is &lt; ≈200 psig Continue to Step 19.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 19 <b>IAAT</b> RCS Pressure is &lt; LPI pump shutoff head, <b>THEN</b> perform Steps 20 - 21</p> <p><u>STANDARD:</u>    Continue to Step 20.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>      Step 20 Perform the following:</p> <ul style="list-style-type: none"> <li>• Open 1LP-17</li> <li>• *Start 1A LPI Pump</li> </ul> <p><u>STANDARD:</u>    Determine that 1LP-17 is open by observing the Red open light is lit located on 1UB2. Places 1A LPI Pump switch to START and observes Red light on and white light off. Continue to Step 21.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL TASK</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u>      Step 21 Perform the following:</p> <ul style="list-style-type: none"> <li>• Open 1LP-18</li> <li>• *Start 1B LPI Pump</li> </ul> <p><u>STANDARD:</u>    Determine that 1LP-18 is open by observing the red open light is lit located on 1UB2. Places 1B LPI pump switch to START and observes Red light on and white light off. Go back to Step 52.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL TASK</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u>      Step 52 REFER TO Enclosure 5.1 IAAT Steps prior to Step 52</p> <p><u>STANDARD:</u>    Checks IAAT steps to determine if any apply Determines that IAAT Step 25 now applies Continue to Step 25.</p> <p><b><i>Evaluator Note: 1A LPI Pump fails while operating.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u>      Step 25 IAAT 1A LPI pump fails while operating, AND 1B LPI pump is operating, THEN close 1LP-17.</p> <p><u>STANDARD:</u>    Determine the 1A LPI Pump is off and 1B LPI pump is operating, AND Close 1LP-17.</p> <p><b><i>Cue: Another Operator will continue with this procedure.</i></b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END TASK</b></p>	<p><b>CRITICAL TASK</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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

**CRITICAL STEP EXPLANATIONS:**

<b>STEP #</b>	<b>Explanation</b>
3	Student verifies 1LP-17 is open and Starts 1A LPIP
4	Student verifies 1LP-18 is open and Starts 1B LPIP
6	Student closes 1LP-17 when 1A LPIP fails

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS:**

- A LOCA has been in progress that initially stabilized RCS Pressure at 1000 psig.
- ES Channels 1-8 have actuated on high RB pressure, the LPI pumps were secured as directed by Enclosure 5.1 (ES Actuation) to prevent pump damage.
- Enclosure 5.1(ES Actuation) has been completed up to Step 52.
- The LOCA CD Tab in progress.
- Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by the OATC.
- RCS pressure is decreasing rapidly.

**INITIATING CUES:**

The Control Room SRO instructs you, the Balance of Plant Operator, to continue in Enclosure 5.1 (ES Actuation).

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-407**

**Establish EFDW Flow Through Startup Valves**

**CANDIDATE**

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**EXAMINER**

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**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**Task:**

Establish EFDW flow through Startup valves

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-015

**K/A Rating(s):**

System: APE-054

K/A: AA2.04

Rating: 4.2/4.3

**Task Standard:**

EFDW flow is established to the affected header through the startup valve.

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

EOP Rule 3, (Loss of Main or Emergency FDW)

EOP Rule 7, (SG Feed Control)

EOP Enclosure 5.27, (Alternate Methods for Controlling EFDW Flow)

**Validation Time:** 15 minutes

**Time Critical:** NO

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**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

SIGNATURE

DATE

=====

**COMMENTS**

### **SIMULATOR OPERATOR INSTRUCTIONS**

1. **RECALL** Snap 209
2. **IMPORT** files for CRO-407
3. **WHEN** directed by Lead Examiner, go to **RUN**

### **Tools/Equipment/Procedures Needed**

- EOP Rule 3, Loss of Main and Emergency Feedwater
- EOP Encl 5.27, Alternate Methods for Controlling EFDW Flow

### **READ TO OPERATOR**

### **DIRECTION TO TRAINEE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

### **INITIAL CONDITIONS**

- The reactor has just tripped from 25% power
- Immediate Manual Actions are complete

### **INITIATING CUES**

The SRO directs you to perform a Symptoms Check

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

<p><u>STEP 1:</u> Performs a Symptom Check</p> <p><u>STANDARD:</u> Performs Symptom Check and determines that there are no symptoms to report but will perform Rule 3 due to a loss of Main Feedwater</p> <p><b>EXAMINER CUE: CR SRO acknowledges performing Rule 3 due to a Loss of Main Feedwater.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Rule 3: Step 1 Verify loss of Main FDW/EFDW is due to Turbine Building Flooding.</p> <p><u>STANDARD:</u> Observes that TB Flooding is NOT occurring by 2SA-18/A-11 (Turbine BSMT Water Emergency High Level) NOT illuminated. (OP/2/A/6102/018)</p> <p>Candidate will perform RNO step and <b>GO TO</b> step 3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Rule 3: Step 3 <b>IAAT NO</b> SGs can be fed with FDW (Main/CBP/Emergency), <b>AND</b> any of the following exist:</p> <ul style="list-style-type: none"> <li>• RCS pressure reaches 2300 psig <b>OR</b> NDT limit</li> <li>• Pzr level reaches 375" [340" acc]</li> </ul> <p><b>THEN PERFORM</b> Rule 4 (Initiation of HPI Forced Cooling).</p> <p><u>STANDARD:</u> Candidate determines Rule 4 is not required.</p> <p>Continue to Step 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4</u> Rule 3: Step 4 Start operable EFDW pumps, as required, to feed all intact SGs.</p> <p><u>STANDARD:</u> Observes MD EFDWP &amp; TD EFDWP running with switch lights on and normal discharge pressure.</p> <p>Continue to Step 5.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u> Rule 3: Step 5 Verify <u>any</u> EFDW Pump is operating.</p> <p><u>STANDARD:</u> Checks MD EFDWP &amp; TD EFDWP switch lights are on and Pumps have normal discharge pressure.</p> <p>Continue to Step 6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Rule 3: Step 6 <b>GO TO</b> step 37.</p> <p><u>STANDARD:</u> <b>GO TO</b> step 37.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Rule 3: Step 37 <b>IAAT</b> an EFDW valve <b>CANNOT</b> control in AUTO, <b>OR</b> manual operation of EFDW valve is desired to control flow/level, <b>THEN</b> perform Steps 38 - 42.</p> <p><b>ALTERNATE PATH</b></p> <p><u>STANDARD:</u> Determines that 1FDW-315 is <u>NOT</u> controlling properly (1A SG level is &lt; 30" and decreasing). Concludes that 1FDW-315 has failed closed.</p> <p>Continue to Step 38.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Rule 3: Step 38 Place EFDW valve in MANUAL.</p> <p><u>STANDARD:</u> Place 1FDW-315 in MANUAL by depressing the A/M pushbutton on the Moore controller.</p> <p>Continue to Step 39.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Rule 3: Step 39 Control EFDW flow with EFDW valve in MANUAL.</p> <p><u>STANDARD:</u> Determine that 1FDW-315 will NOT control in MANUAL. Perform <b>RNO, GO TO</b> Step 41.</p> <p>Continue to step 41</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Rule 3: Step 41 Notify CR SRO that Encl 5.27 (Alternate Methods for Controlling EFDW Flow) is being initiated.</p> <p><u>STANDARD:</u> Removes Encl. 5.27 from EOP and initiates.</p> <p><b>EXAMINER CUE: CR SRO acknowledges entry into Enclosure 5.27.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> Encl 5.27: Step 1 Identify the failure: 1FDW-315 has Failed CLOSED [<b>GO TO</b> Step 2]</p> <p><u>STANDARD:</u> Candidate determines the next procedural step from table in Step 1.</p> <p>Continue to Step 2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> Encl 5.27: Step 2 Verify 1A MD EFDWP is operating</p> <p><u>STANDARD:</u> Candidate verifies 1A MD EFDWP is operating. Verify red light on and green light off and normal discharge pressure.</p> <p>Continue to Step 3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 13:</u> Encl 5.27: Steps 3 Stop 1A MD EFDWP</p> <p><u>STANDARD:</u> *Candidate places switch to OFF. Verify red light off and white light illuminated.</p> <p>Continue to Step 4.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> Encl 5.27: Step 4 Verify 1B MD EFDWP is operating.</p> <p><u>STANDARD:</u> Candidate verifies 1B MD EFDWP is operating. Verify red light on and green light off and normal discharge pressure.</p> <p>Continue to Step 5.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u> Encl 5.27: Step 5 Place 1 TD EFDW Pump in PULL TO LOCK</p> <p><u>STANDARD:</u> *Candidate places the U1 TD EFDW Pump in PULL to LOCK. Candidate verifies red light is out and green light is lit.</p> <p>Continue to Step 6.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16:</u> Encl 5.27: Step 6 Place 1FDW-35 in HAND and set demand to 0%</p> <p><u>STANDARD:</u> Candidate places 1FDW-35 in HAND and uses toggle switch to reduce demand to 0%.</p> <p>Continue to Step 7.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 17:</u> Encl 5.27: Step 7 Close 1FDW-33</p> <p><u>STANDARD:</u> *Candidate closes SU Control Block Valve (1FDW-33). Candidate verifies red light is out and green light is lit.</p> <p>Continue to Step 8.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18:</u> Encl 5.27: Step 8 Verify 1A MD EFDWP will be used.</p> <p><u>STANDARD:</u> Candidate determines that the 1A MD EFDWP will be used.</p> <p>Continue to Step 9.</p> <p><b><i>EXAMINER CUE: If candidate asks if 1A MD EFDWP will be used, inform him that the CR SRO directs using the 1A MD EFDWP.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u> Encl 5.27: Step 9 Open 1FDW-374</p> <p><u>STANDARD:</u> *Candidate locates and opens 1FDW-374. Candidate observes green closed light off and red open light on.</p> <p>Continue to Step 10.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20:</u> Encl 5.27: Step 10 Verify the following:</p> <ul style="list-style-type: none"> <li>• 1FDW-36 closed</li> <li>• 1FDW-38 open</li> </ul> <p><u>STANDARD:</u> Candidate locates and closes 1FDW-36 and observes green closed light on and red open light off on 1VB3 or uses OAC indication.</p> <p>Candidate locates and opens 1FDW-38 and observes green closed light off and red open light lit on 1VB3 or uses OAC indication.</p> <p>Continue to Step 11.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b><u>STEP 21:</u></b> Encl 5.27: Step 11 Start 1A MD EFDWP</p> <p><b><u>STANDARD:</u></b> *Candidate places 1A MD EFDWP switch to RUN. Candidate verifies pump start by observing white light is off and red light is lit and proper discharge pressure.</p> <p>Continue to Step 12.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<div data-bbox="154 562 1245 821" style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><b>NOTE:</b></p> <p>Flow from the TD EFDWP through a S/U control valve should be read on the FDW SU FLOW gauge.</p> <p>Flow from a MD EFDWP through a S/U control valve should be read on the MDEFWP DISCH FLOW gauge.</p> <p>100 gpm could cause overcooling if adequate decay heat levels do NOT exist.</p> </div> <p><b><u>STEP 22:</u></b> Encl 5.27: Step 12 Verify <u>either</u> of the following exists:</p> <ul style="list-style-type: none"> <li>• HPI Forced Cooling is maintaining core cooling</li> <li>• CBP Feed providing SG feed</li> </ul> <p><b><u>STANDARD:</u></b> Candidate determines that neither condition is met and goes to the RNO.</p> <p>Continue to Step 12 <b>RNO</b>.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 23:</b> Encl 5.27: Step 12 <b>RNO</b>  <b>IF</b> any SG is being fed, <b>THEN</b> perform the following:</p> <ul style="list-style-type: none"> <li>• *Throttle 1FDW-35 to establish a maximum of 100 gpm.</li> <li>• *Throttle 1FDW-35 to obtain desired SG level per Rule 7 (SG Feed Control)</li> </ul> <p>Notify CR SRO of SG Feed Status</p> <p><b>STANDARD:</b> Candidate throttles 1FDW-35 to attain ~ 100 gpm flow initially on MD EFWP DISCH FLOW gauge or OAC EFW graphic, then throttles 1FDW-35 as necessary to establish ~ 25" S/U level (per Rule 7 table 4)</p> <p>Rule 7 Table 4 specifies the level to establish when using EFDWP is 30" (use MFDW setpoint if feeding via S/U CVs). The MFDW setpoint (i.e. when using the S/U CVs) is 25" S/U level since RCS temperature is &gt;500°F.</p> <p><b>EXAMINER NOTE:</b> <i>The candidate does not need to establish this level to complete the JPM. 1FDW-35 must be open and SG level increasing.</i></p> <p><b>EXAMINER CUE:</b> <i>Another operator will continue with this procedure.</i></p> <p><b>COMMENTS:</b></p> <p style="text-align: center;"><b>END TASK</b></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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**STOP TIME:** \_\_\_\_\_

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
10	This step is required to ensure the correct procedure is used.
13	This step is required to ensure the valves will operate.
15	This step is required to ensure the valves will operate.
16	This step is required to align the MD EFDWP to the S/U header.
17	This step is required to align the MD EFDWP to the S/U header.
19	This step is required to align the MD EFDWP to the S/U header.
21	This step is required to start the 1A MD EFDWP and provide a SG feed source.
23	This step is required to establish flow to the 1A SG.

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

- The reactor has just tripped from 25% power
- Immediate Manual Actions are complete

**INITIATING CUES**

The SRO directs you to perform a Symptoms Check

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-602  
LIVE BUS TRANSFER OF MFB POWER  
FROM CT 1 TO CT 4**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Live Bus Transfer Of MFB Power From CT 4 To CT 1

**Alternate Path:**

No

**Facility JPM #:**

New

**K/A Rating(s):**

System: 062  
K/A: A4.01  
Rating: 3.3/3.1

**Task Standard:**

Perform a live bus transfer from CT 4 to CT 1 by procedure.

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer)

**Validation Time:** 15 minutes

**Time Critical:** NO

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**Candidate:** \_\_\_\_\_  
NAME

Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

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**COMMENTS**

**SIMULATOR OPERATOR INSTRUCTIONS:**

1. **RECALL** Snap 212
2. Go to **RUN**
3. **SELECT** Chessell to Source Range

**Tools/Equipment/Procedures Needed:**

- OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer)

**READ TO OPERATOR**

**DIRECTION TO TRAINEE:**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS:**

- Oconee Unit 1 is in MODE 5.
- KHU-2 has been started by the Keowee operator.
- It is desired to energize the MFB from CT 4
- OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer) is in progress.

**INITIATING CUES:**

The Control Room SRO directs you to continue with OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer) beginning at step 2.4 and energize Unit one's Main Feeder Buses.

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

<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>CAUTION: DO NOT</b> allow closure of SL1 and SK1 <b>OR</b> SL2 and SK2 simultaneously. When CT-4 and CT-5 AUTO/MAN transfer switches are in MAN, this configuration is not prevented by interlock.         </div> <p><u>STEP 1:</u>      Step 2.4                     Energize 4160V Standby Buses:</p> <p>                    Step 2.4.1                     Notify all three Units that the Standby Bus is about to be powered from CT 4.</p> <p><u>STANDARD:</u>    Use the control room phone and notify all three ONS Units that the Standby Bus is about to be powered from CT 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 2.4.2                     Place CT 4 BUS 1 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>    Candidate rotates CT 4 BUS 1 AUTO/MAN switch, located on 2AB3, to "MAN".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>      Step 2.4.3                     Place STBY BUS 1 SYNCHRONIZING SWITCH to "ON".</p> <p><u>STANDARD:</u>    Candidate rotates STBY BUS 1 SYNCHRONIZING SWITCH, located on 2AB3, to "ON".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u>      Step 2.4.4 Close SK 1 CT 4 STBY BUS 1 FEEDER breaker.</p> <p><u>STANDARD:</u>    Candidate rotates SK 1 CT 4 STBY BUS 1 FEEDER breaker switch, located on 2AB3, to close and verifies white open light extinguishes and the red close light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u>      Step 2.4.5 Verify <math>\approx 4160V</math> on STANDBY BUS 1 "STANDBY BUS 1 VOLTS."</p> <p><u>STANDARD:</u>    Verify <math>\approx 4160V</math> on STANDBY BUS 1 "STANDBY BUS 1 VOLTS" on gauge located on 2AB3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u>      Step 2.4.6 Place STBY BUS 1 SYNCHRONIZING SWITCH to "OFF".</p> <p><u>STANDARD:</u>    Candidate rotates STBY BUS 1 SYNCHRONIZING SWITCH, located on 2AB3, to "OFF".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u>      Step 2.4.7 Place CT4 BUS 1 AUTO/MAN switch in "AUTO".</p> <p><u>STANDARD:</u>    Candidate rotates CT4 BUS 1 AUTO/MAN switch, located on 2AB3, to "AUTO".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>      Step 2.4.8 Place CT4 BUS 2 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>    Candidate rotates CT4 BUS 2 AUTO/MAN switch, located on 2AB3, to "MAN".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u>      Step 2.4.9 Place STBY BUS 2 SYNCHRONIZING SWITCH to "ON".</p> <p><u>STANDARD:</u>    Candidate rotates STBY BUS 2 SYNCHRONIZING SWITCH, located on 2AB3, to "ON".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 10:</u>      Step 2.4.10 Close SK 2 CT 4 STBY BUS 2 FEEDER.</p> <p><u>STANDARD:</u>    Candidate rotates SK 2 CT 4 STBY BUS 2 FEEDER breaker switch, located on 2AB3, to close and verifies white open light extinguishes and the red close light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u>      Step 2.4.11 Verify ≈4160V on STANDBY BUS 2 "STANDBY BUS 2 VOLTS."</p> <p><u>STANDARD:</u>    Verify ≈4160V on STANDBY BUS 2 "STANDBY BUS 2 VOLTS" using gauge located on 2AB3</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u>      Step 2.4.12 Place STBY BUS 2 SYNCHRONIZING SWITCH to "OFF".</p> <p><u>STANDARD:</u>    Candidate rotates STBY BUS 2 SYNCHRONIZING SWITCH, located on 2AB3, to "OFF".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u>      Step 2.4.13 Place CT 4 BUS 2 AUTO/MAN switch in "AUTO".</p> <p><u>STANDARD:</u>    Candidate rotates CT 4 BUS 2 AUTO/MAN switch, located on 2AB3, to "AUTO".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>CAUTION:</b> E1 (1,2,3) E2 (1,2,3) will <b>NOT</b> open automatically when the S1 (1,2,3) <b>OR</b> S2 (1,2,3) breakers are closed. Minimize time during which both of these sets of breakers are closed. CT 1, 2, <b>OR</b> 3 Transformer will be paralleled with CT4 from the time the first "S" breaker is closed until the last "E" breaker is opened.</p> <p><u>STEP 14:</u>      Step 2.5 For the desired Oconee Units, perform a Live Bus transfer from the Startup Transformer (CT1,CT2, <b>OR</b> CT3) to the Standby Bus:</p> <p>Step 2.5.1A <b>Unit 1</b> Place STANDBY 1 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>      Candidate rotates STANDBY 1 AUTO/MAN switch, located on 1AB1, to "MAN".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u>      Step 2.5.1B Place STANDBY 2 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>      Candidate rotates STANDBY 2 AUTO/MAN switch, located on 1AB1, to "MAN".</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16:</u>      Step 2.5.1C Place MFB 1 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>      Candidate determines that the MFB 1 AUTO/MAN switch, located on 1AB1, is in "MAN".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 17:</u>      Step 2.5.1D Place MFB 2 AUTO/MAN switch in "MAN".</p> <p><u>STANDARD:</u>    Candidate determines that the MFB 2 AUTO/MAN switch, located on 1AB1, is in "MAN".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18:</u>      Step 2.5.1E Open E1<sub>1</sub> (MFB1 STARTUP FDR).</p> <p><u>STANDARD:</u>    Candidate rotates E1<sub>1</sub> (MFB1 STARTUP FDR) switch located on 1AB1 to trip and verifies that the red close lights extinguishes and the white open light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u>      Step 2.5.1F Close S1<sub>1</sub> (STBY BUS1 TO MFB1).</p> <p><u>STANDARD:</u>    Candidate rotates S1<sub>1</sub> (STBY BUS1 TO MFB1) switch located on 1AB1 to close and verifies white open light extinguishes and the red close light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 20:</u>      Step 2.5.1G Open E2<sub>1</sub> (MFB2 STARTUP FDR).</p> <p><u>STANDARD:</u>    Candidate rotates E2<sub>1</sub> (MFB2 STARTUP FDR) switch located on 1AB1 to open and verifies that the red close lights extinguishes and the white open light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21:</u>      Step 2.5.1H Close S2<sub>1</sub> (STBY BUS2 TO MFB2).</p> <p><u>STANDARD:</u>    Candidate rotates S2<sub>1</sub> (STBY BUS2 TO MFB2) switch located on 1AB1 to close and verifies white open light extinguishes and the red close light illuminates.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 22:</u>      Step 2.5.1I Place STANDBY 1 AUTO/MAN switch in "AUTO".</p> <p><u>STANDARD:</u>    Candidate rotates STANDBY 1 AUTO/MAN switch, located on 1AB1, to "AUTO".</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 23:</u>      Step 2.5.1J Place STANDBY 2 AUTO/MAN switch in "AUTO".</p> <p><u>STANDARD:</u>    Candidate rotates STANDBY 2 AUTO/MAN switch, located on 1AB1, to "AUTO".</p> <p><u>COMMENTS:</u>    <b><i>Examiner Cue: Another operator will continue with this procedure.</i></b></p> <p style="text-align: center;"><b>END TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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STOP TIME: \_\_\_\_\_

## **CRITICAL STEP EXPLANATIONS:**

<b>STEP #</b>	<b>Explanation</b>
2	Step is required to energize the STBY Bus.
3	Step is required to energize the STBY Bus.
4	Step is required to energize the STBY Bus.
8	Step is required to energize the STBY Bus.
9	Step is required to energize the STBY Bus.
10	Step is required to energize the STBY Bus.
14	Step is required to energize the MFB from the STBY Bus.
15	Step is required to energize the MFB from the STBY Bus.
18	Step is required to energize the MFB from the STBY Bus.
19	Step is required to energize the MFB from the STBY Bus.
20	Step is required to energize the MFB from the STBY Bus.
21	Step is required to energize the MFB from the STBY Bus.

**CANDIDATE CUE SHEET  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS:**

- Oconee Unit 1 is in MODE 5.
- KHU-2 has been started by the Keowee operator.
- It is desired to energize the MFB from CT 4
- OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer) is in progress.

**INITIATING CUES:**

The Control Room SRO directs you to continue with OP/0/A/1106/019 (Keowee Hydro At Oconee), Enclosure 4.11 (Energizing MFB Power From CT 4 Using Live Bus Transfer) beginning at step 2.4 and energize Unit one's Main Feeder Buses.

**REGION II**  
**INITIAL LICENSE EXAMINATION**  
**JOB PERFORMANCE MEASURE**

**CRO-111**

**Withdrawal of Safety Rod Group 1 to 50%**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Withdrawal of Safety Rod Group 1 to 50%

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-111

**K/A Rating(s):**

System: 001  
K/A: G2.2.2  
Rating: 4.6/4.1

**Task Standard:**

Begin withdrawal Of Safety Rod Group 1 To 50% and manually trip the reactor when CRD temperature limits are exceeded per OMP 1-18.

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

OP/1/A/1105/019 (Rev 023) (Control Rod Drive System) Encl. 4.3 (Withdrawal Of Safety Rod Group 1 To 50%)  
OMP 1-18 (Rev 034) Implementation Standards During Abnormal and Emergency Events

**Validation Time:** 12 min.

**Time Critical:** No

**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

SIGNATURE

DATE

**Comments**

**SIMULATOR OPERATOR INSTRUCTIONS**

1. **RECALL** Snap 206
2. **IMPORT** CRO-111 Simulator files
3. Go To **RUN**
4. Select SR/WR on NI recorder

### **Tools/Equipment/Procedures Needed**

OP/1/A/1105/019 (Control Rod Drive System) Encl. 4.3 (Withdrawal Of Safety Rod Group 1 To 50%)

### **READ TO OPERATOR**

### **DIRECTIONS TO STUDENT**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

### **INITIAL CONDITIONS**

Unit 1 startup is in progress

RCS temperature = 339°F

RCS pressure = 530 psig

### **INITIATING CUE**

In accordance with step 2.12.4 of OP/1/A/1102/001 (Controlling Procedure For Unit Startup) Control Room SRO directs you to:

- Perform an Automatic Latch of Group 1 Control Rods
- Withdraw CRD Group 1 to 50% per OP/1/A/1105/019 (Control Rod Drive System) Enclosure 4.3 (Withdrawal Of Safety Rod Group 1) beginning at Step 3.1.

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

<p><u>STEP 1:</u>      Step 3.1</p> <p>Perform the following: (R.M.)</p> <ul style="list-style-type: none"> <li>• Ensure RUN is ON.</li> <li>• Ensure SINGLE SELECT SWITCH to ALL.</li> </ul> <p><u>STANDARD:</u>    Determine control rod speed switch is selected to RUN by observing light indication on the Diamond.</p> <p>Determine SINGLE SELECT SWITCH is selected to ALL on the Diamond.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 3.2</p> <p><b>WHILE</b> CRDs are moving, monitor the following indications:</p> <ul style="list-style-type: none"> <li>• CRD position</li> <li>• Appropriate ranged NIs</li> <li>• Startup Rate</li> </ul> <p><u>STANDARD:</u>    As CRDs are withdrawn monitor the above indications.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 3:</b> Step 3.3</p> <p>Perform Latch and PI alignment of Group 1, as follows: (R.M.)</p> <p>3.3.1 Ensure GROUP SELECT SWITCH to 1.</p> <p>3.3.2 Verify only Group 1 CONTROL ON lights are ON. (PI panel) {9}</p> <p>3.3.3 If Manual Latch and PI Alignment is desired, perform the following: (Per initiating cue, Manual is <u>NOT</u> desired)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>NOTE:</b> When LATCH AUTO is selected, the following automatically occurs:</p> <ul style="list-style-type: none"> <li>• Group/Rod inserts to latch rods (CRD TRAVEL "In" light ON)</li> <li>• Group/Rod withdraws to test for latching (CRD TRAVEL "Out" light ON)</li> <li>• Group/Rod inserts (CRD TRAVEL "In" light ON)</li> <li>• RPI resets.</li> <li>• Group In Limit light on Diamond will momentarily extinguish then illuminate.</li> </ul> </div> <p>3.3.4 If Auto Latch and PI Alignment desired, perform the following:</p> <p style="margin-left: 20px;">A. Select LATCH AUTO</p> <p style="margin-left: 20px;">B. WHEN Auto Latch is complete, perform the following:</p> <p style="margin-left: 40px;">➤ Verify LATCH AUTO is OFF.</p> <p style="margin-left: 40px;">➤ Verify Group 1 0% lights are ON. (PI Panel)</p> <p style="margin-left: 40px;">➤ Verify Group 1 API/RPI indications agree. (PI Panel)</p> <p><b>STANDARD:</b> *Rotate GROUP SELECT SWITCH to 1.</p> <p>Determine that only Group 1 CONTROL ON lights are "ON" on the PI panel.</p> <p>*Depress the LATCH AUTO pushbutton.</p> <p><b>WHEN</b> Auto Latch is complete:</p> <ul style="list-style-type: none"> <li>▪ Verify LATCH AUTO is OFF.</li> <li>▪ Verify Group 1 0% lights are ON. (PI Panel)</li> <li>▪ Verify Group 1 API/RPI indications agree using the position switch on the PI Panel.</li> </ul> <p><b>COMMENTS:</b></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 4:</b> Step 3.4</p> <p>Select FAULT RESET</p> <p><b>STANDARD:</b> Depress FAULT RESET pushbutton on the diamond panel.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u>            Step 3.5</p> <p>Select Group 1, as follows: (R.M.)</p> <ul style="list-style-type: none"> <li>➤ Ensure GROUP SELECT SWITCH to 1.</li> <li>➤ Ensure only Group 1 CONTROL ON lights are ON. (PI panel)</li> <li>➤ Ensure Group 1 at 50%. (R.M.)</li> <li>➤ Place GROUP SELECT SWITCH to OFF.</li> </ul> <p><u>STANDARD:</u>    Ensure GROUP SELECT SWITCH to 1.</p> <p>Determine that only Group 1 CONTROL ON lights are ON on the PI panel.</p> <p>*Begin withdrawing Group 1 Control Rods to 50%</p> <p>Manually Trip the Rx when two or more CRDM stator temperatures are <math>\geq 180^{\circ}\text{F}</math> IAW OMP 1-18 Attachment A (Licensed Operator Memory Items)</p> <p><b><i>ALTERNATE PATH: As rods are withdrawn, CRD temperatures will begin to increase.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><b>ALTERNATE PATH:</b> <i>As rods are withdrawn, CRD temperatures will begin to increase.</i></p> <p><u>STEP 6:</u> Manually Trip the Rx when two or more CRDM stator temperatures are <math>\geq</math> 180F IAW OMP 1-18 Attachment A (Licensed Operator Memory Items)</p> <p><u>STANDARD:</u> Candidate Manually Trip the Rx when two or more CRDM stator temperatures are <math>\geq</math> 180F IAW OMP 1-18 Attachment A (Licensed Operator Memory Items)</p> <p><b>EXAMINER NOTE:</b> <i>At <math>\approx</math> 10% withdrawn, CRD stator temperatures will begin to increase. At <math>\approx</math> 18% withdrawn, CRD stator temperatures will reach the OAC alarm set point. Once any two CRD stator temperatures reach 180F, Trip the Rx. The Critical Task is satisfied if the Reactor is manually tripped before Group 1 Control Rods reach 50% withdrawn and the candidate decides the task is completed.</i></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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TIME STOP: \_\_\_\_\_

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
<b>3</b>	This step is required to withdraw group 1 control rods.
<b>5</b>	This step is required to withdraw group 1 control rods.
<b>6</b>	This step is required to manually trip the reactor when CRD temperature limits are exceeded.

**CANDIDATE CUE SHEET  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

Unit 1 startup is in progress

RCS temperature = 339°F

RCS pressure = 530 psig

**INITIATING CUE**

In accordance with step 2.12.4 of OP/1/A/1102/001 (Controlling Procedure For Unit Startup) Control Room SRO directs you to:

- Perform an Automatic Latch of Group 1 Control Rods
- Withdraw CRD Group 1 to 50% per OP/1/A/1105/019 (Control Rod Drive System) Enclosure 4.3 (Withdrawal Of Safety Rod Group 1) beginning at Step 3.1.

**REGION II**  
**INITIAL LICENSE EXAMINATION**  
**JOB PERFORMANCE MEASURE**

**CRO-225**

**Align letdown with 1HP-14 failed in "Bleed"**

**CANDIDATE**

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**EXAMINER**

---

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**Task:**

Align letdown with 1HP-14 failed in 'Bleed'

**Alternate Path:**

No

**Facility JPM #:**

CRO-225

**K/A Rating(s):**

System: 002  
K/A: A2.01  
Rating: 4.3/4.4

**Task Standard:**

Students align letdown with 1HP-14 failed in the 'Bleed' position IAW AP/2

**Preferred Evaluation Location:**

Simulator   X   In-Plant           

**Preferred Evaluation Method:**

Perform   X   Simulate           

**References:**

AP/1/A/1700/002, Excessive RCS Leakage, (Rev 14) and EP/1/A/1800/001 (Rev 039) Enclosure 5.5, PZR and LDST Level Control.

**Validation Time:** 14 min.

**Time Critical:** No

**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

SIGNATURE

DATE

**Comments**

**SIMULATOR OPERATOR INSTRUCTIONS**

1. **RECALL** Snap 207
2. **IMPORT** CRO-225 Simulator files
3. **WHEN** directed by Lead Examiner, Go To **RUN**

### **Tools/Equipment/Procedures Needed**

- EP/1/A/1800/001 Enclosure 5.5 (PZR and LDST Level Control)
- AP/1/A/1700/002 (Excessive RCS Leakage)

### **READ TO OPERATOR**

### **DIRECTIONS TO STUDENT**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

### **INITIAL CONDITIONS**

- Reactor Power is 100%
- AP/1/A/1700/002 is in progress due to 1HP-14 failing in the BLEED position.
- Another RO is making up to the LDST per Encl 5.5 of the EOP.

### **INITIATING CUE**

The CRSRO directs you to continue with AP/1/A/1700/002 (Excessive RCS Leakage) beginning at step 4.155.

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

<p><u>STEP 1:</u>        Step 4.155 Verify 1A LD Filter in service.</p> <p><u>STANDARD:</u>    Student observes 1B Letdown (LD) Filter is in service and the 1A LD Filter is NOT in service using either the OAC or Control Board indications and goes to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>        Step 4.155 RNO</p> <p>                    1. If 1A LD Filter is OOS for maintenance, THEN restore 1A LD Filter per in progress procedure. (N/A)</p> <p>                    2. Open 1HP-17</p> <p><u>STANDARD:</u>    Student recognizes that 1A LD Filter is Available.</p> <p>                    *Student opens 1HP-17.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>        Step 4.156 Close 1HP-6</p> <p><u>STANDARD:</u>    Student closes 1HP-6</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p style="text-align: center;"><b>NOTE</b> TS 3.4.9 applies when indicated PZR Level &gt; 260" (corrected value for 285")</p>	
<p><u>STEP 4:</u>            Step 4.157  Adjust 1HP-7, as needed, to control: • BLEED flow out of failed 1HP-14 • Pzr level</p> <p><u>STANDARD:</u>      Student adjusts 1HP-7 as necessary to control PZR level.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>
<p><u>STEP 5:</u>            Step 4.158 Dispatch an operator to open 1HP-196</p> <p><u>STANDARD:</u>      Student dispatches an AO to open 1HP-196</p> <p><b><i>BOOTH CUE: Open 1HP-196 with Manual Valves</i></b></p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;"><b>CRITICAL STEP</b></p> <p style="text-align: right;">___ SAT</p> <p style="text-align: right;">___ UNSAT</p>

<p><u>STEP 6:</u>      Step 4.159 Verify CC System in Operation.</p> <p><u>STANDARD:</u>   Student observes:</p> <ul style="list-style-type: none"> <li>• At least one CC pump in operation</li> <li>• CC return flow is &gt; 575 gpm</li> </ul> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u>      Step 4.160 Position the standby HPI pump switch to OFF.</p> <p><u>STANDARD:</u>   Student places the standby (1B) HPIP switch to OFF</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>      Step 4.161 Initiate monitoring RCP parameters.</p> <p><u>STANDARD:</u>   Student refers to OAC TOC-RCP and control board indications to monitor RCP parameters.</p> <p><b><i>Booth Cue: Notify the student that 1HP-196 is open.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u>        Step 4.162                          Throttle 1HP-31 to establish 12-15 gpm SEAL INLET HEADER FLOW.</p> <p><u>STANDARD:</u>    Student throttles 1HP-31 to establish 12-15 gpm.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u>      Step 4.163                          When 1HP-196 is open, THEN close 1CS-26.</p> <p><u>STANDARD:</u>    Student closes 1CS-26.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u>      Step 4.164                          Close the following;</p> <ul style="list-style-type: none"> <li>• 1CS-27</li> <li>• 1CS-32 &amp; 37</li> </ul> <p><u>STANDARD:</u>    Student verifies closed 1CS-27, 1CS-32, and 1CS-37.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u>      Step 4.165                          Open 1HP-6</p> <p><u>STANDARD:</u>    Student opens 1HP-6.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 13:</u>      Step 4.166 Throttle 1HP-31 to establish <math>\approx</math> 32 gpm SEAL INLET HDR FLOW.</p> <p><u>STANDARD:</u>    Student throttles open 1HP-31 to establish <math>\approx</math> 32 gpm SEAL INLET HDR FLOW.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u>      Step 4.167 Adjust 1HP-7 to establish desired letdown flow.</p> <p><u>STANDARD:</u>    Student throttles open 1HP-7 to establish <math>\approx</math> 75 gpm letdown flow.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u>      Step 4.168 Position the standby HPI pump switch to AUTO</p> <p><u>STANDARD:</u>    Student places the standby (1B) HPIP switch to AUTO</p> <p><b><i>EXAMINER CUE: Notify the candidate that another operator will continue with this procedure.</i></b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END TASK</b></p>	<p><b>CRITICAL TASK</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
<b>2</b>	1HP-17 must be opened to align the alternate letdown flow path.
<b>5</b>	1HP-196 must be open for the alternate letdown flow path.
<b>10</b>	1CS-26 is closed to isolate the flow path going to the BHUTs.
<b>12</b>	Required for letdown flow to be returned to normal
<b>15</b>	The standby HPIP (1B) control switch is placed back in AUTO to protect RCP seals by automatically starting the standby HPIP if low seal injection flow (<22 gpm) is detected.

**CANDIDATE CUE SHEET  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

- Reactor Power is 100%
- AP/1/A/1700/002 is in progress due to 1HP-14 failing in the BLEED position.
- Another RO is making up to the LDST per Encl 5.5 of the EOP.

**INITIATING CUE**

The CRSRO directs you to continue with AP/1/A/1700/002 (Excessive RCS Leakage) beginning at step 4.155.

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-408a**

**START FOURTH REACTOR COOLANT PUMP**

**CANDIDATE:** \_\_\_\_\_

**EXAMINER:** \_\_\_\_\_

REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Start the fourth RCP

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-038a

**K/A Rating(s):**

System: 003  
K/A: A4.06  
Rating: 2.9\*/2.9

**Task Standard:**

1B2 RCP is started in accordance with OP/1/A/1103/006 Encl. 4.4 (Starting 1B2 RCP) and then secured per AP/16 due to high vibration

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

OP/1/A/1102/001 (Controlling Procedure for Unit Startup)  
OP/1/A/1103/006 Encl. 4.4 (Starting 1B2 RCP)  
AP/1/A/1700/016 (Abnormal Reactor Coolant Pump Operation)  
ARG 1SA-2 / E-2 (RC Pump Vibrations Emergency High)

**Validation Time:** 15 minutes

**Time Critical:** No

**Candidate:**

\_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:**

\_\_\_\_\_

NAME

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

SIGNATURE

DATE

**COMMENTS**

## **SIMULATOR OPERATOR INSTRUCTIONS**

1. **Recall** Snap 210
2. **Import** files for CRO-408a
3. **Ensure** all breaker flags are set to current plant conditions
4. **When** directed by lead examiner, **Go** to Run.

**Tools/Equipment/Procedures Needed:**

OP/1/A/1102/001 (Controlling Procedure for Unit Startup)  
OP/1/A/1103/006 Encl. 4.4 (Starting 1B2 RCP)  
ARG 1SA-2 / D-2 (RC Pump Vibration High)  
ARG 1SA-2 / E-2 (RC Pump Vibration Emergency High)

**READ TO OPERATOR**

**DIRECTION TO TRAINEE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS**

OP/1/A/1102/001 (Controlling Procedure for Unit Startup) is in progress and completed up to steps which directs starting the fourth RCP

RCS Pressure = 1660 psig slowly increasing

RCS Temperature = 471°F slowly increasing

**INITIATING CUES**

The CRSRO directs you to start the 1B2 RCP per OP/1/A/1103/006 Encl. 4.4 beginning with step 2.1.

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

<p style="text-align: center;"><b>NOTE:</b></p> <p>No more than two RCP(s) may be operated when RCS is &lt; 250 °F.</p> <p>AC and DC Oil Lift Pumps will automatically trip after 3 minutes. Oil Lift Pump may <b>NOT</b> start unless switch has been placed to "OFF" after last start.</p> <p><u>STEP 1:</u>        Step 2.1.1                     Announce "Starting 1B2 RCP" via plant page.</p> <p><u>STANDARD:</u>    Announces "Starting 1B2 RCP" using the plant page system.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>        Step 2.1.2                     <b>IF AT ANY TIME</b> Oil Lift Pump low discharge pressure clears, Go To Step 2.1.6</p> <p><u>STANDARD:</u>    Reads IAAT step and determines it does not currently apply</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>NOTE:</b> AC Oil Lift Pump may take &gt; 2 minutes to develop adequate discharge pressure.</p> <p><u>STEP 3:</u>        Step 2.1.3                            <b>IF</b> available, start AC Oil Lift Pump on 1B2 RCP.</p> <p><u>STANDARD:</u>    Determines AC Oil Lift Pump is available and:</p> <ul style="list-style-type: none"> <li>• *Rotates AC Oil Lift Pump switch to start</li> <li>• Observes red light on and green light off</li> <li>• Monitors discharge pressure status on OAC</li> <li>• Low discharge pressure warning will clear on OAC</li> </ul> <p>Candidate determines that IAAT Step 2.1.2 now applies and moves ahead to Step 2.1.6</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u>        Step 2.1.6                            <b>WHEN</b> Oil Lift Pump low discharge pressure clears <b>AND</b> &gt; 60 seconds has elapsed since starting oil lift pumps, start 1B2 RCP.</p> <p><u>STANDARD:</u>    Once the AC Oil Lift Pump low discharge pressure has cleared, start the 1B2 RCP as follows:</p> <ul style="list-style-type: none"> <li>• *Rotate 1B2 RCP switch to START</li> <li>• Verify red lights on and green light off</li> <li>• Verify starting current</li> <li>• Verify OAC indications support pump start</li> </ul> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 5:</b> Step 2.1.7</p> <p>After RCP is at full speed, perform the following:</p> <p>A. Ensure the following stopped</p> <ul style="list-style-type: none"> <li>• AC Oil Lift Pump</li> <li>• DC Oil Lift Pump</li> </ul> <p>B. If AC Oil Lift Pump was operated, position AC Oil Lift Pump switch to "OFF"</p> <p>C. If DC Oil Lift Pump was operated, position AC Oil Lift Pump switch to "OFF"</p> <p><b>STANDARD:</b> Once 1B2 RCP is at rated speed,</p> <ul style="list-style-type: none"> <li>• Rotates AC Oil Lift Pump switch to OFF</li> </ul> <p><b>EXAMINER NOTE:</b> <i>Stat-Alarms 1SA-9 / D-2 (RC Pump Vibration High) and 1SA-2 / E-2 (RC Pump Vibration Emergency High) will alarm ≈30 sec after starting 1B2 RCP.</i></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 6:</b> 1SA-9 / D-2 (RC Pump Vibration High)</p> <p>1SA-9 / E-2 (RC Pump Vibration Emergency High)</p> <p>Step 3.1</p> <p>Use one of the following means to verify RCP vibration conditions:</p> <ul style="list-style-type: none"> <li>• Verify vibration readings on RCP OAC Display Group RCP.</li> <li>• IF the OAC is unavailable, verify the alarm by referring to RCP Vibration Monitoring Chart Recorder.</li> </ul> <p><b>STANDARD:</b> Candidate verifies vibration readings apply by referring to the OAC Display Group RCP.</p> <p><b>EXAMINER NOTE:</b> <i>The Candidate may refer to either 1SA-9 / D-2 (High Vibration) or 1SA-9 / E-2 (Emergency High Vibration). ARG guidance is similar in either case.</i></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b><u>STEP 7:</u></b> 1SA-9 / D-2 (RC Pump Vibration High) Step 3.2 IF indications of both RCPs in a loop are trending up together without any changes to RCS conditions (Temp/Pressure), swap Vibration Monitor power supplies:</p> <p><b><u>STANDARD:</u></b> Candidate determines that 1B1 RCP vibrations are not increasing and Step 3.2 does not apply. Candidate continues to Step 3.3.</p> <p><b><i>EXAMINER NOTE: This step does not exist if the Candidate refers to the Emergency High Vibration stat-alarm. (1SA-9 / E-2)</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 8:</u></b> 1SA-9 / D-2 (RC Pump Vibration High) Step 3.3 1SA-9 / E-2 (RC Pump Vibration Emergency High) Step 3.2 IF MODE 1 or 2, initiate AP/1/A/1700/016 (Abnormal Reactor Coolant Pump Operation)</p> <p><b><u>STANDARD:</u></b> Candidate initiates AP/1/A/1700/016 for High Vibration on 1B2 RCP.</p> <p><b><i>EXAMINER CUE: If the candidate tells the CRSRO that the ARG directs initiating AP/16 inform the candidate that the CRSRO directs the Candidate to initiate AP/16.</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 9:</b> Step 4.1</p> <p><b>IAAT</b> any RCP meets immediate trip criteria of Encl 5.1 (RCP Immediate Trip Criteria), <b>THEN</b> perform Steps 4.2 - 4.11.</p> <p><b>STANDARD:</b> Candidate refers to AP/16 Enclosure 5.1 and determines that 1B2 RCP meets Immediate Trip Criteria due to High Vibrations.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 10:</b> Step 4.2 Verify MODE 1 <u>or</u> 2</p> <p><b>STANDARD:</b> Candidate verifies that Unit 1 is in MODE 3 and moves to Step 4.2 RNO.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 11:</b> Step 4.2 RNO Stop the <u>affected</u> RCP.</p> <p><b>STANDARD:</b> Candidate stops the 1B2 RCP.</p> <p><b>EXAMINER CUE:</b> <i>Another operator will continue with this procedure.</i></p> <p><b>COMMENTS:</b></p> <p style="text-align: center;"><b>END TASK</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
3	Required to start the 1B2 RCP
4	Required to start the 1B2 RCP
11	Required to stop 1B2 RCP

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

OP/1/A/1102/001 (Controlling Procedure for Unit Startup) is in progress and completed up to steps which directs starting the fourth RCP

RCS Pressure = 1660 psig slowly increasing

RCS Temperature = 471°F slowly increasing

**INITIATING CUES**

The CRSRO directs you to start the 1B2 RCP per OP/1/A/1103/006 Encl. 4.4 beginning with step 2.1.

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-508  
PUMP THE QUENCH TANK**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Pump the Quench Tank

**Alternate Path:**

No

**Facility JPM #:**

CRO-508

**K/A Rating(s):**

System: 007  
K/A: A1.01  
Rating: 2.9/3.1

**Task Standard:**

Utilize OP/1/A/1104/017 Enclosure 4.1 to lower Quench Tank level to 75 inches.

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

**Validation Time:** 10 minutes

**Time Critical:** NO

=====

**Candidate:** \_\_\_\_\_  
NAME

Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_  
NAME SIGNATURE DATE

=====

**COMMENTS**

## **SIMULATOR OPERATOR INSTRUCTIONS**

1. **RECALL** Snap 211
2. Place T/O sheet tags on QT Drain Pump and Component Drain Pump.
3. Update Boron Status board to show last 1A BHUT boron sample as being > 24 hours old.
4. Provide a copy of OP/1/A/1104/017 Encl 4.1 with the following:
  - Limits & Precautions
  - Steps 1.1 through 1.4 signed off.
5. Go to **RUN**

**Tools/Equipment/Procedures Needed:**

- OP/1/A/1104/017 Limits & Precautions
- OP/1/A/1104/017 Enclosure 4.1

**READ TO OPERATOR**

**DIRECTION TO TRAINEE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS**

- Unit 1 is Shutdown
- Unit 1 Quench Tank level is  $\approx 86''$
- Quench Tank is aligned to 1A BHUT
- Enclosure 4.1 of OP/1/A/1104/017 is complete up to Step 2.1

**INITIATING CUES**

The Control Room SRO directs you to use the COMPONENT DRAIN PUMP and the QUENCH TANK DRAIN PUMP to pump the Quench Tank to 1A BHUT beginning at Step 2.1 of Enclosure 4.1 of OP/1/A/1104/017.

Secure pumping the Quench Tank at  $\approx 75''$

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

<p><u>STEP 1:</u>      Step 2.1 Ensure open: ___ 1CS-5 (COMPONENT DRN PUMP SUCTION) ___ 1CS-6 (COMPONENT DRN PUMP SUCTION)</p> <p><u>STANDARD:</u>    Candidate ensures 1CS-5 and 1CS-6 are open by taking the control switches located on 1AB1 to the open position and verifying red open light illuminated and green closed light OFF. Candidate continues to Step 2.2.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 2.2 <b>IF</b> QT level will be maintained in normal operating band: 2.2.1 <b>IF</b> desired, start COMPONENT DRAIN PUMP. 2.2.2 <b>IF</b> desired, start QUENCH TANK DRAIN PUMP.</p> <p><u>STANDARD:</u>    Candidate recognizes from the Initial Conditions that this step is N/A and moves on to Step 2.3</p> <p><b>NOTE: The normal operating band for Quench Tank level is 80-100" when RCS pressure &gt; 45 psig per L&amp;P 2.4 of OP/1/A/1104/017.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>      Step 2.3 <b>IF</b> QT level is to be reduced below low level setpoint of 80 inches, perform the following: ___2.3.1 Ensure RCS pressure &lt; 45 psig.</p> <p><u>STANDARD:</u>    Candidate reads RCS pressure from the Low Range Cooldown Pressure indication and ensures that RCS pressure is &lt;45 psig. Candidate continues to Step 2.3.2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 4:</b> Step 2.3.2 <b>IF</b> desired, place COMPONENT DRAIN PUMP to BYPASS</p> <p><b>STANDARD:</b> *Candidate places the COMPONENT DRAIN PUMP switch in the BYPASS position.</p> <p><b>EVALUATOR NOTE:</b> <i>The low level cut-off for the Quench Tank Pump will trip the pump at ≈ 80".</i></p> <p><b>EVALUATOR NOTE:</b> <i>The candidate must start <u>either</u> the COMPONENT DRAIN PUMP or the QUENCH TANK DRAIN PUMP in the bypass position to complete the task. The candidate's instructions were to use both.</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 5:</b> Step 2.3.3 <b>IF</b> desired, place QUENCH TANK DRAIN PUMP to BYPASS</p> <p><b>STANDARD:</b> *Candidate places the QUENCH TANK DRAIN PUMP switch in the BYPASS position.</p> <p><b>EVALUATOR NOTE:</b> <i>The candidate must start <u>either</u> the COMPONENT DRAIN PUMP or the QUENCH TANK DRAIN PUMP to complete the task. The candidate's instructions were to use both.</i></p> <p><b>EXAMINER NOTE:</b> <i>Expect 1SA-6 / A-7 (Quench Tank Level High/Low) to alarm at 80 inches in the Quench Tank.</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 6:</b> Step 2.3.4 At desired level (≈75"), perform the following:</p> <ul style="list-style-type: none"> <li>• Ensure stopped COMPONENT DRAIN PUMP</li> <li>• Ensure stopped QUENCH TANK DRAIN PUMP</li> </ul> <p><b>STANDARD:</b> Candidate stops the COMPONENT DRAIN PUMP and the QUENCH TANK DRAIN PUMP by rotating the switch to STOP.</p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 7:</b> Step 2.4. Perform the following:          ___ *Close 1CS-5 (COMPONENT DRN PUMP SUCTION)          ___ *Close 1CS-6 (COMPONENT DRN PUMP SUCTION)</p> <p><b>STANDARD:</b> Candidate closes 1CS-5 and 1CS-6 by placing each control switch in the closed position. The green closed light illuminates and the red open light extinguishes.</p> <p><b>*Examiner Note: Closing EITHER 1CS-5 or 1CS-6 satisfies the Critical Task</b></p> <p><b>COMMENTS:</b></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 8:</b> Step 2.5.  <b>IF</b> 1A BHUT boron sample &gt; 24 hours old <b>AND</b> QT pumped to 1A BHUT, perform the following:          ___ 2.5.1 Verify closed 1CS-46 (1A RC BLEED XFER PUMP DISCHARGE).          ___ 2.5.2 Dispatch NEO to observe 1A Bleed Transfer Pump discharge pressure.(1CS-PG-0084)          ___ 2.5.3 Start 1A BLEED TRANSFER PUMP.</p> <p><b>BOOTH CUE: When called report as NEO: "I am standing by to read 1A Bleed Transfer Pump discharge pressure at (1CS-PG-0084)".</b></p> <p><b>STANDARD:</b> Candidate verifies 1CS-46 (1A RC BLEED XFER PUMP DISCHARGE) closed by observing green closed light illuminated and red open light off.          Candidate dispatches NEO to observe 1A Bleed Transfer Pump discharge pressure.(1CS-PG-0084)          Candidate starts 1A BLEED TRANSFER PUMP and observes red light illuminated and green light off.</p> <p><b>EVALUATOR CUE: When 1A BLEED TRANSFER PUMP is started inform the candidate that another operator will continue this procedure.</b></p> <p><b>COMMENTS:</b></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
1	Step required to align the flow path from the QT to 1A BHUT
4	This step is required to begin the level decrease in the Quench Tank.
5	This step is required to begin the level decrease in the Quench Tank.
6	This step stops the QT Drain Pump and the Component Drain Pump when the QT is $\approx$ 75 inches
7	This step isolates the flow path from the QT to 1A BHUT

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

Unit 1 is Shutdown

Unit 1 Quench Tank level is  $\approx 86''$

Quench Tank is aligned to 1A BHUT

Enclosure 4.1 of OP/1/A/1104/017 is complete up to Step 2.1

**INITIATING CUES**

The Control Room SRO directs you to use the COMPONENT DRAIN PUMP and the QUENCH TANK DRAIN PUMP to pump the Quench Tank to 1A BHUT beginning at Step 2.1 of Enclosure 4.1 of OP/1/A/1104/017.

Secure pumping the Quench Tank at  $\approx 75''$

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-801b**

**ALIGN INTAKE CANAL FOR RECIRC ON DAM FAILURE**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

ALIGN INTAKE CANAL FOR RECIRC ON DAM FAILURE

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-801

**K/A Rating(s):**

System: 075

K/A: A2.01

Rating: 3.0\*/3.2

**Task Standard:**

CCW Intake Canal is aligned for recirc

**Preferred Evaluation Location:**

Simulator   X   In-Plant       

**Preferred Evaluation Method:**

Perform   X   Simulate       

**References:**

AP/1/A/1700/13 (CCW Dam Failure)

**Validation Time:** 15 min.

**Time Critical:** No

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**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

=====

**Comments**

**SIMULATOR OPERATOR INSTRUCTIONS:**

1. **Recall** snap 214
2. **Import** simulator files for CRO-801
3. **Ensure** all breaker flags (especially CCW pumps) are set to current plant conditions.
4. **Go** to **RUN** as directed by examiner
5. **When** asked to dispatch an operator to close the breaker for 1CCW-12 (at step 17)  
**Fire Timer #1** and inform student that using time compression the breaker is closed.

**Tools/Equipment/Procedures Needed:**

- AP/1/A/1700/013 (Dam Failure)

**READ TO OPERATOR**

**DIRECTIONS TO STUDENT:**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS:**

- Security reports that a failure of the Newry Dam has occurred.
- The CCW Intake Canal is intact
- Subsequent Actions of AP/1/A/1700/013 (Dam Failure) have been completed up to step 4.4.

**INITIATING CUE:**

The Control Room SRO directs you to align the CCW Intake Canal for recirc, using the 1C CCW pump, beginning at step 4.4 of AP/1/A/1700/013.

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

<p><u>STEP 1:</u>      Step 4.4 Depress the "CCW DAM FAILURE" pushbutton.</p> <p><u>STANDARD:</u> The "CCW DAM FAILURE" pushbutton is located by the student on 1AB3 and depressed.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 4.5 Dispatch an individual to the area of the dam failure to report damage to the Control Rooms.</p> <p><u>STANDARD:</u> An individual is dispatched to report damage to the Control Rooms.</p> <p><b><i>Booth Cue: When asked, report that an Individual has been dispatched to the Newry dam</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>      Step 4.6  GO TO step 4.49</p> <p><u>STANDARD:</u> Student goes to step 4.49</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p style="text-align: center;"><b>NOTE</b></p> <p>Although LPSW may still be in service, Encl 5.1 will isolate LPSW to the RCPs.</p>	<p><b>*CRITICAL STEP</b></p>
<p><u>STEP 4:</u>      Step 4.49</p> <p>                  *Stop <u>all</u> RCP's</p> <p>                  Notify the CR SRO that for EOP purposes, RCPs should be considered</p> <p>                  <u>unavailable</u> for restart until LPSW is restored</p> <p><u>STANDARD:</u>    *The control switches for RCPs 1A1, 1A2, 1B1 and 1B2 are located by the student on 1AB1 and rotated counter-clockwise to the TRIP position.</p> <p>                  CR SRO notified of RCP status</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 5:</u>      Step 4.50</p> <p>                  Stop <u>all</u> CCW pumps.</p> <p><u>STANDARD:</u>    1A, 1B, 1C, and 1D CCW Pump switches are located by the student on 1AB3.</p> <p>                  Student ensures all CCW pump Red 'ON' lights are extinguished and</p> <p>                  White 'OFF' lights are illuminated.</p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

<p><u>STEP 6:</u> Step 4.51</p> <p>Open 1CCW-1-6 (WATERBOX EMER DISCH VALVES).</p> <p><u>STANDARD:</u> Student locates 1CCW-1-6 (WATERBOX EMER DISCH) control and indication on 1AB3 and ensures red "OPEN" indication is illuminated and green "CLOSED" indication is extinguished.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p>  <p>___ UNSAT</p>
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**NOTE**

Switches for waterbox discharge valves are located at T-3/D18, D20, D22 on catwalk on east side of the condenser.

STEP 7: Step 4.52

Verify all condenser outlet valves indicate closed using the OAC (GD AP13):

1 CCW-20 (Condenser 1A1 Outlet) (O1D0273)

1 CCW-21 (Condenser 1A2 Outlet) (O1D0275)

1 CCW-22 (Condenser 1B1 Outlet) (O1D0277)

1 CCW-23 (Condenser 1B2 Outlet) (O1D0279)

1 CCW-24 (Condenser 1C1 Outlet) (O1D0281)

1 CCW-25 (Condenser 1C2 Outlet) (O1D0283)

\_\_\_ SAT

\_\_\_ UNSAT

STANDARD: The student monitors the Operator Aid Computer to verify the following:

1 CCW-20 (Condenser 1A1 Outlet) closed (O1D0273)

1 CCW-21 (Condenser 1A2 Outlet) closed (O1D0275)

1 CCW-22 (Condenser 1B1 Outlet) closed (O1D0277)

1 CCW-23 (Condenser 1B2 Outlet) closed (O1D0279)

1 CCW-24 (Condenser 1C1 Outlet) closed (O1D0281)

1 CCW-25 (Condenser 1C2 Outlet) closed (O1D0283)

COMMENTS:

<p><b><u>STEP 8:</u></b>      Step 4.53</p> <p>Dispatch an operator to place all condenser outlet valves in HAND.</p> <ul style="list-style-type: none"> <li>• 1CCW-20</li> <li>• 1CCW-21</li> <li>• 1CCW-22</li> <li>• 1CCW-23</li> <li>• 1CCW-24</li> <li>• 1CCW-25</li> </ul> <p><b><u>STANDARD:</u></b> An operator is dispatched to place the condenser outlet valves in HAND.</p> <p><b><i>Booth Cue: When called, acknowledge that an operator has been dispatched to place the valves in HAND.</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b>NOTE</b></p> <p>CCW-8 should open after the CCW DAM FAILURE pushbutton is pressed and the first Waterbox Emergency Discharge valve (1CCW-1 - 6) opens. If CCW-8 does not open, it should be left closed in preparation for CCW recirculation.</p> </div> <p><b><u>ALTERNATE PATH</u></b></p> <p><b><u>STEP 9:</u></b>      Step 4.54</p> <p>Verify CCW-8 is open.</p> <p><b><u>STANDARD:</u></b> CCW-8 switch and indication is located by the student on 2AB3 and the valve is determined to be CLOSED. Candidate proceeds to Step 4.54 RNO</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 10:</u>      Step 4.54 RNO</p> <p><b>IF</b> emergency CCW siphon flow has <b>NOT</b> been established on Unit 1,  <b>THEN</b> notify Unit 2 that emergency CCW siphon flow has <b>NOT</b> been established on Unit 1..</p> <p><u>STANDARD:</u> Unit 2 Control Room is notified that siphon flow has NOT been established on Unit 1.</p> <p><b><i>Examiner/Booth Cue: When candidate contacts Unit 2, acknowledge the notification that CCW siphon flow has NOT been established on Unit 1.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u>      Step 4.56</p> <p>Dispatch operator(s) to perform Enclosure 5.2 (CCW Inventory Conservation).</p> <p><u>STANDARD:</u> Operator(s) are dispatched to perform Enclosure 5.2.</p> <p><b><i>Booth Cue: When contacted by the candidate, acknowledge that operators will perform Enclosure 5.2</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<div data-bbox="159 216 1247 325" data-label="Text"> <p style="text-align: center;"><b>NOTE</b></p> <p>Unit 2 CR will decide which unit will establish CCW recirculation. Unit 1 will only supply CCW recirculation when directed by Unit 2.</p> </div> <div data-bbox="170 331 1203 489" data-label="Text"> <p><b>STEP 12:</b>      Step 4.57</p> <p>IAAT Unit 2 CR has directed Unit 1 to supply CCW recirculation, THEN perform Steps 4.58-4.73 to start <u>one</u> CCW Pump and establish recirculation.</p> </div> <div data-bbox="170 552 771 590" data-label="Text"> <p><b>STANDARD:</b> Student continues to step 4.58.</p> </div> <div data-bbox="170 646 1214 688" data-label="Text"> <p><b>Cue:</b> <i>Unit 2 Control Room has directed Unit 1 to supply CCW recirculation.</i></p> </div> <div data-bbox="170 745 349 783" data-label="Text"> <p><b>COMMENTS:</b></p> </div>	<p>___ SAT</p> <p>___ UNSAT</p>
<div data-bbox="159 993 1247 1234" data-label="Text"> <p style="text-align: center;"><b>NOTE</b></p> <p>At least one CCW Pump discharge valve is required to remain open prior to establishing forced flow.</p> <p>The adjacent CCW Pumps discharge valve must be closed to prevent excessive torque on the starting pumps discharge valve. The 1A and 1B CCW Pumps are adjacent, and the 1C and 1D CCW Pumps are adjacent.</p> </div> <div data-bbox="170 1291 941 1381" data-label="Text"> <p><b>STEP 13:</b>      Step 4.58</p> <p>Determine which CCW Pump will be started.</p> </div> <div data-bbox="170 1438 1222 1507" data-label="Text"> <p><b>STANDARD:</b> The student determines from the turnover that the "1C" CCWP will be started</p> </div> <div data-bbox="170 1570 349 1608" data-label="Text"> <p><b>COMMENTS:</b></p> </div>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14:</u> Step 4.59 Place <u>all</u> CCW Pump switches in the trip position.</p> <p><u>STANDARD:</u> Student places all Unit 1 CCW Pump switches in the tripped position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u> Step 4.60 Verify the 1A or 1B CCW Pump is to be started.</p> <p><u>STANDARD:</u> Student determines from initiating cue that the 1C CCW pump will be started and goes to the RNO column and therefore goes to step 4.63.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16:</u> Step 4.63 Verify both of the following CCW pump discharge valves are closed.</p> <p style="padding-left: 40px;">1CCW-12 1CCW-13</p> <p><u>STANDARD:</u> The student notes that the discharge valve for the 1C CCW pump (1CCW-12) is not closed and proceeds to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 17:</b> Step 4.63 RNO Locally close the discharge valve from the breaker switch for 1CCW-12 (Unit 1 Equipment room) (1CCW-13 is already closed)</p> <p><b>STANDARD:</b> The student dispatches an operator to locally close 1CCW-12 from the breaker switch (1XS3-2E).</p> <p><b>BOOTH CUE:</b> <i>When an operator is dispatched, fire TIMER #1, then inform candidate that 1CCW-12 is closed</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<div data-bbox="154 825 1247 936" style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>NOTE</b></p> <p>CCW pump amps and temperatures will read higher than normal when started with this plant configuration. CCWP motor stator temperature limit is 284°F.</p> </div> <p><b>STEP 18:</b> Step 4.64 Start the selected CCW Pump.</p> <p><b>STANDARD:</b> *The student starts 1C CCW pump by rotating the control switch to the CLOSE position.</p> <p>“1C” CCW Pump will start only after its discharge valve has begun to travel open.</p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 19:</b> Step 4.65 Verify the started CCW Pump Discharge valve opened.</p> <p><b>STANDARD:</b> The discharge valve(1CCW-12) is verified OPEN</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b><u>STEP 20:</u></b>      Step 4.66 Ensure CCWP LOAD SHED DEFEAT switch is positioned to a running CCWP.</p> <p><b><u>STANDARD:</u></b>    The student positions the CCWP LOAD SHED DEFEAT switch in the "1C" CCW Pump position</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 21:</u></b>      Step 4.67 Verify CCW-9 opens.</p> <p><b><u>STANDARD:</u></b>    The student locates CCW-9 switch and indication on 2AB3 verifying red "OPEN" indication illuminated and green "CLOSED" indication extinguished.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 22:</u></b>      Step 4.68 Verify CCW-8 is closed.</p> <p><b><u>STANDARD:</u></b>    CCW-8 switch and indication are located by the student on 2AB3 verifying green "CLOSED" indication illuminated and red "OPEN" indication extinguished.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 23:</u> Step 4.69</p> <p>Verify an operator has been dispatched to open 1DP-F5C (CCW-8 BKR (EMERG CCW DISCH TO TAILRACE)).</p> <p><u>STANDARD:</u> An operator has not yet been dispatched so the student proceeds to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24:</u> Step 4.69 RNO</p> <p>Dispatch an operator to open 1DP-F5C (CCW-8 BKR (EMERG CCW DISCH TO TAILRACE)).</p> <p><u>STANDARD:</u> Operator dispatched.</p> <p><b><i>Booth Cue: When contacted, inform the student that an operator has been dispatched to open the breaker for CCW-8</i></b></p> <p><b><i>Examiner Cue: Another operator will continue with this procedure</i></b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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

### **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
1	This step is critical because depressing this pushbutton trips all operating CCW Pumps and sets up system logic for CCW recirculation flow.
4	This step is critical because RCPs must be stopped to reduce primary heat load.
17	This step is critical because it is necessary to establish recirculation flow.
18	This step is critical because it is necessary to establish recirculation flow.
20	This step is critical to protect the plant during a subsequent loop.

**CANDIDATE CUE SHEET  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS:**

Security reports that a failure of the Newry Dam has occurred.

The CCW Intake Canal is intact

Subsequent Actions of AP/1/A/1700/013 (Dam Failure) have been completed up to step 4.4.

**INITIATING CUE:**

The Control Room SRO directs you to align the CCW Intake Canal for recirc, using the 1C CCW pump, beginning at step 4.4 of AP/1/A/1700/013.

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**AO-710**

**Place the Reactor Building Hydrogen Analyzer In  
Service**

**CANDIDATE**

---

**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Place the 1A Reactor Building Hydrogen Analyzer In Service

**Alternate Path:**

No

**Facility JPM #:**

AO-010

**K/A Rating(s):**

System: 028

K/A: A4.03

Rating: 3.1/3.3

**Task Standard:**

Reactor Building Hydrogen Analyzers are placed in service by procedure within 90 minutes.

**Preferred Evaluation Location:**

Simulator \_\_\_\_\_ In-Plant   X  

**Preferred Evaluation Method:**

Perform \_\_\_\_\_ Simulate   X  

**References:**

EP/1/A/1800/00, (Rev 39) EOP Enclosure 5.2, "Placing RB Hydrogen Analyzers in Service"

**Validation Time:** 12 minutes

**Time Critical:** Yes

**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

SIGNATURE

DATE

**COMMENTS**

**SIMULATOR OPERATOR INSTRUCTIONS**

**None**

### **Tools/Equipment/Procedures Needed**

Enclosure 5.2, "Placing RB Hydrogen Analyzers in Service" Enclosure of EP/1/A/1800/001

**NOTE: Student is expected to know that this procedure is pre-staged at the Hydrogen Analyzers and be able to locate the procedure. (Not Critical)**

### **READ TO OPERATOR**

### **DIRECTION TO TRAINEE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

### **INITIAL CONDITIONS**

A LOCA has occurred on Unit 1.

Engineered Safeguards Channels 1 and 2 have actuated.

Enclosure 5.1 (ES Actuation) of the EOP is being completed.

The 1A and 1B RB Hydrogen Analyzer Trains are aligned in the standby mode.

### **INITIATING CUES**

The Control Room SRO directs you to place both trains of the RB Hydrogen Analyzers in service on Unit 1 per EOP Enclosure 5.2 "Placing RB Hydrogen Analyzers in Service".

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

**NOTE**

Hydrogen analyzer (RP) panels are located in A-6-602, Vent Equipment Rm, col Q73 West.

**STEP 1:**

Step 1

At 1A H2 ANALYZER (RP), perform the following:

- Ensure POWER ON light is on.
- Position H2 DUAL RANGE SW to H2 0 -10% Range.
- Position FUNCTION SELECTOR switch to SAMPLE.
- Depress the OFF button for the following:
  - \_\_\_ 1PR-83 (BYP TO POST AC 1SV220)
  - \_\_\_ 1PR-86 (BYP TO POST AC 1SV221)

\_\_\_ SAT

\_\_\_ UNSAT

**STANDARD:** Red "Power On" light on remote panel is verified to be ON at the Remote RB Hydrogen Analyzer Panel (Train "A").

***Cue: Indication is as you see it***

H2 DUAL RANGE Sw. on the Remote Panel is verified to be positioned to the "0-10%" scale.

***Cue: Indication is as you see it***

FUNCTION SELECTOR SWITCH on the Remote Panel is verified to be positioned in the "SAMPLE" position.

***Cue: Indication is as you see it***

At the remote panel, the "OFF" button is pushed for the following valves:

**Train A**

- PR-83 (Bypass to Post Accident Sample Panel)
- PR-86 (Bypass from Post Accident Sample Panel)

***Cue: OFF button is depressed and indications are as you see them***

**COMMENTS:**

**NOTE**

Hydrogen analyzer (RP) panels are located in A-6-602, Vent Equipment Rm, col Q73 West.

**STEP 2:**

Step 2

At 1B H2 ANALYZER (RP), perform the following:

- Ensure POWER ON light is on.
- Position H2 DUAL RANGE SW to H2 0 -10% Range.
- Position FUNCTION SELECTOR switch to SAMPLE.
- Depress the OFF button for the following:
  - \_\_\_ 1PR-89 (BYP TO POST AC 1SV220)
  - \_\_\_ 1PR-92 (BYP TO POST AC 1SV221)

\_\_\_ SAT

\_\_\_ UNSAT

**STANDARD:** Red "Power On" light on remote panel is verified to be ON at the Remote RB Hydrogen Analyzer Panel (Train "B").

***Cue: Indication is as you see it***

H2 DUAL RANGE Sw. on the Remote Panel is verified to be positioned to the "0-10%" scale.

***Cue: Indication is as you see it***

FUNCTION SELECTOR SWITCH on the Remote Panel is verified to be positioned in the "SAMPLE" position.

***Cue: Indication is as you see it***

At the remote panel, the "OFF" button is pushed for the following valves:

**Train A**

- PR-89 (Bypass to Post Accident Sample Panel)
- PR-92 (Bypass from Post Accident Sample Panel)

***Cue: OFF button is depressed and indications are as you see them***

**COMMENTS:**

<p><b><u>STEP 3:</u></b> Step 3 Notify Control Room to perform the following:</p> <ul style="list-style-type: none"> <li>• Open 1PR-81 and 1PR-84</li> <li>• Open 1PR-87 and 1PR-90</li> </ul> <p><b><u>STANDARD:</u></b> Unit 1 Control Room personnel are notified to open 1PR-81, 1PR-84, 1PR-87, and 1PR-90 to align the Reactor Building Hydrogen Analyzer to the Reactor Building.</p> <p><b><i>Cue: After notification has been made, indicate to student that the red OPEN indication lights for all four valves located at the Remote Panel, are ON and green lights are off.</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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	CRITICAL STEP
<p style="text-align: center;"><b><u>NOTE</u></b></p> <p>When ANALYZE is selected, the indication will go up scale, possibly causing a HIGH HYDROGEN ALARM in the Analyzer Panel, the Remote Panel, and the Control Room. It should return down scale to the correct reading in <math>\approx</math> 3 minutes.</p> <p><b><u>STEP 4:</u></b>      Step 4</p> <p>At 1A H2 ANALYZER (RP), perform the following:</p> <ul style="list-style-type: none"> <li>• Position SAMPLE VALVE SEL SW to PR-71 (TOP OF CONTAINMENT SAMPLE).</li> <li>• Position OFF / STANDBY / ANALYZE switch to ANALYZE.</li> <li>• Depress REMOTE SELECTOR pushbutton to ensure control is from the Remote Panel.</li> </ul> <p><b><u>STANDARD:</u></b>    SAMPLE VALVE SEL. Sw. is positioned to appropriate sample valve:</p> <ul style="list-style-type: none"> <li>• PR-71 (Top of Containment Sample) for Train 'A'</li> </ul> <p><b><i>Cue: Point to the Sample Valve Selector Switch and state switch is in the PR-71 position and the red light is illuminated</i></b></p> <ul style="list-style-type: none"> <li>• OFF/STANDBY/ANALYZE switch is positioned to the "ANALYZE" Mode.</li> </ul> <p><b><i>Cue: Point to the Off/Standby/Analyze Switch is in Analyze position. The Hydrogen Concentration Meter reads approximately 3% hydrogen and the Yellow COMMON ALARM Light and Yellow HIGH HYDROGEN ALARM Lights are ON.</i></b></p> <ul style="list-style-type: none"> <li>• REMOTE SELECTOR Pushbutton is depressed.</li> </ul> <p><b><i>Cue: Pushbutton is depressed.</i></b></p> <p><b><i>Cue: Inform candidate that <u>using time compression</u> approximately three minutes have elapsed</i></b></p> <p><b><i>Cue: If asked inform the candidate that the Hydrogen Concentration Meter indicating 0% hydrogen concentration</i></b></p> <p><b><i>Cue: If asked inform the candidate that the High alarm is extinguished and the Common alarm is still illuminated.</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

	CRITICAL STEP
<p style="text-align: center;"><b><u>NOTE</u></b></p> <p>When ANALYZE is selected, the indication will go up scale, possibly causing a HIGH HYDROGEN ALARM in the Analyzer Panel, the Remote Panel, and the Control Room. It should return down scale to the correct reading in <math>\approx</math> 3 minutes.</p> <p><b><u>STEP 5:</u></b>      Step 5</p> <p>At 1B H2 ANALYZER (RP), perform the following:</p> <ul style="list-style-type: none"> <li>• Position SAMPLE VALVE SEL SW to PR-76 (TOP OF CONTAINMENT SAMPLE).</li> <li>• Position OFF / STANDBY / ANALYZE switch to ANALYZE.</li> <li>• Depress REMOTE SELECTOR pushbutton to ensure control is from the Remote Panel.</li> </ul> <p><b><u>STANDARD:</u></b>    SAMPLE VALVE SEL. Sw. is positioned to appropriate sample valve:</p> <ul style="list-style-type: none"> <li>• PR-76 (Top of Containment Sample) for Train 'B'</li> </ul> <p><b><i>Cue: Point to the Sample Valve Selector Switch and state switch is in the PR-76 position and the red light is illuminated.</i></b></p> <ul style="list-style-type: none"> <li>• OFF/STANDBY/ANALYZE switch is positioned to the "ANALYZE" Mode.</li> <li>•</li> </ul> <p><b><i>Cue: Point to the Off/Standby/Analyze Switch is in Analyze position. The Hydrogen Concentration Meter reads approximately 3% hydrogen and the Yellow COMMON ALARM Light and Yellow HIGH HYDROGEN ALARM Lights are ON.</i></b></p> <ul style="list-style-type: none"> <li>• REMOTE SELECTOR Pushbutton is depressed.</li> </ul> <p><b><i>Cue: Pushbutton is depressed.</i></b></p> <p><b><i>Cue: Inform candidate that <u>using time compression</u> approximately three minutes have elapsed</i></b></p> <p><b><i>Cue: If asked inform the candidate that the Hydrogen Concentration Meter indicating 0% hydrogen concentration</i></b></p> <p><b><i>Cue: If asked inform the candidate that the High alarm is extinguished and the Common alarm is still illuminated.</i></b></p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 6:</b> Step 6</p> <p><b>IAAT</b> <u>either</u> RB Hydrogen Analyzer Train indicates &lt; 2.25% Hydrogen, <b>AND</b> the meter reading stabilizes, <b>THEN</b> push the ALARM RESET pushbutton to reset the COMMON ALARM on appropriate train.</p> <p>___ 1A RB Hydrogen Analyzer Train</p> <p>___ 1B RB Hydrogen Analyzer Train</p> <p><b>STANDARD:</b> ALARM RESET Pushbutton is depressed for both trains.</p> <p><b>Cue:</b> <i>If the candidate asks, indicate that the Hydrogen reading is ≈ 0 percent on both trains.</i></p> <p><b>Cue:</b> <i>Indicate to student that both yellow alarm lights are out after the ALARM RESET Pushbutton is depressed.</i></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 7:</b> Step 7</p> <p><b>WHEN</b> HIGH HYDROGEN alarm has been reset on both 1A and 1B RB Hydrogen Analyzer Train, <b>THEN</b> notify Unit 1 Control Room that 1A and 1B Hydrogen Analyzer Train are in service.</p> <p><b>STANDARD:</b> Phone/radio is located and control room personnel are notified that the RB Hydrogen Analyzers are in service.</p> <p><b>Cue:</b> <i>Control room acknowledges Hydrogen Analyzers is in service.</i></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 6:</b> Step 8</p> <p><b>EXIT</b> this enclosure.</p> <p><b>STANDARD:</b> Procedure is exited.</p> <p><b>COMMENTS:</b></p> <p style="text-align: center;"><b>END TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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

## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
3	Opens the block valves to the 1A and 1B H2 analyzer.
4	Starts the Analyzer pump and the sampling process for the 1A H2 Analyzer
5	Starts the Analyzer pump and the sampling process for the 1B H2 Analyzer
6	Required to enable Control Room to detect increase H2 concentration

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

A LOCA has occurred on Unit 1.

Engineered Safeguards Channels 1 and 2 have actuated.

Enclosure 5.1 (ES Actuation) of the EOP is being completed.

The 1A and 1B RB Hydrogen Analyzer Trains are aligned in the standby mode.

**INITIATING CUES**

The Control Room SRO directs you to place both trains of the RB Hydrogen Analyzers in service on Unit 1 per EOP Enclosure 5.2 "Placing RB Hydrogen Analyzers in Service".

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**CRO-805**

**OATC Actions for Control Room Evacuation**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Remove Control Power Fuses and Open Breakers as directed by AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation)

**Alternate Path:**

No

**Facility JPM #:**

AO-805

**K/A Rating(s):**

System: BW/A06

K/A: AA1.10

Rating: 3.7\*/3.9

**Task Standard:**

Control Power fuses for HPI pumps, RB Spray Pumps, and Reactor Coolant Pumps are pulled. Breakers for 3HP-939, 3HP-940, 3LP-21, and 3LP-22 are opened

**Preferred Evaluation Location:**

Simulator \_\_\_\_\_ In-Plant   X  

**Preferred Evaluation Method:**

Perform \_\_\_\_\_ Simulate   X  

**References:**

AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation)

**Validation Time: 25 minutes**

**Time Critical: No**

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**Candidate:** \_\_\_\_\_

NAME

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

Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time \_\_\_\_\_

**Examiner:** \_\_\_\_\_

NAME

SIGNATURE

DATE

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**COMMENTS**

**SIMULATOR OPERATOR INSTRUCTIONS**

**None**

### **Tools/Equipment/Procedures Needed**

AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation)

Breaker compartment pictures

### **READ TO OPERATOR**

### **DIRECTION TO TRAINEE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

### **INITIAL CONDITIONS**

- A plant fire is in progress that requires evacuation of Unit 3 Control Room
- AP/3/A/1700/050(Challenging Plant Fire) is in progress
- Steps 1 through 9 of AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation) have been completed

### **INITIATING CUES**

The Control Room SRO directs you to complete AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5. (OATC Actions for Control Room Evacuation)

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

**EXAMINER NOTE: Do NOT allow candidate to open any of the electrical panels during the performance of this JPM.**

<p><u>STEP 1:</u> Step 10 Remove <u>all</u> control power fuses from 3B HPI Pump at 3TE-9 (T-3/L45).</p> <p><u>STANDARD:</u> Candidate locates the 4160V breaker cabinet for the 3B HPI Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 11 Remove <u>all</u> control power fuses from 3C HPI Pump at 3TD-9 (T-3/L44).</p> <p><u>STANDARD:</u> Candidate locates the 4160V breaker cabinet for the 3C HPI Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 3:</b> Step 12</p> <p>Remove <u>all</u> control power fuses from 3B RBS Pump at 3TD-11 (T-3/L44).</p> <p><b>STANDARD:</b> Candidate locates the 4160V breaker cabinet for the 3B RBS Pump and indicates that the upper compartment door would be opened</p> <p><b>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b>Examiner Cue: Fuses are where you placed them.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 4:</b> Step 13</p> <p>Remove <u>all</u> control power fuses from 3A HPI Pump at 3TC-8 (T-3/L43).</p> <p><b>STANDARD:</b> Candidate locates the 4160V breaker cabinet for the 3A HPI Pump and indicates that the upper compartment door would be opened</p> <p><b>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b>Examiner Cue: Fuses are where you placed them.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u>      Step 10</p> <p>Remove <u>all</u> control power fuses from 3A RBS Pump at 3TC-10 (T-3/L43).</p> <p><u>STANDARD:</u>    Candidate locates the 4160V breaker cabinet for the 3A RBS Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><b>STEP 6:</b>      Step 15</p> <p>Open the following breakers (U3 Equip Rm):</p> <ul style="list-style-type: none"> <li>• 3XS5-F3B (3HP-940 Bkr) (LDST to RBES Train B)</li> <li>• 3XS2-F3D (3LP-22 Bkr) (3B LPI BWST Suction)</li> <li>• 3XS4-F3B (3HP-939 Bkr) (LDST to RBES Train A)</li> <li>• 3XS1-F5D (3LP-21 Bkr) (3A LPI BWST Suction)</li> </ul> <p><b>STANDARD:</b>      Candidate locates the following breakers, acquires the appropriate electrical safety PPE, and positions the handles to the OFF position:</p> <p>Safety PPE requirements are in the Safe Work Practices Manual chapter 10 and the PPE itself is in various lockers located in the vicinity of the electrical equipment.</p> <p>For 3LP-20 &amp; 3LP-21- Flash suit and hood rated for at least 43 cal/cm2 with hearing protection.</p> <p>For 3HP-939 &amp; 3HP-940 – FR clothing rated for at least 12 cal/cm2 w/ green Arc-X face shield or equivalent.</p> <ul style="list-style-type: none"> <li>• *3XS5-F3B (3HP-940 Bkr) (LDST to RBES Train B)</li> <li>• *3XS2-F3D (3LP-22 Bkr) (3B LPI BWST Suction)</li> <li>• *3XS4-F3B (3HP-939 Bkr) (LDST to RBES Train A)</li> <li>• *3XS1-F5D (3LP-21 Bkr) (3A LPI BWST Suction)</li> </ul> <p><b>Examiner Cue:</b> <i>The breaker handles that have the silver ring require the ring be removed before the breaker can be re-positioned</i></p> <p><b>Examiner Note:</b> <i>The breaker for 3HP-939 is located just inside an RCA however it is visible from outside the RCA area therefore entry is into the RCA is not required for this JPM.</i></p> <p><b>COMMENTS:</b></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 7:</u>        Step 16 Remove all control power fuses from 3A2 RC PUMP breaker at 3TB-8 (U#3 6900v Switchgear House)</p> <p><u>STANDARD:</u>    Candidate locates the 6900V breaker cabinet for the 3A2 RC Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>        Step 17 Remove all control power fuses from 3B2 RC PUMP breaker at 3TB-9 (U#3 6900v Switchgear House)</p> <p><u>STANDARD:</u>    Candidate locates the 6900V breaker cabinet for the 3B2 RC Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u>            Step 18</p> <p>Remove all control power fuses from 3A1 RC PUMP breaker at 3TA-3 (U#3 6900v Switchgear House)</p> <p><u>STANDARD:</u>      Candidate locates the 6900V breaker cabinet for the 3A1 RC Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u>            Step 19</p> <p>Remove all control power fuses from 3B1 RC PUMP breaker at 3TA-4 (U#3 6900v Switchgear House)</p> <p><u>STANDARD:</u>      Candidate locates the 6900V breaker cabinet for the 3B1 RC Pump and indicates that the upper compartment door would be opened</p> <p><b><i>Examiner Cue: Provide picture of the inside of the upper breaker compartment to the candidate</i></b></p> <p>Candidate identifies the location of the two Control Power Fuse blocks and indicates they would be pulled out and left in the compartment</p> <p><b><i>Examiner Cue: Fuses are where you placed them.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 15:</u>      Step 20 Notify SRO in the SSF that Unit 3 Encl. 5.5 (OATC Actions for Control Room Evacuation) actions are completed.</p> <p><u>STANDARD:</u>    Candidate indicates that he would make the notification indicated above.</p> <p><b><i>Examiner Cue: Notification has been made</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u>      Step 20 Report to the SM for further direction.</p> <p><u>STANDARD:</u>    Candidate indicates that he would report to the SM.</p> <p><b><i>Examiner Cue: The task is complete</i></b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

## **CRITICAL STEP EXPLANATIONS**

**STEP #**

**Explanation**

All steps are critical since they secure components that could challenge operation of the SSF from the main control room prior to evacuation by placed them in a failsafe position to prevent the component from spuriously operating due to fire damage.

**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

- A plant fire is in progress that requires evacuation of Unit 3 Control Room
- AP/3/A/1700/050(Challenging Plant Fire) is in progress
- Steps 1 through 9 of AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation) have been completed

**INITIATING CUES**

The Control Room SRO directs you to complete AP/3/A/1700/050(Challenging Plant Fire) Enclosure 5.5.(OATC Actions for Control Room Evacuation)

**REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE**

**AO-427**

**Reset an Emergency Feedwater Pump Turbine**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Reset the TDEFWP

**Alternate Path:**

NO

**Facility JPM #:**

AO-027

**K/A Rating(s):**

System: 061

K/A: A2.04

Rating: 3.4/3.8

**Task Standard:**

Emergency Feedwater Pump Turbine is reset

**Preferred Evaluation Location:**

Simulator \_\_\_\_\_ In-Plant   X  

**Preferred Evaluation Method:**

Perform \_\_\_\_\_ Simulate   X  

**References:**

Rule 3 (Loss of Main or Emergency FDW)

EOP Enclosure 5.26 (Manual Start of TDEFDWP)

**Validation Time:** 8 min.

**Time Critical:** No

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**Candidate:** \_\_\_\_\_  
NAME

Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Performance Time: \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

=====

**Comments**

**SIMULATOR OPERATOR INSTRUCTIONS**

NONE

**Tools/Equipment/Procedures Needed**

EOP Enclosure 5.26 (Manual Start of TDEFDWP)

**READ TO OPERATOR**

**DIRECTIONS TO CANDIDATE**

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS**

Unit 2 Reactor has tripped from 100% power.

A loss of all 4160V power has occurred.

Unit 2 TDEFDW Pump is tripped.

Rule 3 is in progress.

**INITIATING CUE**

Control Room Supervisor directs you to perform EOP Enclosure 5.26 (Manual Start of TDEFDWP) to reset the Unit 2 TDEFDW Pump.

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

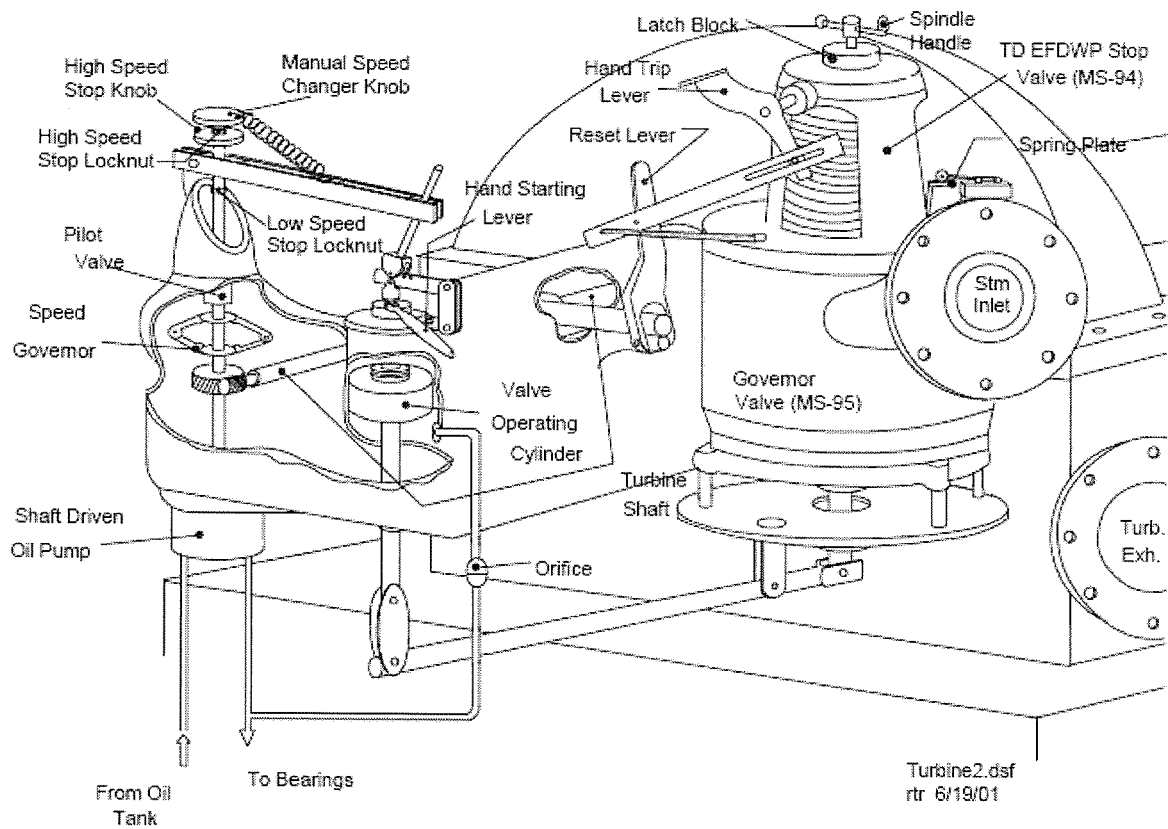
<p><u>STEP 1:</u> Step 1</p> <p>(Procedure is pre-staged at the TDEFDW Pump. Provide the candidate a copy once the pre-staged copy is located)</p> <p>Verify TDEFDWP trip device tripped.</p> <p><u>STANDARD:</u> Candidate determines from the Initial Conditions that Unit 2 TDEFDW Pump is tripped.</p> <p><b><i>Cue: If the candidate asks for local indications for Unit 2 TDEFDW Pump being tripped, inform him/her that “the latch block is in the down position, the spring plate is in the down position, and the hand trip lever is in the down position”.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 2</p> <p>Notify CRO to place TDEFDW Pump switch in PULL TO LOCK.</p> <p><u>STANDARD:</u> Candidate notifies Unit 2 control room using radio/phone to place Unit 2 TDEFDW Pump in PULL TO LOCK.</p> <p><b><i>Cue: Indicate to candidate that Unit 2 TDEFDW Pump is in PULL TO LOCK.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 3</p> <p>Push reset lever toward turbine shaft until engaged:</p> <p><u>STANDARD:</u> Candidate pushes the reset lever towards the turbine shaft to ensure it is engaged.</p> <p><b><i>Cue: Indicate to candidate that the reset lever is engaged.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 4</p> <p>Rotate spindle fully clockwise.</p> <p><u>STANDARD:</u> Candidate rotates 2MS-94 spindle fully clockwise until it reaches a hard stop.</p> <p><b><i>Cue: Indicate to candidate that the spindle is in its full clockwise position.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u> Step 5</p> <p>Rotate spindle fully counter-clockwise.</p> <p><u>STANDARD:</u> Candidate observes spring plate in its full up position.</p> <p><b><i>Cue: Indicate to candidate that the spindle is in its full counter-clockwise position.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 6</p> <p>Rotate spindle ¼ turn clockwise.</p> <p><u>STANDARD:</u> Candidate rotates spindle ¼ turn clockwise.</p> <p><b><i>Cue: Indicate to candidate that the spindle is ¼ turn from full counterclockwise position.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 7</p> <p>Notify CRO to place TDEFDW Pump switch in RUN:</p> <p><u>STANDARD:</u> Candidate notifies Unit 2 CRO by phone/radio to place Unit 2 TD EFDW pump switch in RUN:</p> <p><b><i>Cue: Indicate to candidate that Unit 2 TD EFDW pump switch is in the RUN position, the TDEFWP can be seen and heard to be starting.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 8</p> <p>Verify 2MS-93 (TD EFDWP Steam Supply Trip Valve) closed</p> <p><u>STANDARD:</u> Candidate locates 2MS-93 and determines the valve is Open.</p> <p><b><i>Cue: Indicate to candidate using 2MS-93 position indicator that the valve is Open and steam flow is audible.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u>        Step 8 RNO</p> <p>                    GO TO Step 11</p> <p><u>STANDARD:</u>    Candidate goes to step 11.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u>      Step 11</p> <p>                    Verify TDEFDW Pump running</p> <p><u>STANDARD:</u>    Candidate observes indications such as turbine shaft rotating, discharge pressure, and hydraulic oil pressure to determine that it is operating.</p> <p><b><i>Cue: Indicate to candidate that Unit 2 TD EFDW pump is operating.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u>      Step 12</p> <p>                    EXIT this enclosure</p> <p><u>STANDARD:</u>    Candidate exits the enclosure</p> <p><b><i>Cue: Indicate to candidate that this task is complete.</i></b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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

INFORMATION ONLY



## **CRITICAL STEP EXPLANATIONS**

<b>STEP #</b>	<b>Explanation</b>
3	This step is required to reset 2MS-94
4	This step is required to reset 2MS-94
5	This step is required to reset 2MS-94

**CANDIDATE CUE SHEET  
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS**

Unit 2 Reactor has tripped from 100% power.

A loss of all 4160V power has occurred.

Unit 2 TD EFDW Pump is tripped.

Rule 3 is in progress.

**INITIATING CUE**

Control Room Supervisor directs you to perform EOP Enclosure 5.26 (Manual Start of TDEFDWP) to reset the Unit 2 TDEFWP.