

AG

FINAL

Facility: <b>Oconee</b>	Date of Examination: <b>10/25/2010</b>	
Exam Level: <b>RO X</b> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>	Operating Test No.: <b>1</b>	
Control Room Systems <sup>®</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
<b>a. CRO-108, Recover a Dropped Rod</b> OP/O/A/1105/009, Enclosure 4.15 (Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod with Diamond In Automatic) APE 005 AA2.03 (3.5/4.4) (15 min)	M, A, S	1
<b>b. CRO-204, ES Recovery</b> EOP Enclosure 5.41 (ES Recovery) 006 A4.08 (4.2/4.3) (15 min)	D, S	2
<b>c. CRO-004, Perform Actions For a Failed LPI Train</b> EOP Enclosure 5.1 (ES Actuation) EPE 011 EA1.04 (4.4/4.4) (10 min)	M, A, S, E, EN	3
<b>d. CRO-092, Swapping LPI Modes – High Pressure Mode to LPI Normal</b> OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes – High Press Mode to LPI Normal Mode) 005 A4.01 (3.6*/3.4) (15 min)	D, S, L	4P
<b>e. CRO-404, Alignment of Condensate Recirc</b> EP/1/A/1800/001, Enclosure 5.23 (Alignment of Condensate Recirc ) APE054 G2.1.20 (4.6/4.6) (10 min)	N, A, S, E	4S
<b>f. CRO-602, Live Bus Transfer Of MFB Power From CT 4 To CT 1</b> OP/O/A/1106/019, Enclosure 4.11 (Live Bus Transfer Of MFB Power From CT 4 To CT 1) 062 A4.01 (3.3/3.1) (15 min)	N, S, L	6
<b>g. CRO-060, Perform Required Actions for a Turbine Building Flood</b> AP/10, (Uncontrollable Flooding of Turbine Building) APE BW/A07 AA1.3 (3.3/3.5) (15 min)	M, A, S	8
<b>h. CRO-500, Restore RB Auxiliary Fan Coolers Following a Loss of LPSW</b> OP/1104/019 (LPSW) Enclosure 4.16 (LPSW Shutdown and Return to Service of RB Aux Coolers) 022 A4.04 (3.1*/3.2) (15 min)	D, S	5

In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
<b>i. NLO-026, Manually Operate 2FDW-315</b> EOP Enclosure 5.27 (Alternate Methods for Controlling EFDW Flow) APE 054 AK3.03 (3.8/4.1) (10 min)	D, E, R	4S
<b>j. NLO-003, Shutdown of Inverters During SBO</b> EOP Enclosure 5.32 (Load Shed of Inverters During SBO) EPE 055 G2.1.30 (4.4/4.0) (5 min)	D, E, L	6
<b>k. NLO-041, Restart The Primary IA Compressor Following A Compressor Trip</b> OP/0/A/1106/27, Enclosure 4.3 (Primary IA Compressor Restart Following Trip) 078 G2.1.30 (4.4/4.0) (20 min)	D, E	8
<b>@</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		

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FINAL

Facility: **Oconee**Date of Examination: **10/25/2010**Exam Level: **RO**  **SRO-I**  **SRO-U** Operating Test No.: **1**Control Room Systems<sup>®</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
<b>a. CRO-108, Recover a Dropped Rod</b> OP/O/A/1105/009, Enclosure 4.15 (Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod with Diamond In Automatic) APE 005 AA2.03 (3.5/4.4) (15 min)	M, A, S	1
<b>b. CRO-204, ES Recovery</b> EOP Enclosure 5.41 (ES Recovery) 006 A4.08 (4.2/4.3) (15 min)	D, S	2
<b>c. CRO-004, Perform Actions For a Failed LPI Train</b> EP/1/A/1800/001 (Emergency Operating Procedure) Enclosure 5.1 (ES Actuation) EPW 011 EA1.04 (4.4/4.4) (10 min)	M, A, S, E, EN	3
<b>d. CRO-092, Swapping LPI Modes – High Pressure Mode to LPI Normal</b> OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes – High Press Mode to LPI Normal Mode) 005 A4.01 (3.6*/3.4) (15 min)	D, S, L	4P
<b>e. CRO-404, Alignment of Condensate Recirc</b> EP/1/A/1800/001, Enclosure 5.23 (Alignment of Condensate Recirc ) APE054 G2.1.20 (4.6/4.6) (10 min)	N, A, S, E	4S
<b>f. CRO-602, Live Bus Transfer Of MFB Power From CT 4 To CT 1</b> OP/0/A/1106/019, Enclosure 4.11 (Live Bus Transfer Of MFB Power From CT 4 To CT 1) 062 A4.01 (3.3/3.1) (15 min)	N, S, L	6
<b>g. CRO-060, Perform Required Actions for a Turbine Building Flood</b> AP/10, (Uncontrollable Flooding of Turbine Building) APE BW/A07 AA1.3 (3.3/3.5) (15 min)	M, A, S	8
h. n/a		

In-Plant Systems <sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
<b>i. NLO-026, Manually Operate 2FDW-315</b> EOP Encl. 5.27 (Alternate Methods for Controlling EFDW Flow) APE 054 AK3.03 (3.8/4.1) (10 min)	D, E, R	4S
<b>j. NLO-003, Shutdown of Inverters During SBO</b> EOP Enclosure 5.32 (Load Shed of Inverters During SBO) EPE 055 G2.1.30 (3.9/3.4) (5 min)	D, E, L	6
<b>k. NLO-041, Restart The Primary IA Compressor Following A Compressor Trip</b> OP/0/A/1106/27, Enclosure 4.3 (Primary IA Compressor Restart Following Trip) 078 G2.1.30 (4.4/4.0) (20 min)	D, E	8
<sup>@</sup> 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	≤ 9 / ≤ 8 / ≤ 4	
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1	
(EN)gineered safety feature	- / - / ≥ 1 (control room system)	
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1	
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1	
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)	
(R)CA	≥ 1 / ≥ 1 / ≥ 1	
(S)imulator		

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*FINAL*

Facility: **Oconee**

Date of Examination: **10/25/2010**

Exam Level: RO

SRO-I

SRO-U

Operating Test No.: **1**

Control Room Systems<sup>@</sup> (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

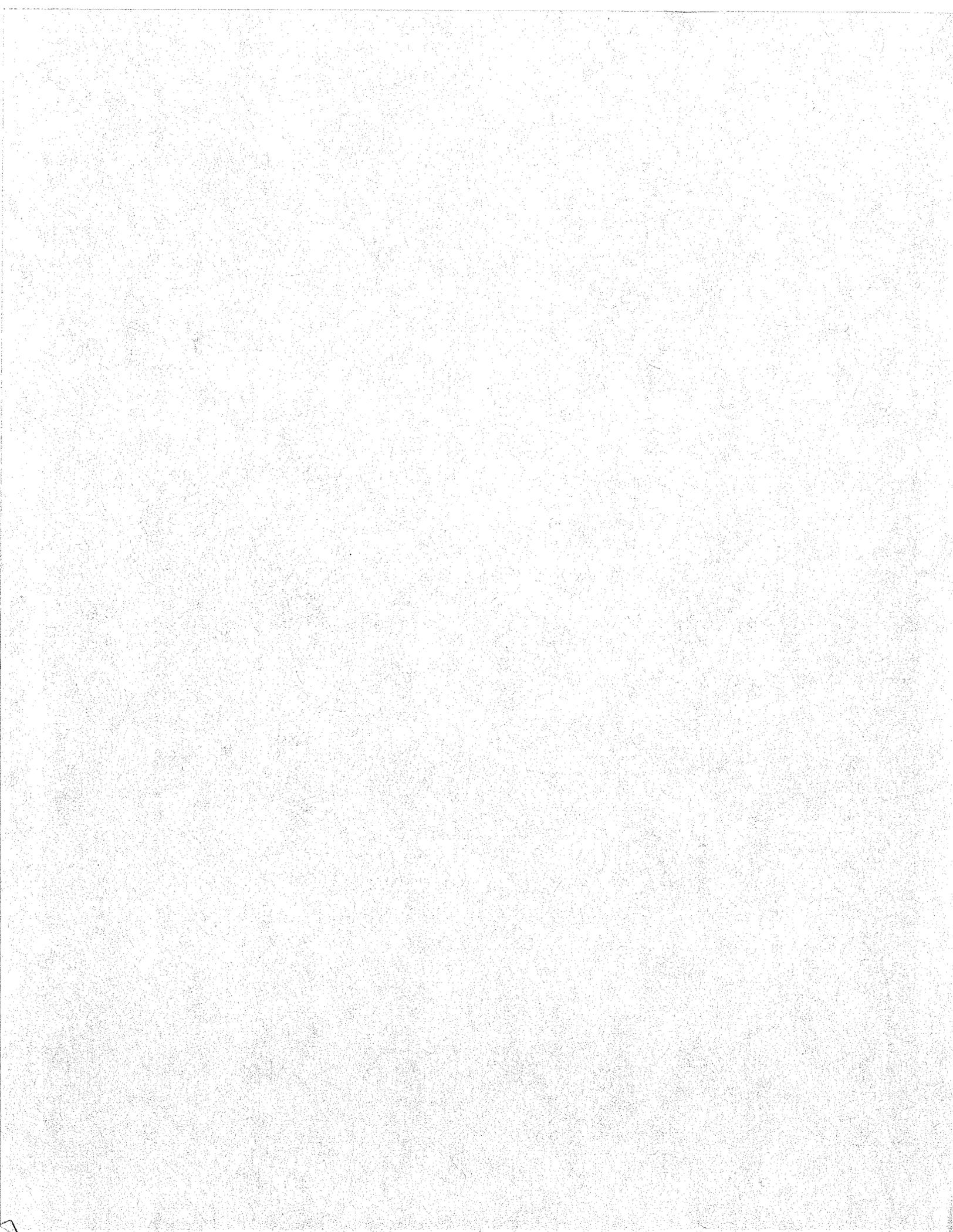
System / JPM Title	Type Code*	Safety Function
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b. n/a		
<b>c. CRO- 004 Perform Actions For a Failed LPI Train</b> EOP Enclosure 5.1 (ES Actuation) EPW 011 EA1.04 (4.4/4.4) (10 min)	M, A, S, E, EN	3
d. n/a		
e. n/a		
<b>f. CRO-602, Live Bus Transfer Of MFB Power From CT 4 To CT 1</b> OP/O/A/1106/019 Enclosure. 4.11 (Live Bus Transfer Of MFB Power From CT 4 To CT 1) 062 A4.01 (3.3/3.1) (15 min)	N, S, L	6
g. n/a		
h. n/a		

In-Plant Systems<sup>@</sup> (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

<b>i. NLO-026, Manually Operate 2FDW-315</b> EOP Enclosure 5.27 (Alternate Methods for Controlling EFDW Flow) APE 054 AK3.03 (3.8/4.1) (10 min)	D, E, R	4S
j. n/a		
<b>k. NLO-041, Restart The Primary IA Compressor Following A Compressor Trip</b> OP/O/A/1106/27, Enclosure 4.3 (Primary IA Compressor Restart Following Trip) 078 G2.1.30 (4.4/4.0) (20 min)	D, E	8

<sup>@</sup> 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.

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(C)ontrol room	
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(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-108**

**Recovery Of Dropped/Misaligned Safety Or Regulating  
Control Rod With Diamond in Automatic**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod With Diamond in Automatic

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-12

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

System: APE 005

K/A: AA 2.03

Rating: 3.5/4.4

**Task Standard:**

Withdrawal of the dropped control rod is initiated in accordance with OP/1/A/1105/09 (Enclosure 4.15 ) and the reactor is manually tripped upon receipt of second dropped rod.

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

AP/1 (Unit Runback)  
OP/1/A/1105/09 (Control Rod Drive System)  
OMP 1-18

**Validation Time:** 15 minutes

**Time Critical:** NO

**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 201
2. **IMPORT** files for CRO-108
3. Go to **RUN**
4. At ~40% withdrawn, **FIRE** TIMER 3 to drop Group 2 Rod 6.

**Tools/Equipment/Procedures Needed:**

OP/1/A/1105/09, Enclosure 4.15 (Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod with Diamond In Automatic)

**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 dropped a control rod in Group 6 approximately one hour ago and the unit is stable at 55%.

AP/1, Unit Runback, has been completed.

The problem with the control rod has been repaired.

Systems Duty Engineer has been notified and no special maneuvering instructions are required.

Enclosure 4.15 (Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod with Diamond In Automatic) of OP/1/A/1105/09 has been completed up to step 2.

**INITIATING CUE:**

The Control Room SRO directs you to recover the dropped rod beginning at step 2.1 of Enclosure 4.15 of OP/1/A/1105/09.

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

<div data-bbox="147 222 1224 291" style="border: 1px solid black; padding: 5px;"> <p><b>NOTE:</b> Use of this enclosure can affect core reactivity management due to changes in CRD position. (R.M.)</p> </div> <p><u>STEP 1:</u>            Step 2.1</p> <p>                          Select affected rod as follows: (R.M.)</p> <ul style="list-style-type: none"> <li>• Ensure GROUP SELECT SWITCH to desired group.</li> <li>• Ensure SINGLE SELECT SWITCH to desired rod.</li> <li>• Ensure RUN is ON.</li> <li>• Verify AUTO on Diamond is ON.</li> <li>• Verify MANUAL on Diamond is flashing.</li> </ul> <p><u>STANDARD:</u>    *GROUP SELECT SWITCH is selected to group 6.                           *SINGLE SELECT SWITCH is selected to rod 6.                           Ensure RUN is ON.                           Verify AUTO on Diamond is ON.                           Verify MANUAL on Diamond is flashing.</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</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 (if applicable)</li> <li>• Neutron error (if applicable)</li> <li>• RCS temperature (if applicable)</li> </ul> <p><u>STANDARD:</u>    Candidate monitors the above indications on the OAC and control board.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**NOTE:** When LATCH AUTO is selected, the following automatically occurs:

- With ICS in "AUTO", CRD TRAVEL lights will only respond to the controlling group when Auto Latching.
- Rod inserts to latch rod
- Rod withdraws to test for latching
- Rod inserts
- RPI resets.

**\*CRITICAL STEP**

\_\_\_ SAT

\_\_\_ UNSAT

STEP 3: Step 2.3

**IF** affected rod is fully inserted, perform Auto Latch and PI Alignment, as follows: (R.M.)

- Select LATCH AUTO.
- **WHEN** Auto Latch is complete,
  - Verify LATCH AUTO is OFF.
  - Ensure desired rod API/RPI indications agree. (PI Panel)
- Select FAULT RESET.

STANDARD: \*Depress the LATCH AUTO pushbutton on the Diamond.

**WHEN** Auto Latch is complete,

Verify LATCH AUTO is OFF by observing LATCH AUTO light on the Diamond is **NOT** lit.

Use the toggle switch located on the PI panel to verify Group 6 Rod 6 API/RPI indications agree.

\*Depress FAULT RESET pushbutton on the Diamond.

COMMENTS:

<p><b>CAUTION:</b> If rod is known to have been dropped/misaligned for less than 24 hours, rod can be withdrawn at 30 in./min. (RUN Speed). {1} (R.M.)</p> <p>If rod has been dropped/misaligned for greater than 24 hours, rod can be withdrawn in 10% withdrawal increments spaced 30 min. apart at 30 in./min. (RUN Speed). {1} (R.M.)</p> <p><b>NOTE:</b> Controlling CRD Group will maintain Rx Power constant. Affected rod is considered recovered when rod position is <math>\geq</math> group average and Manual light is no longer flashing.</p> <p><u>STEP 4:</u>            Step 2.4</p> <p>                          Perform the following until affected rod is realigned with group: (R.M.)</p> <ul style="list-style-type: none"> <li>• Begin withdraw of affected rod.</li> <li>• As required, stop withdraw of affected rod.</li> <li>• <b>IF</b> affected rod is in Group with OUT LIMIT, continue rod withdrawal until affected rod is fully withdrawn.</li> <li>• <b>IF</b> affected rod is in Group <b>NOT</b> at OUT LIMIT, continue rod withdrawal until affected rod aligned with group.</li> </ul> <p><u>STANDARD:</u>        *Begin withdrawal of the affected rod using the Joy Stick on the Diamond.</p> <p><b>Booth Cue: At ~40% withdrawn, fire TIMER 3 to drop Group 2 Rod 6.</b></p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>ALTERNATE PATH</b></p> <p><u>STEP 5:</u>            Manually trip the reactor</p> <p><u>STANDARD:</u>        The candidate recognizes the second control rod inserting and manually trips the reactor by depressing the Reactor Trip pushbutton and verifies that the reactor is shutdown.</p> <p>                          This action is required by OMP 1-18 Attachment A (Licensed Operator Memory Items) which states:</p> <p>                          Initiate a manual reactor trip if any of the following conditions exist:</p> <ul style="list-style-type: none"> <li>• Two or more control rods drop into the core</li> </ul> <p><u>COMMENTS:</u></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>
1	Step is required to recover the dropped control rod.
3	Step is required to recover the dropped control rod.
4	Step is required to recover the dropped control rod.
5	Step is required to trip the reactor in response to the second dropped control rod as required by OMP 1-18.

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

**INITIAL CONDITIONS:**

Unit #1 dropped a control rod in Group 6 approximately one hour ago and the unit is stable at 55%.

AP/1, Unit Runback, have been completed.

The problem with the control rod has been repaired.

Systems Duty Engineer has been notified and no special maneuvering instructions are required.

Enclosure 4.15 (Recovery Of Dropped/Misaligned Safety Or Regulating Control Rod with Diamond In Automatic) of OP/0/A/1105/09 has been completed up to step 2.

**INITIATING CUE:**

The Control Room SRO directs you to recover the dropped rod beginning at step 2.1 of Enclosure 4.15 of OP/0/A/1105/09.



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

**CRO-204**

**ES RECOVERY**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

ES Recovery

**Alternate Path:**

No

**Facility JPM #:**

CRO-204

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

System: 006

K/A: A4.08

Rating: 4.2/4.3

**Task Standard:**

ES Channels 1 and 2 are returned to normal using EOP Enclosure 5.41 (ES Recovery).

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

EOP Enclosure 5.41 (ES Recovery)

**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 217
2. Go to **RUN**

**Tools/Equipment/Procedures Needed:**

EOP Enclosure 5.41 (ES Recovery)

**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 transient has occurred.

The Reactor has tripped

ES Channels 1 and 2 have actuated on low RCS pressure.

EOP Enclosure 5.1 (ES Actuation) is in progress.

The OSM concurs that reset of ES Channels 1 and 2 is desired.

**INITIATING CUES:**

The SRO directs you to perform EOP Enclosure 5.41 (ES Recovery).

The OSM has directed that Keowee Hydro Unit Shutdown is NOT desired.

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

**NOTE**

Technical Specification 3.3.7 and 3.3.6 entry is required when any ES component is in Manual while ES signal is present. These conditions are exited when all digital channels are reset..

\_\_\_ SAT

STEP 1:

Step 1

**WHEN** all the following exist:

- ES Channels have actuated
- Condition causing ES Channel actuation has cleared
- ES Channel reset is desired
- OSM concurs

**THEN** continue.

\_\_\_ UNSAT

STANDARD:

Determine ES Channels 1 and 2 have actuated by observing the White and Blue lights of Channels 1 and 2 on the RZ modules. Also Statalarms 1SA-1/A-10 (ES CHANNEL 1 TRIP and 1SA-1/B-10 (ES CHANNEL 1 TRIP) are illuminated.

Determine that RCS pressure is now above ES Channel 1 and 2 actuation setpoint (1600 psig).

Determine the OSM concurs.

Continue to Step 2.

COMMENTS:

<p><u>STEP 2:</u>            Step 2 Reset desired tripped bistables for the following:</p> <ul style="list-style-type: none"> <li>• ES Analog Channel A</li> <li>• ES Analog Channel B</li> <li>• ES Analog Channel C</li> </ul> <p><u>STANDARD:</u>      Reset the tripped Analog bistables in the ES cabinet by:</p> <p>*Depress the "Output State" toggle switch for ES Analog Channel A. Depress the "Output Memory" toggle switch for ES Analog Channel A.</p> <p>*Depress the "Output State" toggle switch for ES Analog Channel B. Depress the "Output Memory" toggle switch for ES Analog Channel B.</p> <p>*Depress the "Output State" toggle switch for ES Analog Channel C. Depress the "Output Memory" toggle switch for ES Analog Channel C.</p> <p>Verify that the "Output State" and the "Output Memory" lights dim.</p> <p>Continue to Step 3.</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>            Step 3 Verify reset of ES Channels 1 &amp; 2 is desired.</p> <p><u>STANDARD:</u>      Determine reset of ES Channels 1 &amp; 2 is desired by data on the cue sheet.</p> <p>Continue to Step 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u>            Step 4 Verify the following Stat Alarms have cleared:</p> <ul style="list-style-type: none"><li>• 1SA-7/A-1 (ES HP INJECTION CHANNEL A TRIP)</li><li>• 1SA-7/B-1 (ES HP INJECTION CHANNEL B TRIP)</li><li>• 1SA-7/C-1 (ES HP INJECTION CHANNEL C TRIP)</li><li>• 1SA-7/A-3 (ES RB ISOLATION CHANNEL A TRIP)</li><li>• 1SA-7/B-3 (ES RB ISOLATION CHANNEL B TRIP)</li><li>• 1SA-7/C-3 (ES RB ISOLATION CHANNEL C TRIP)</li></ul> <p><u>STANDARD:</u>    Determine that the above Statalarms located on 1SA-7 are not illuminated.</p> <p>Continue to Step 5.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u>            Step 5 Depress digital channel RESET pushbuttons for the following: (1UB1)</p> <ul style="list-style-type: none"><li>• Ch 1</li><li>• Ch 2</li></ul> <p><u>STANDARD:</u>    Depress digital channel RESET pushbuttons for the Channels 1 and 2 located on 1UB1.</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 6:</u> Step 6 Verify the following digital channel TRIPPED lights clear: (1UB1)</p> <ul style="list-style-type: none"> <li>• Ch 1</li> <li>• Ch 2</li> </ul> <p><u>STANDARD:</u> Verify the digital channel TRIPPED lights located on 1UB1 for ES channels 1 and 2 clear.</p> <p>Continue to Step 7.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 7 Dispatch an operator to perform Encl (SSF Restoration) of AP/1/A/1700/042 (Inadvertent ES Actuation).</p> <p><u>STANDARD:</u> An Operator is dispatched to perform Encl (SSF Restoration) of AP/1/A/1700/042 (Inadvertent ES Actuation).</p> <p>Continue to Step 8.</p> <p><b><i>Booth Cue: When called, inform candidate that an operator has been dispatched to perform the enclosure.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 8 Verify both the following exist:</p> <ul style="list-style-type: none"> <li>• Keowee Hydro shutdown is desired.</li> <li>• OSM concurs</li> </ul> <p><u>STANDARD:</u> Determine step is NOT met per the initiating cue sheet and perform the <b>RNO</b> step.</p> <p>Continue to Step 8 <b>RNO</b>.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Step 8 RNO</p> <ul style="list-style-type: none"><li>• <b>GO TO</b> Step 20</li></ul> <p><u>STANDARD:</u> Continue to Step 20.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Step 20 Stop the 1C HPI Pump.</p> <p><u>STANDARD:</u> Verify that 1C HPI Pump is NOT operating by observing the red ON light not illuminated and no amps are indicated.</p> <p>Continue to Step 21.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> Step 21 Open 1HP-27.</p> <p><u>STANDARD:</u> Verify 1HP-27 located on 1UB1 is open by observing the red OPEN light is lit or OAC indication.</p> <p>Continue to Step 22.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 12:</u> Step 22 Close 1HP-409.</p> <p><u>STANDARD:</u> Verify 1HP-409 located on 1UB1 is closed by observing the green CLOSED light is lit or OAC indication.</p> <p>Continue to Step 23.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>	
<table border="1" data-bbox="131 730 1216 800"><tr><td data-bbox="131 730 1216 800"><p style="text-align: center;"><b>NOTE</b> The following steps will reset HPI pump ES logic.</p></td></tr></table> <p><u>STEP 13:</u> Step 23 Verify 1A HPI PUMP operating..</p> <p><u>STANDARD:</u> Determine that the 1A HPI pump is operating by observing the red on light is lit and normal amps are indicated.</p> <p>Continue to Step 24.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;"><b>NOTE</b> The following steps will reset HPI pump ES logic.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p style="text-align: center;"><b>NOTE</b> The following steps will reset HPI pump ES logic.</p>		

<p><u>STEP 14:</u> Step 24</p> <p>Perform the following:</p> <ul style="list-style-type: none"><li>A. Ensure 1A HPI PUMP switch in AUTO.</li><li>B. Place 1A HPI PUMP switch to ON.</li><li>C. Ensure 1B HPI PUMP switch to OFF.</li><li>D. Place 1B HPI PUMP switch to AUTO.</li></ul> <p><u>STANDARD:</u> Position the switch for the 1A HPI pump to AUTO and then to the ON position.</p> <p>Position the switch for the 1B HPI pump to OFF and then to the AUTO position.</p> <p>Continue to Step 25.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u> Step 25</p> <p>Verify both of the following breakers open:</p> <ul style="list-style-type: none"><li>• SL-1 CT5 STBY BUS 1 FEEDER</li><li>• SL-2 CT5 STBY BUS 2 FEEDER</li></ul> <p><u>STANDARD:</u> Verify SL-1 and SL-2 located on 2AB3 are open by observing the green OPEN light is illuminated.</p> <p>Continue to Step 26.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 16:</u> Step 26</p> <p>Verify both of the following:</p> <ul style="list-style-type: none"><li>▪ CC system operating with CC TOTAL FLOW &gt; 575 gpm.</li><li>▪ RCP seal injection flow is between 6 and 12 gpm/RCP.</li></ul> <p><u>STANDARD:</u> Candidate verifies CC flow &gt;575 gpm by observing flow gauge on panel 1AB3.</p> <p>Candidate verifies RCP seal injection flow 6-12 gpm/RCP by observing gauges on panel 1VB3, or OAC indications.</p> <p>Continue to Step 27.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17:</u> Step 27</p> <p>Perform the following:</p> <p>A. Open the following:</p> <ul style="list-style-type: none"><li>• 1HP-20</li><li>• 1HP-21</li></ul> <p>B. Open the following:</p> <ul style="list-style-type: none"><li>• 1HP-228</li><li>• 1HP-226</li><li>• 1HP-232</li><li>• 1HP-230</li></ul> <p><u>STANDARD:</u> Candidate verifies open the following valves:</p> <ul style="list-style-type: none"><li>• 1HP-20 red open light lit on RZ Module</li><li>• 1HP-21 red open light lit on 1UB1</li><li>• 1HP-228, 1HP-226, 1HP232, and 1HP-230 red open lights are lit on 1VB3.</li></ul> <p>Continue to Step 28.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>STEP 18:</b> Step 28 Perform the following:</p> <ul style="list-style-type: none"><li>• Open the following to restore RB RIAs:<ul style="list-style-type: none"><li>ES Channel 1<ul style="list-style-type: none"><li>○ 1PR-7</li><li>○ 1PR-9</li></ul></li><li>ES Channel 2<ul style="list-style-type: none"><li>○ 1PR-8</li><li>○ 1PR-10</li></ul></li></ul></li><li>• Start the RB RIA sample pump from the ENABLE CONTROLS screen on the RIA View Node as follows.<ul style="list-style-type: none"><li>○ Click on the Sample pump OFF icon.</li><li>○ <b>WHEN</b> "Processing Request" dialog is complete, <b>THEN</b> click on the Sample pump ON icon.</li></ul></li></ul> <p><b>STANDARD:</b> Open 1PR-7 and 1PR-9 on ES Channel 1 RZ Module by depressing the red OPEN push button. Verify the red OPEN light illuminates. Open 1PR-8 and 1PR-10 on ES Channel 2 RZ Module by depressing the red OPEN push button. Verify the red OPEN light illuminates. Select ENABLE CONTROLS screen on the RIA View Node. Click on the Sample pump OFF icon. <b>When</b> "Processing Request" dialog is complete, <b>Then</b> click on the Sample pump ON icon</p> <p><b>Cue:</b> <i>Another RO will complete Enclosure 5.41, this JPM is complete</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>
2	This step is required to reset the ES channels.
5	This step is required to reset the ES channels.
14	This step is required to reset the 1A and 1B HPI pump.
18	This step is required to return the RB RIAs to service.

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

**INITIAL CONDITIONS:**

A transient has occurred.

The Reactor has tripped

ES Channels 1 and 2 have actuated on low RCS pressure.

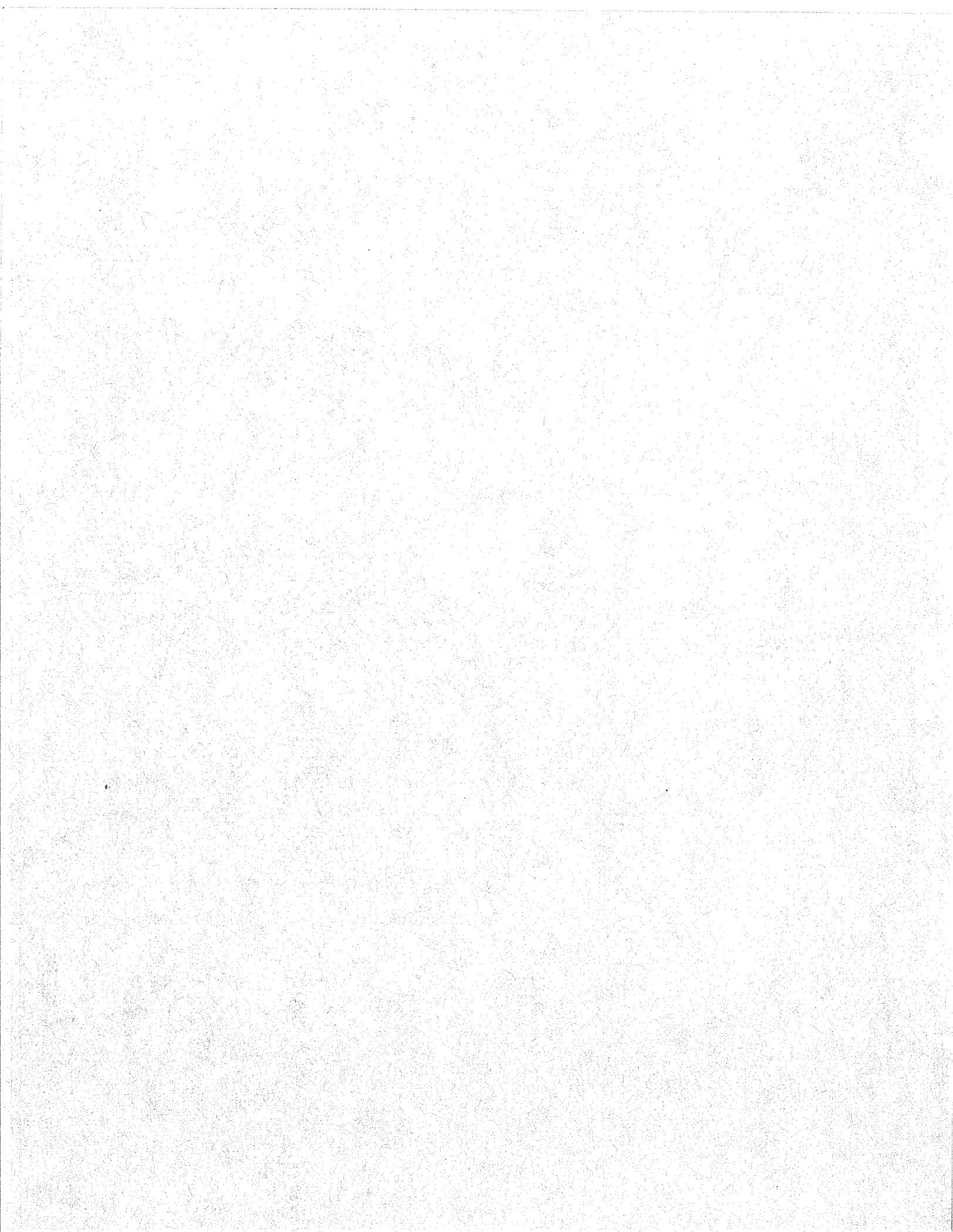
EOP Enclosure 5.1 (ES Actuation) is in progress.

The OSM concurs that reset of ES Channels 1 and 2 is desired.

**INITIATING CUES:**

The SRO directs you to perform EOP Enclosure 5.41 (ES Recovery).

The OSM has directed that Keowee Hydro Unit Shutdown is NOT desired.



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

**CRO-004  
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:**

1C LPI pump is aligned and started. Time-critical clock starts when the second LPI pump fails to start and stops when 1C LPI pump is started.

**Preferred Evaluation Location:**

Simulator  In-Plant \_\_\_\_\_

**Preferred Evaluation Method:**

Perform  Simulate \_\_\_\_\_

**References:**

EOP Enclosure 5.1, ES Actuation

**Validation Time:** 10 minutes

**Time Critical:** YES

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

NAME

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

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

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

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

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

NAME

SIGNATURE

DATE

=====

**COMMENTS**

**SIMULATOR OPERATOR INSTRUCTIONS:**

1. **RECALL** Snap 202
2. **IMPORT** files for CRO-004
3. 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 45.

The LOCA CD Tab in progress.

Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by the OATC.

RCS pressure has decreased rapidly and Reactor Building pressure has increased.

**INITIATING CUES:**

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

**THIS JPM IS TIME CRITICAL**

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

<p><u>STEP 1:</u> Step 45 REFER TO Enclosure 5.1 IAAT Steps prior to Step 45 (since this was the exit point earlier).</p> <p><u>STANDARD:</u> Checks IAAT steps to determine if any apply Determines that IAAT Step 15 now applies Continue to Step 15.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 15 IAAT RCS Pressure is &lt; LPI pump shutoff head, <b>THEN</b> perform Steps 16 - 17</p> <p><u>STANDARD:</u> Continue to Step 16.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>ALTERNATE PATH</b></p> <p><u>STEP 3:</u> Step 16 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 lights remains off and white light on. Continue to Step 16 RNO.</p> <p><b>Note: 1A LPI Pump fails to start</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u>        Step 16 <b>RNO</b>                      Stop 1A LPI Pump                      Close 1LP-17</p> <p><u>STANDARD:</u>    Determine the 1A LPI Pump is stopped by observing the green "off" light lit and close 1LP-17 located on 1UB2.</p> <p>                     Continue to Step 17</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u>        Step 17                      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.</p> <p>                     Places 1B LPI pump switch to START and observes Red lights remain off and white light on.</p> <p>                     Continue to Step 17 <b>RNO</b>.</p> <p><b>TIME CRITICAL clock Starts: _____</b></p> <p><b>Note: 1B LPI Pump fails to start. Required completion time is 60 minutes from failure of 1B LPI Pump.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>



<p><u>STEP 8:</u> Step 19 Open the following:</p> <ul style="list-style-type: none"> <li>• 1LP-9 and 1LP-10</li> <li>• 1LP-6 and 1LP-7</li> <li>• 1LP-17 and 1LP-18</li> <li>• 1LP-21 and 1LP-22</li> </ul> <p><u>STANDARD:</u> Candidate opens the following valves (located on 1UB2) and verifies red open lights lit:</p> <ul style="list-style-type: none"> <li>• *1LP-9</li> <li>• *1LP-10</li> <li>• *1LP-6</li> <li>• *1LP-7</li> <li>• *1LP-18</li> </ul> <p>Candidate verifies red open lights lit for the following valves (located on 1UB2)::</p> <ul style="list-style-type: none"> <li>• 1LP-17</li> <li>• 1LP-21</li> <li>• 1LP-22</li> </ul> <p>Continue to Step 20</p> <p><u>COMMENTS:</u></p>	<p><b>*CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u> Step 20 Start 1C LPI Pump</p> <p><u>STANDARD:</u> Start the 1C LPI Pump located on 1UB2. Verify the red on light is lit and the pump develops discharge pressure and flow.</p> <p><b>TIME CRITICAL clock Stopped: _____</b></p> <p><b>Note: 1C LPI pump must be started within 60 minutes of the 1B LPI pump failure to start.</b></p> <p><u>COMMENTS:</u></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>
8	Necessary to align a suction source and a discharge flow path from the 1C LPI pump for its use since 1A and 1B LPI pumps are failed
9	Necessary to start the 1C LPI pump to provide LPI flow to the core (Must be completed within 60 minutes of A and B LPI pump failure.

**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 45.

The LOCA CD Tab in progress.

Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by the OATC.

RCS pressure has decreased rapidly and Reactor Building pressure has increased.

**INITIATING CUES:**

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

**THIS JPM IS TIME CRITICAL**



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

**CRO-092**

**SWAPPING LPI MODES  
LPI HIGH PRESSURE MODE TO LPI NORMAL MODE**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Swapping LPI Modes - LPI High Pressure Mode to LPI Normal Mode

**Alternate Path:**

No \_\_\_\_\_

**Facility JPM #:**

CRO-092 \_\_\_\_\_

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

System: 005  
K/A: A4.01  
Rating: 3.6\*/3.4

**Task Standard:**

Swap LPI from Series Mode to Normal Mode by procedure.

**Preferred Evaluation Location:**

Simulator  X  In-Plant \_\_\_\_\_

**Preferred Evaluation Method:**

Perform  X  Simulate \_\_\_\_\_

**References:**

OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes - LPI High Pressure Mode to LPI Normal Mode)  
OP/1/A/1104/004, Enclosure 4.44 (Controlling LPI Cooler Outlet Temperature)

**Validation Time:** 15 minutes

**Time Critical:** NO

**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 203
2. Place simulator to **RUN**
3. When asked manipulate the following LP vales using the Rose program
4. **OPEN** 1LP-4
5. **CLOSE** 1LP-73, 1LP-74, and 1LP-75

**Tools/Equipment/Procedures Needed:**

OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes - High Pressure Mode to LPI Normal Mode)

OP/1/A/1104/004, Enclosure 4.44 (Controlling LPI Cooler Outlet Temperature)

**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 shutdown in progress

**INITIATING CUES:**

The Control Room operator directs you to perform OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes - LPI High Pressure Mode to LPI Normal Mode) beginning at Step 2.3.

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

<p><u>STEP 1:</u>      Step 2.2 Position:</p> <ul style="list-style-type: none"> <li>• Open 1LP-5 (1A LPI PUMP SUCTION).</li> <li>• Open 1LP-6 (1C LPI PUMP SUCTION (A HDR)).</li> <li>• Open 1LP-7 (1C LPI PUMP SUCTION (B HDR)).</li> <li>• Open 1LP-8 (1B LPI PUMP SUCTION).</li> </ul> <p><u>STANDARD:</u>    Remove the cover from the switches for the following valves and OPEN them by placing their respective switches in the open position.</p> <ul style="list-style-type: none"> <li>• 1LP-5 (1A LPI PUMP SUCTION) Verify red light illuminates and green light goes off.</li> <li>• 1LP-6 (1C LPI PUMP SUCTION (A HDR)) Verify red light illuminates and green light goes off.</li> <li>• 1LP-7 (1C LPI PUMP SUCTION (B HDR)) Verify red light illuminates and green light goes off.</li> <li>• 1LP-8 (1B LPI PUMP SUCTION) Verify red light illuminates and green light goes off.</li> </ul> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>      Step 2.4 Position:</p> <ul style="list-style-type: none"> <li>• Open 1LP-4 (Return Manual Block). (A-61)</li> </ul> <p><u>STANDARD:</u>    Dispatch an NEO to open 1LP-4.</p> <p><b><i>Booth Cue: Open 1LP-4 by using the Valve program and using time compression inform the candidate that 1LP-4 is open.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3:</u> Step 2.5 Ensure:</p> <ul style="list-style-type: none"> <li>• Close 1LP-73 (1B LPI Cooler Switchover Disch Block). (A-1-108)</li> <li>• Close 1LP-74 (B Clr Disch Blk To A Pmp). (A-61)</li> <li>• Close 1LP-75 (1B LPI Cooler Disch Block To 1C LPI Pump). (A-61)</li> </ul> <p><u>STANDARD:</u> Dispatch an NEO to CLOSE:</p> <ul style="list-style-type: none"> <li>• 1LP-73 (1B LPI Cooler Switchover Disch Block). (A-1-108)</li> <li>• 1LP-74 (B Clr Disch Blk To A Pmp). (A-61)</li> <li>• 1LP-75 (1B LPI Cooler Disch Block To 1C LPI Pump). (A-61)</li> </ul> <p><b>Booth cue: CLOSE 1LP-73, 1LP-74, and 1LP-75 by using the Valve program and using time compression inform the candidate that the valves are CLOSED.</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 2.6 Close 1LP-14 (1B LPI Cooler Outlet)</p> <p><u>STANDARD:</u> CLOSE 1LP-14 it by placing the switch in the close position and observe green closed light lit.</p> <p><b>Note: Valve has a long stroke time (1:50 sec)</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 2.7 Record 1A LPI cooler outlet temperature _____ °F.</p> <p><u>STANDARD:</u> Locate the 1A LPI cooler outlet temperature indicator on 1UB2 and record 1A LPI cooler outlet temperature on the procedure.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6:</u>            Step 2.8                           Ensure open 1LP-9 (1C LPIP DISCH TO 1A LPI HDR).</p> <p><u>STANDARD:</u>      Determine 1LP-9 located on 1UB2 is OPEN by verifying the red OPEN light illuminated.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u>            Step 2.9                           Open 1LP-10 (1C LPIP DISCH TO 1B LPI HDR).</p> <p><u>STANDARD:</u>      Open 1LP-10 located on 1UB2 by taking the switch to the OPEN position and verifying the red OPEN light illuminates and the green CLOSE light goes out.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>            Step 2.10                           Open 1LP-14 (1B LPI COOLER OUTLET).</p> <p><u>STANDARD:</u>      Open 1LP-14 located on 1UB2 by taking the switch to the OPEN position and verifying the red OPEN light illuminates and the green CLOSE light goes out.</p> <p><b>Note: Valve has a long stroke time (1:50 sec)</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<b>NOTE:</b> Do <b>NOT</b> exceed 6000 gpm LPSW flow per cooler.		<b>CRITICAL STEP</b>
<u>STEP 9:</u>	Step 2.11 Adjust LPSW flow to 1B LPI Coolers per Enclosure 4.44 "Controlling LPI Cooler Outlet Temperature" to match 1B DH Cooler outlet temperature to 1A DH Cooler outlet temperature.	___ SAT
<u>STANDARD:</u>	Refer to Enclosure 4.44 "Controlling LPI Cooler Outlet Temperature" and adjust LPSW flow to 1B LPI Coolers by positioning 1LPSW-252 Controller Setpoint to match 1B DH Cooler outlet temperature to 1A DH Cooler outlet temperature (Temperature as noted at step 2.7).	___ UNSAT
<u>COMMENTS:</u>		
<b>END TASK</b>		

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

**CRITICAL STEP EXPLANATIONS:**

<b>STEP #</b>	<b>Explanation</b>
2	Step is required to complete the required valve lineup.
3	Step is required to complete the required valve lineup.
7	Step is required to complete the required valve lineup.
8	Step is required to complete the required valve lineup.
9	Step is required to ensure proper thermal transition to 1B LPI Cooler.

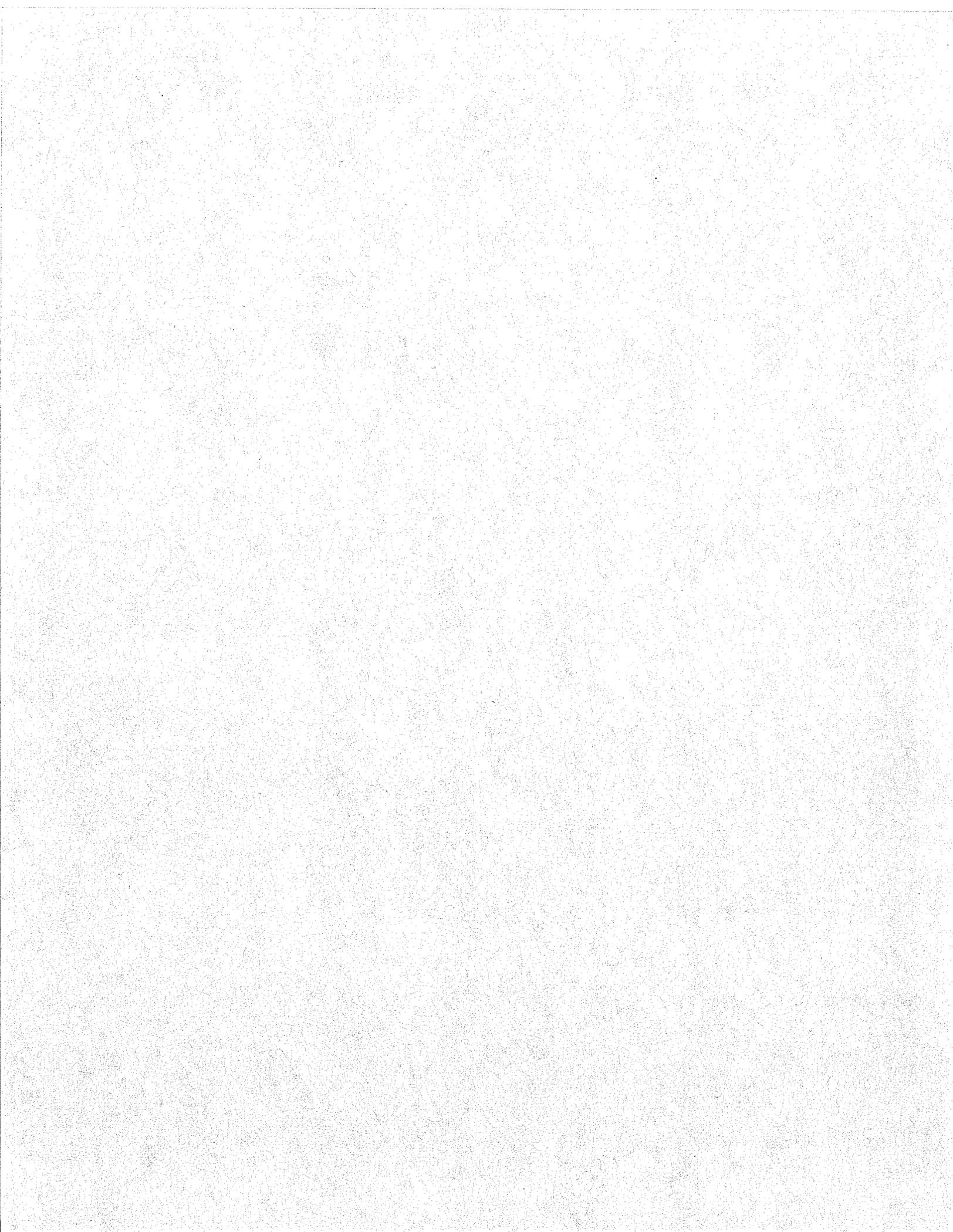
**CANDIDATE CUE SHEET**  
**(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)**

**INITIAL CONDITIONS:**

Unit 1 shutdown in progress

**INITIATING CUES:**

The Control Room operator directs you to perform OP/1/A/1104/004, Enclosure 4.15 (Swapping LPI Modes - LPI High Pressure Mode to LPI Normal Mode) beginning at Step 2.3.



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

**CRO-404  
Alignment of Condensate Recirc**

**CANDIDATE**

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**EXAMINER**

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

**Task:**

Establish Alignment of Condensate Recirc and set flow.

**Alternate Path:**

Yes

**Facility JPM #:**

New

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

System: APE054

K/A: G2.1.20

Rating: 4.6/4.6

**Task Standard:**

Condensate recirculation flow of 2300-6000 gpm is established.

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

EP/1/A/1800/001 (Emergency Operating Procedure) Enclosure 5.23 (Alignment of Condensate Recirc).

**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 218**
2. Import files for **CRO-404**
3. Go to **RUN**

**Tools/Equipment/Procedures Needed:**

EP/1/A/1800/001 (Emergency Operating Procedure) Enclosure 5.23 (Alignment of Condensate Recirc)

**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 was operating at 100% power when a SGTR occurred in the 1B Steam Generator.

During the associated Unit 1 shutdown, a reactor trip occurred due to a loss of all 4 RCP's.

The SGTR tab is in progress and is completed up to step 105.

**INITIATING CUES:**

Procedure Director directs you to perform Enclosure 5.23 (Alignment of Condensate Recirc).

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

<p><u>STEP 1:</u> Step 1. Verify <u>any</u> HWP operating.</p> <p><u>STANDARD:</u> Determine the 1A HWP is operating (located on 1AB1) by observing the red run light illuminated and pump amps are on scale. Continues to Step 2</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 24 Verify <u>any</u> CBP operating.</p> <p><u>STANDARD:</u> Determine that NO CBP is operating by observing the green off lights on 1AB1 are illuminated for each CBP and then perform the RNO. Continues to Step 2 <b>RNO</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 2 <b>RNO</b></p> <p><b>GO TO</b> Step 7.</p> <p><u>STANDARD:</u> Continues to Step 7</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u> Step 7 Ensure <u>two</u> HWPs operating</p> <p><u>STANDARD:</u> Determines that only the 1A HWP is operating, per step 1.</p> <p>Rotates the 1B HWP switch (located on 1AB1) to the START position, verifies the red ON light illuminates, and verifies pump amps increase and return to normal.</p> <p>OR</p> <p>Rotates the 1C HWP switch (located on 1AB1) to the START position, verifies the red ON light illuminates, and verifies pump amps increase and return to normal.</p> <p>Continues to Step 8</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>ALTERNATE PATH</b></p> <p><u>STEP 5:</u> Step 8 Start the 1C COND BOOSTER PUMP.</p> <p><u>STANDARD:</u> Rotate the 1C COND BOOSTER PUMP switch (located on 1AB1) to the START position. Observes that the pump does not start by noting the green stop light remains illuminated and the red start light remains OFF.</p> <p>Continues to <b>RNO</b> to Step 8</p> <p><b>Note: The 1C Cond Booster Pump will not start.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6:</u>        <b>RNO:</b> Step 8 Start <u>one</u> available CBP.</p> <p><u>STANDARD:</u>    Rotates the 1A COND BOOSTER PUMP switch (located on 1AB1) to the START position. Observes the pump starts by observing the Red run light illuminated and pump amps increase and then return to normal.</p> <p>                    <u>OR</u> Rotates the 1B COND BOOSTER PUMP switch (located on 1AB1) to the START position. Observes the pump starts by observing the Red run light illuminated and pump amps increase and then return to normal.</p> <p>                    Continues to Step 9</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u>        Step 9 Stop <u>one</u> operating HWP.</p> <p><u>STANDARD:</u>    Rotates the switch for a <u>running</u> HWP (Either 1A, 1B, or 1C) to the OFF position. Verifies the Red run light OFF, and the Green stop light illuminated.</p> <p>                    Continues to Step 10</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>        Step 10 Place the control switch for <u>one</u> secured HWP in AUTO</p> <p><u>STANDARD:</u>    Places a non running HWP switch (1A or 1B) to AUTO. Continues to Step 11</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u>            Step 11 Place the control switch for <u>one</u> secured CBP in AUTO.</p> <p><u>STANDARD:</u>      Places the non running CBP (1A or 1B) switch in AUTO. Continues to Step 12</p> <p><b>NOTE: 1C CBP switch should NOT be selected since the pump will not start.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u>        Step 12 Perform the following:</p> <ul style="list-style-type: none"> <li>• Position HWP LOAD SHED DEFEAT switch to a running HWP.</li> <li>• Position CBP LOAD SHED DEFEAT switch to a running CBP</li> </ul> <p><u>STANDARD:</u>      Positions the HWP LOAD SHED DEFEAT switch to the running HWP, (1A, 1B, or 1C)</p> <p>                         Positions the CBP LOAD SHED DEFEAT switch to the running CBP, (1A or 1B )</p> <p>Continues to Step 13</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u>        Step 13 Place the following in MANUAL:</p> <ul style="list-style-type: none"> <li>• 1FDW-53</li> <li>• 1FDW-65</li> </ul> <p><u>STANDARD:</u>      Locate the Moore controller on 1VB3 for each valve listed above. Depress the MANUAL pushbutton. Continues to Step 14</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 12:</u>      Step 14 Establish 2300-6000 gpm total recirc flow with <u>one</u> of the following:</p> <ul style="list-style-type: none"><li>• 1FDW-53</li><li>• 1FDW-65</li></ul> <p><u>STANDARD:</u>    Candidate locates the Moore controller for 1FDW-53 or 1FDW-65 and using the manual loader adjusts one to a total recirc flow of 2300-6000 gpm.</p> <p><b>Note: Controller must be selected to the “P” position to observe flow.</b></p> <p><b><i>Cue: Inform candidate that another RO will complete this enclosure and this JPM is finished</i></b></p> <p><u>COMMENTS:</u></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>
6	Required to properly align Condensate recirc.
10	Required to ensure proper secondary pump response to a loss of power
12	Required to establish proper flow for Condensate recirc.

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

**INITIAL CONDITIONS:**

Unit 1 was operating at 100% power when a SGTR occurred in the 1B Steam Generator.

During the associated Unit 1 shutdown, a reactor trip occurred due to a loss of all 4 RCP's.

The SGTR tab is in progress and is completed up to step 105.

**INITIATING CUES:**

Procedure Director directs you to perform Enclosure 5.23 (Alignment of Condensate Recirc).



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

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

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

**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. Go to **RUN**

**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.

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.

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

<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</math> 4160V on STANDBY BUS 1 "STANDBY BUS 1 VOLTS."</p> <p><u>STANDARD:</u> Verify <math>\approx</math> 4160V 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></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.

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.



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

**CRO-060**

**PERFORM REQUIRED ACTIONS FOR A TURBINE  
BUILDING FLOOD**

CANDIDATE

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EXAMINER

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

**Task:**

Perform Required Actions For A Turbine Building Flood

**Alternate Path:**

Yes

**Facility JPM #:**

CRO-060

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

System: APE BW/A07

K/A: AA1.3

Rating: 3.3/3.5

**Task Standard:**

**Preferred Evaluation Location:**

Simulator  In-Plant \_\_\_\_\_

**Preferred Evaluation Method:**

Perform  Simulate \_\_\_\_\_

**References:**

AP/10, Uncontrollable Flooding of Turbine Building

**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 207
2. **IMPORT** files for CRO-060
3. Go to **RUN**
4. **ENSURE** the EWST gauge installed.

**Tools/Equipment/Procedures Needed:**

AP/10, Uncontrollable Flooding of Turbine Building

**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 was operating at 100% power with no known problems.

Unit 2 is in cold shutdown.

The 2A1 condenser inlet expansion joint has ruptured and Turbine Building Basement water level is rising.

Unit 1 has been tripped and the EOP is being completed by other team members.

**INITIATING CUES:**

The Control Room SRO directs you to refer to Unit 1 AP/10, Uncontrollable Flooding of Turbine Building, and perform required actions.

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

<p><u>STEP 1:</u>        Step 4.1                      Trip the Rx.</p> <p><u>STANDARD:</u>    Depress the Rx trip pushbutton on 1UB1. Verify the RX is tripped by observing all control rods are inserted.</p> <p>                     Continue to Step 4.2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> <p><b>NOTE</b></p> <p>Tripping the CCW pumps will cause loss of condenser vacuum which will result in TBVs failing closed and trip of the MFDWPs.</p> </div> <p><u>STEP 2:</u>        Step 4.2                      Ensure all CCW pumps are shutdown.</p> <p><u>STANDARD:</u>    The 1A, 1B, and 1C CCW pump switches are rotated to the TRIP position and verify the red close lights extinguish and the white open lights illuminate. (located on 1AB3)</p> <p>                     Continue to Step 4.3.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3:</u>            Step 4.3 Press <u>both</u> of the following on the TURB BLDG FLOOD EMER CLOSING ALL CCWP DISCH VALVES control switch:</p> <ul style="list-style-type: none"> <li>• CLOSE 1</li> <li>• CLOSE 2</li> </ul> <p><u>STANDARD:</u>    "CLOSE 1" and "CLOSE 2" on the TURB BLDG FLOOD EMER CLOSING ALL CCWP DISCH VALVES control switch are both depressed. (located on 1AB3)</p> <p>Continue to Step 4.4.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u>            Step 4.4 Verify all CCW pump discharge valves are closed.</p> <p><u>STANDARD:</u>    The green CLOSED lights for 1CCW-10, 11, and 13 are verified illuminated and the red OPEN lights for the same valves are verified extinguished. (located on 1AB3)</p> <p>Determine that 1CCW-12 is NOT closed by observing the red open light is lit on 1AB3.</p> <p>Continue to Step 4.4 RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>ALTERNATE PATH</b></p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b>NOTE</b></p> <p>The control switches for the CCW pump discharge valves do not seal-in. The valves act as throttle valves unless the associated CCW pump switch is in the TRIP position.</p> </div> <p><b>STEP 5:</b>            Step 4.4 RNO          Dispatch an operator to ensure all CCW pump discharge valves are closed (Equipment Rm):</p> <ul style="list-style-type: none"> <li>• 1XS1-F2C (1CCW-10 Bkr 1A CCW Pump Disch)</li> <li>• 1XS1-F3C (1CCW-13 Bkr 1D CCW Pump Disch)</li> <li>• 1XS2-F2D (1CCW-11 Bkr 1B CCW Pump Disch)</li> <li>• 1XS3-2E (1CCW-12 Bkr 1C CCW Pump Disch)</li> </ul> <p><b>STANDARD:</b>    An operator is dispatched to the Equipment Room to ensure 1CCW-12 is closed.</p> <p style="padding-left: 40px;">Continue to Step 4.5.</p> <p><b>Booth cue: After 2 minutes call as the NEO and inform candidate that 1CCW-12 will NOT close.</b></p> <p><b>COMMENTS:</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>Field tasks that may affect multiple units should be coordinated with Unit 2 and Unit 3.</p> </div> <p><b>STEP 6:</b>            Step 4.5          Dispatch operators to ensure all three flood doors are closed and in the SECURED position from the AB side (A-1, at Unit 1, 2, and 3 stairwell entrances to TB): {2}</p> <ul style="list-style-type: none"> <li>• Unit 1 Flood Door</li> <li>• Unit 2 Flood Door</li> <li>• Unit 3 Flood Door</li> </ul> <p><b>STANDARD:</b>    Dispatch an NEO to ensure all three flood doors are closed and in the SECURED position from the AB side.</p> <p style="padding-left: 40px;">Continue to Step 4.6.</p> <p><b>Booth cue: When called, inform candidate that an operator has been dispatched.</b></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u>        Step 4.6 Verify LPI decay heat removal is in progress.</p> <p><u>STANDARD:</u>    Determine LPI pumps are NOT operating by observing pumps switch indications on 1UB2.</p> <p>Continue to Step 4.6 <b>RNO GO TO</b> Step 4.8.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>        Step 4.8 Dispatch an operator to position the waterbox discharge valve switches (T-3, East of condenser catwalk):</p> <ul style="list-style-type: none"> <li>• 1CCW-20 (1A1) switch to HAND</li> <li>• 1CCW-20 (1A1) switch to CLOSE</li> <li>• 1CCW-21 (1A2) switch to HAND</li> <li>• 1CCW-21 (1A2) switch to CLOSE</li> <li>• 1CCW-22 (1B1) switch to HAND</li> <li>• 1CCW-22 (1B1) switch to CLOSE</li> <li>• 1CCW-23 (1B2) switch to HAND</li> <li>• 1CCW-23 (1B2) switch to CLOSE</li> <li>• 1CCW-24 (1C1) switch to HAND</li> <li>• 1CCW-24 (1C1) switch to CLOSE</li> <li>• 1CCW-25 (1C2) switch to HAND</li> <li>• 1CCW-25 (1C2) switch to CLOSE</li> </ul> <p><u>STANDARD:</u>    Candidate should dispatch an operator to place the above valves to HAND and CLOSE.</p> <p>Continue to Step 4.9.</p> <p><b>Booth Cue: When called, inform candidate that an operator has been dispatched.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u>        Step 4.9 Make a PA announcement of the event including restrictions on entry into TB basement due to electrical hazard.</p> <p><u>STANDARD:</u>    PA announcement is made using the Control Room phone.  Continue to Step 4.10.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u>      Step 4.10 Begin attempts to locate and isolate the source of the flooding.</p> <p><u>STANDARD:</u>    Dispatch operators to locate and isolate the source of the flooding.  Continue to Step 4.11.</p> <p><b><i>Booth Cue: When called, inform candidate that an operator has been dispatched.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u>      Step 4.11 Ensure all Unit 1 ESV pumps are shutdown:</p> <ul style="list-style-type: none"> <li>• 1A ESV Pump</li> <li>• 1C ESV Pump</li> <li>• 1B ESV Pump</li> </ul> <p><u>STANDARD:</u>    Stop ALL Unit 1 ESV pumps by rotating their pumps switches to stop and verify that the red on light extinguishes and the white open light illuminates. (located on 1AB3)  Continue to Step 4.12.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><b>ALTERNATE PATH</b></p> <p><u>STEP 12:</u>      Step 4.12 Verify all CCW pump discharge valves were successfully closed in earlier steps.</p> <p><u>STANDARD:</u>    Verify that 1CCW-10, 11, and 13 are closed by observing that the green closed light is lit for each valve. (located on 1AB3)  Determine that 1CCW-12 is still open by observing red open indication light is lit on 1AB3 or observing open indication on the OAC.  Continue to Step 4.12 RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u>      Step 4.12 <b>RNO</b> Dispatch an operator to perform the following (ESV Trench, Intake):</p> <ul style="list-style-type: none"><li>• Remove pipe cap at 1CCW-26 (CCW Inlet High Point Vent). {4}</li><li>• Open 1CCW-26 (CCW Inlet High Point Vent).</li><li>• Remove pipe cap at 1CCW-28 (CCW Inlet High Point Vent). {4}</li><li>• Open 1CCW-28 (CCW Inlet High Point Vent).</li></ul> <p><u>STANDARD:</u>    Candidate should dispatch an operator to position the above valves as directed.  Continue to Step 4.13</p> <p><b>Booth Cue: When called, inform candidate that an operator has been dispatched.</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 4.13 Dispatch an operator to perform Encl 5.1 (Isolation of SSW to CCW Pumps).</p> <p><u>STANDARD:</u> Dispatch an operator to perform Encl 5.1 (Isolation of SSW to CCW Pumps).</p> <p>Continue to Step 4.14.</p> <p><b>Booth Cue: When called, inform candidate that an operator has been dispatched.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15</u> Step 4.14 <b>IAAT HPSW is NOT available, THEN</b> ensure Encl 5.31 (Temporarily Charging the HPSW System) of Unit 1 EOP has been initiated.</p> <p><u>STANDARD:</u> Determine that HPSW is available by observing the HPSW Jockey pump operating and level in the EWST.</p> <p>Continue to Step 4.15.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16:</u> Step 4.15 Coordinate with WCC/TSC to perform the following:</p> <ul style="list-style-type: none"> <li>• Recover damaged equipment.</li> <li>• Remove water from accessible sumps.</li> </ul> <p><u>STANDARD:</u> Candidate should call the WCC/TSC and discuss the following:</p> <ul style="list-style-type: none"> <li>• Recover damaged equipment.</li> <li>• Remove water from accessible sumps.</li> </ul> <p><b>Cue: Inform candidate that another RO will complete this procedure. This task is complete</b></p> <p><u>COMMENTS:</u></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>
2	Necessary to attempt to terminate the flooding and not contribute to the water level in the TB basement.
3	Necessary to attempt to terminate the flooding and not contribute to the water level in the TB basement.
13	Necessary to ensure CCW inlet piping is vented to break siphon.

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

**INITIAL CONDITIONS:**

Unit 1 was operating at 100% power with no known problems.

Unit 2 is in cold shutdown.

The 2A1 condenser inlet expansion joint has ruptured and Turbine Building Basement water level is rising.

Unit 1 has been tripped and the EOP is being completed by other team members.

**INITIATING CUES:**

The Control Room SRO directs you to refer to Unit 1 AP/10, Uncontrollable Flooding of Turbine Building, and perform required actions.



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

**CRO-500**

**Restore RB Auxiliary Fan Coolers  
Following a Loss of LPSW**

**CANDIDATE**

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**EXAMINER**

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

**Task:**

Restore RB Auxiliary Fan Coolers Following a Loss of LPSW

**Alternate Path:**

No

**Facility JPM #:**

CRO-500

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

System: 022  
K/A: A4.04  
Rating: 3.1\*/3.2

**Task Standard:**

Restore RB Auxiliary Fan Coolers Following a Loss of LPSW per OP/1/A/1104/010 (LPSW) Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers)

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

OP/1/A/1104/010 (LPSW) Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers)

**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 208
2. Go to **RUN**
3. **ACKNOWLEDGE** Alarms

**Tools/Equipment/Procedures Needed:**

AP/24, Loss of LPSW

OP/1/A/1104/010 (LPSW) Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers)

**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 Loss of LPSW has occurred

AP/24 (Loss of LPSW) is in progress

LPSW has been restored

The hydraulic restoration of this system has been performed.

Section 6 (Startup Alignment Of RB Aux Coolers) of OP/1/A/1104/010 Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers) has been performed.

**INITIATING CUES:**

The SRO directs you to OP/1/A/1104/010 Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers) to return the RB Aux Coolers to service beginning at step 5.1.

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

STEP 1:

Step 5.1

Perform the following:

- Ensure 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller in Manual/Closed.
- Position 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Remote/Closed switch to Close.
- Ensure 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Controller in Manual/Closed.
- Position 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Remote/Closed switch to Close.
- Ensure closed 1LPSW-1061 (RB AUX COOLERS RETURN BLOCK).
- Ensure closed 1LPSW-1055 (RB AUX COOLERS SUPPLY BLOCK).

\_\_\_ SAT

\_\_\_ UNSAT

STANDARD:

Candidate performs the following (valves located on 1VB2):

- Determine 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller in Manual/Closed.
- Position 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Remote/Closed switch to Close.
- Determine 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Controller in Manual/Closed.
- Position 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Remote/Closed switch to Close.
- Determine 1LPSW-1061 (RB AUX COOLERS RETURN BLOCK) is closed by observing green closed light illuminated and red open light off.
- Determine 1LPSW-1055 (RB AUX COOLERS SUPPLY BLOCK) is closed by observing green closed light illuminated and red open light off.

COMMENTS:

<p><u>STEP 2:</u> Step 5.2  <b>IF</b> required, perform the following:</p> <ul style="list-style-type: none"> <li>• <b>IF</b> required, ensure hydraulic restoration of system has been performed.</li> <li>• <b>IF</b> required, ensure Section 6 (Startup Alignment Of RB Aux Coolers) has been performed.</li> </ul> <p><u>STANDARD:</u> Determines that the hydraulic restoration of system and Section 6 (Startup Alignment Of RB Aux Coolers) have been performed.</p> <p><b>Cue: If asked, refer the candidate to the Initial Conditions.</b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 5.3  Perform the following:</p> <ul style="list-style-type: none"> <li>• Depress LPSW LOW PRESS DIG CH1 RESET.</li> <li>• Depress LPSW LOW PRESS DIG CH2 RESET.</li> </ul> <p><u>STANDARD:</u> Depress the LPSW LOW PRESS DIG CH1 RESET and CH 2 RESET pushbuttons located on 1VB2.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u> Step 5.4 Perform the following:</p> <ul style="list-style-type: none"><li>• Ensure open 1LPSW-1061 (RB AUX COOLERS RETURN BLOCK).</li><li>• Ensure open 1LPSW-1055 (RB AUX COOLERS SUPPLY BLOCK).</li></ul> <p><u>STANDARD:</u> Open 1LPSW-1061 located on 1VB2 by taking the switch to the open position and verify the red open light illuminates and the green closed light goes off.</p> <p>Open 1LPSW-1055 located on 1VB2 by taking the switch to the open position and verify the red open light illuminates and the green closed light goes off.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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**NOTE:** When placed in AUTO, 1LPSW-1054 begins ramping open slowly. 1LPSW-1054 will be full open in 16 minutes.

**\*CRITICAL STEP**

**STEP 5:** Step 5.5  
Perform the following to fill/pressurize RB Aux Coolers:

- 5.5.1 Position 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Remote/Closed switch to Remote.
- 5.5.2 Ensure 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Controller setpoint at 100%.
- 5.5.3 Ensure 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) Controller in Automatic.
- 5.5.4 Verify 1LPSW-1054 (RB AUX COOLERS SUPPLY CONTROL) begins to ramp open.

\_\_\_ SAT

\_\_\_ UNSAT

**STANDARD:** Candidate will perform the following to fill/pressurize RB Aux Coolers (valves located on 1VB2):

- \*5.5.1 Position 1LPSW-1054 (RB AUX COOLERS RETURN CONTROL) Remote/Closed switch to Remote.
- 5.5.2 Determine 1LPSW-1054 (RB AUX COOLERS RETURN CONTROL) Controller setpoint at 100% by selecting "S" on controller and verifying readout is 100%.
- \*5.5.3 Place 1LPSW-1054 (RB AUX COOLERS RETURN CONTROL) Controller in Automatic depressing "A" on the controller.
- 5.5.4 Determine that 1LPSW-1054 (RB AUX COOLERS RETURN CONTROL) begins to ramp open by "ramping" flashing in display and selecting "V" on the controller and verifying that valve demand begins increasing towards 100%.

**COMMENTS:**

**NOTE:** When placed in AUTO, 1LPSW-1062 will have a two minute time delay then begin ramping open slowly. 1LPSW-1062 will be full open in 18 minutes (including time delay).

**\*CRITICAL STEP**

\_\_\_ SAT

**STEP 6:** Step 5.6  
Perform the following to establish flow through RB Aux Coolers:  
5.6.1 Position 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Remote/Closed switch to Remote.  
5.6.2 Ensure 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller setpoint at 100%.  
5.6.3 Ensure 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller in Automatic.

\_\_\_ UNSAT

**STANDARD:** Candidate will perform the following to establish flow through RB Aux Coolers (valves located on 1VB2):  
\*5.6.1 Position 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Remote/Closed switch to Remote.  
5.6.2 Determine 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller setpoint at 100% by selecting "S" on controller and verifying readout is 100%.  
\*5.6.3 Place 1LPSW-1062 (RB AUX COOLERS RETURN CONTROL) Controller in Automatic depressing "A" on the controller.

**Cue:** Inform candidate that another RO will complete Enclosure 4.16 and JPM is complete.

**COMMENTS:**

**END TASK**

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

**CRITICAL STEP EXPLANATIONS:**

<b>STEP #</b>	<b>Explanation</b>
3	This step is required to establish flow through the controller.
4	This step is required to complete the LPSW flow path.
5	This step is required to establish flow through the controller.
6	This step is required to establish flow through the controller.

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

**INITIAL CONDITIONS:**

A Loss of LPSW has occurred

AP/24 (Loss of LPSW) is in progress

LPSW has been restored

The hydraulic restoration of this system has been performed.

Section 6 (Startup Alignment Of RB Aux Coolers) of OP/1/A/1104/010 Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers) has been performed.

**INITIATING CUES:**

The SRO directs you to OP/1/A/1104/010 Encl. 4.16 (LPSW Shutdown and Return to Service RB Aux Coolers) to return the RB Aux Coolers to service beginning at step 5.1.



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

**NLO-026  
MANUALLY OPERATE 2FDW-315**

**CANDIDATE**

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**EXAMINER**

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REGION II  
INITIAL LICENSE EXAMINATION  
JOB PERFORMANCE MEASURE

**Task:**

Manually Operate 2FDW-315

**Alternate Path:**

No

**Facility JPM #:**

NLO-026

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

System: APE 054

K/A: AK3.03

Rating: 3.8/4.1

**Task Standard:**

2FDW-315 is manually operated from Penetration Room, per Enclosure 5.27, Alternate Methods for Controlling EFDW Flow; of EP/\*IA/1800/001, Emergency Operating Procedure, to properly control FDW flow and SG levels.

**Preferred Evaluation Location:**

Simulator \_\_\_\_\_ In-Plant X

**Preferred Evaluation Method:**

Perform \_\_\_\_\_ Simulate X

**References:**

EOP Enclosure 5.27

**Validation Time: 10 minutes**

**Time Critical: NO**

**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:**

Radio, Flashlight

**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 2 has experienced a Loss of Main Feedwater and a Loss of Offsite Power event  
Power has not yet been restored to MFBs  
TDEFDWP is supplying feedwater to the SGs  
2FDW-315 has failed fully open

**INITIATING CUES:**

Enclosure 5.27 (Alternate Methods for Controlling EFDW Flow) of the EOP, Step 29, directs sending an operator to control SG level.

The Control Room Supervisor directs you to CLOSE 2FDW-315 (2A S/G EFDW CONTROL) and establish communication with the Control Room.

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

<p><u>STEP 1:</u>           Unlock or break lock and remove chain.</p> <p><u>STANDARD:</u>    Candidate locates valve 2FDW-315 (1A S/G EFDW CONTROL) (located in East Penetration Room) and unlocks chain by either using a key or breaking the lock and then removes the chain.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u>           Manually CLOSE 2FDW-315</p> <p><u>STANDARD:</u>    Candidate rotates the 2FDW-315 handwheel fully clockwise to close the valve to a hard stop.</p> <p><b><i>Cue: Inform candidate that the valve has reached a hard stop.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u>           Establish communications with Control Room. Communications are established by telephone or radio, between Control Room and Penetration Room.</p> <p><b><i>Cue: Inform the operator you need 2FDW-315 locally throttled open to establish 100 gpm flow.</i></b></p> <p><u>STANDARD:</u>    Establish communications telephone or radio, between Control Room and Penetration Room.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u> Throttle 2FDW-315 as directed by Control Room to establish 100 gpm flow through 2FDW-315 2FDW-315 hand wheel is rotated in the counter-clockwise direction to throttle open and control flow to SG.</p> <p><b><i>Cue: After the valve is throttled open give the candidate flow values that will require 2FDW-315 to be adjusted.</i></b></p> <p><u>STANDARD:</u></p> <p><u>COMMENTS:</u></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>
1	Critical because the breakaway lock and chain must be removed in order to operate the valve hand wheel manually.
3	Critical because communications must be established in order to know how much to throttle the valve to establish the required level.
4	Critical because the student must be able to demonstrate the ability to manually adjust flow.

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

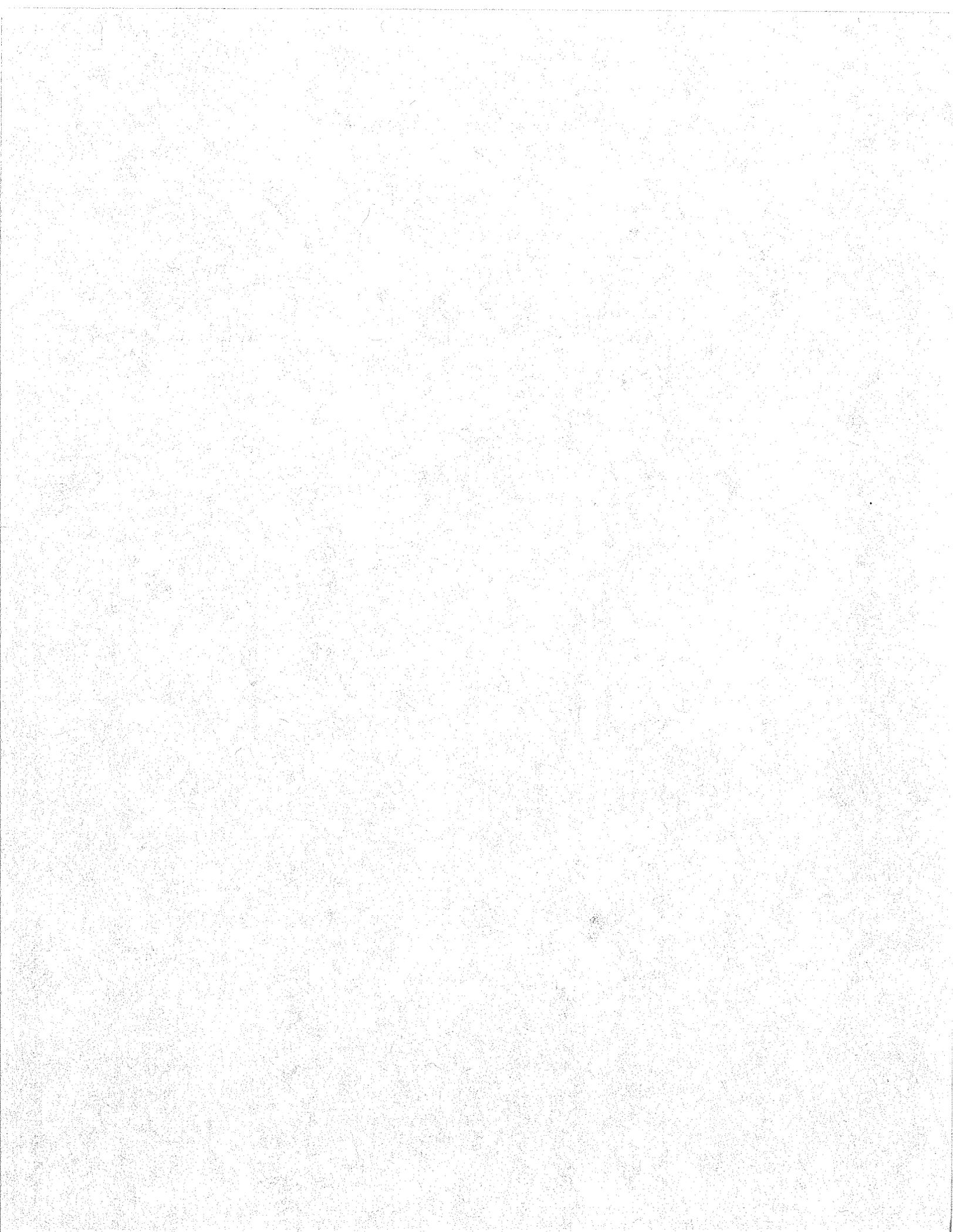
**INITIAL CONDITIONS:**

Unit 2 has experienced a Loss of Main Feedwater and a Loss of Offsite Power event  
Power has not yet been restored to MFBs  
TDEFDWP is supplying feedwater to the SGs  
2FDW-315 has failed fully open

**INITIATING CUES:**

Enclosure 5.27 (Alternate Methods for Controlling EFDW Flow) of the EOP, Step 29, directs sending an operator to control SG level.

The Control Room Supervisor directs you to CLOSE 2FDW-315 (2A S/G EFDW CONTROL) and establish communication with the Control Room.



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

**NLO-003  
Shutdown of Inverters During SBO**

CANDIDATE

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EXAMINER

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

**Task:**

Shutdown of Inverters During SBO

**Alternate Path:**

No

**Facility JPM #:**

NLO-003

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

System: EPE 055

K/A: G2.1.30

Rating: 4.4/4.0

**Task Standard:**

Power is removed from Unit 2 inverters KI, KU, KX, and KOAC within 30 minutes.

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

EOP Enclosure 5.32 (Load Shed of Inverters During SBO)

**Validation Time:** 5 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:**

EOP Enclosure 5.32 (Load Shed of Inverters During SBO)

**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 tornado which struck the Turbine Building and the Switchyard has resulted in a Loss of Onsite and Offsite Power on all three Units.

**INITIATING CUES:**

The Control Room Operator directs you to perform EOP Enclosure 5.32 (Load Shed of Inverters During SBO) on Unit 2.

**THIS JPM IS TIME CRITICAL**

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

<p><b>Note: Enclosure 5.32 is prestaged in the Equipment Room. After the candidate locates the procedure hand him a copy.</b></p> <p><u>STEP 1:</u>            Step 1                                    Open the following breakers (Unit 2 Equipment Room):</p> <ul style="list-style-type: none"> <li>• Open the 2KI Inverter DC Input Breaker</li> <li>• Open the 2KX Inverter DC Input Breaker</li> <li>• Open the 2KU Inverter DC Input Breaker</li> </ul> <p><u>STANDARD:</u>    Locates the 2KI Inverter in Unit 2's Equipment Room and OPENS the DC INPUT Breaker</p> <p>                          Locates the 2KX Inverter in Unit 2's Equipment Room and OPENS the DC INPUT Breaker.</p> <p>                          Locates the 2KU Inverter in Unit 2's Equipment Room and OPENS the DC INPUT Breaker</p> <p><b>Note: Power must be removed from KI, KU, &amp; KX within 30 minutes.</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 2                                    Place 2DP-F6E ( 2KOAC Computer Static Inverter Bkr) in OFF (T-3, L-31)</p> <p><u>STANDARD:</u>    Locates breaker F6E (2KOAC Computer Static Inverter Bkr) on MCC 2DP and places it in the "OFF" position.</p> <p><b>Note: Power must be removed from the KOAC within 30 minutes.</b></p> <p><u>COMMENTS:</u></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:

STEP #	Explanation
1	Step is required to de-energize the essential inverters. Power must be removed from KI, KU, & KX within 30 minutes.
2	Step is required to de-energize the KOAC inverter. Power must be removed from the KOAC within 30 minutes.

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

**INITIAL CONDITIONS:**

A tornado which struck the Turbine Building and the Switchyard has resulted in a Loss of Onsite and Offsite Power on all three Units.

**INITIATING CUES:**

The Control Room Operator directs you to perform EOP Enclosure 5.32 (Load Shed of Inverters During SBO) on Unit 2.

**THIS JPM IS TIME CRITICAL**



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

**NLO-041**

**RESTART THE PRIMARY IA COMPRESSOR  
FOLLOWING A COMPRESSOR TRIP**

**CANDIDATE**

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**EXAMINER**

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

**Task:**

Restart The Primary IA Compressor Following A Compressor Trip

**Alternate Path:**

No

**Facility JPM #:**

NLO-041

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

System: 078  
K/A: G2.1.30  
Rating: 4.4/4.0

**Task Standard:**

The Primary IA Compressor is restarted by procedure

**Preferred Evaluation Location:**

Simulator  In-Plant

**Preferred Evaluation Method:**

Perform  Simulate

**References:**

OP/0/A/1106/27, Enclosure 4.3 (Primary IA Compressor Restart Following Trip)

**Validation Time: 20 minutes**

**Time Critical: NO**

**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:**

OP/0/A/1106/27, Enclosure 4.3 (Primary IA Compressor Restart Following Trip)

**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 at 100% power.
- B3T de-energized, the automatic transfer to the backup source (B4T) did NOT occur and the Primary IA Compressor tripped.
- Power has been restored to the Primary IA Compressor
- The CR SRO entered "Loss of IA" AP/1/A/1700/22 as IA header pressure decreased and has sent an NEO to ensure the Primary IA Compressor is in operation. The NEO found the Primary IA Compressor tripped. The CR SRO has referred to OP/0/A/1106/27 to restore operable Primary IA compressors.
- HPSW Jockey pump is operating

**INITIATING CUES:**

- "Primary IA Compressor Restart Following Trip" Enclosure of OP/0/A/1106/27 (Compressed Air System) is in progress and completed up to step 2.5.
- The Control Room SRO instructs you to utilize "Primary IA Compressor Restart Following Trip" Enclosure of OP/0/A/1106/27 (Compressed Air System) to **RESTART** the Primary IA Compressor beginning at step 2.5.

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

<p><u>STEP 1:</u>      Step 2.5                   Open HPSW-771 (Primary IA Comp. Disc. Block)</p> <p><u>STANDARD:</u> The candidate locates and OPENS HPSW-771 (Primary IA Compressor Cooling Discharge Block) by rotating the switch to the "Open" position.</p> <p><b><i>Cue: Indicate that the valve is closed by the green closed light lit and the valve pointer indicates CLOSE.</i></b></p> <p><b><i>Cue: After he rotates the switch, Indicate that HPSW-771 is OPEN, red light lit and the valve pointer indicates OPEN.</i></b></p> <p><b>Note: HPSW-771 control switch and the cooling water inlet pressure gauges are located north of the compressor next to the west Turbine floor wall.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p>  <p>___ UNSAT</p>
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<p><u>STEP 2:</u>      Step 2.6 Perform the following:</p> <ul style="list-style-type: none"><li>• 2.6.1 <b>IF</b> HPSW Jockey pump is operating <b>AND</b> HPSW-PG-0823 (Primary IA Compressor Cooling Water Inlet Pressure) does <b>NOT</b> read between 61 and 67 psig, perform the following:</li><li>• 2.6.2 <b>IF</b> HPSW Jockey pump is off <b>AND</b> HPSW-PG-0823 (Primary IA Compressor Cooling Water Inlet Pressure) does <b>NOT</b> read between 50 and 67 psig, perform the following:</li><li>• 2.6.3 Ensure HPSW-767 (Primary IA Comp Cooling Water Disch Control) secured in position.</li></ul> <p><u>STANDARD:</u> The candidate determine that the steps 2.6.1 and 2.6.2 should be N/Aed because cooling water flow pressure is within the acceptable range as indicated on OHPS-PG-0823 (Primary IA Comp. Cooling Water Inlet Pressure). Determine HPSW-767 is secured in position.</p> <p><b><i>Cue: Indicate 65 psig on the above gauge.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><b>STEP 3:</b>      Step 2.7 Depress (RESET/LAMP TEST) pushbutton.</p> <ul style="list-style-type: none"><li>• Verify all alarm indicators light.</li></ul> <p><b>Cue: While RESET/LAMP TEST pushbutton is depressed, inform student that all alarm indicators are lit.</b></p> <ul style="list-style-type: none"><li>• Release (RESET/LAMP TEST) pushbutton and verify all alarm indicator lamps extinguish.</li></ul> <p><b>Cue: When RESET/LAMP TEST pushbutton is released, inform student that all alarm indicator lamps extinguish.</b></p> <p><b>STANDARD:</b> The candidate tests the alarm indicators by depressing the black RESET/LAMP TEST pushbutton on the compressor control panel located on the north side of the compressor housing.</p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 4:</b>      Step 2.8 Ensure HPSW-767 throttled (Primary IA Comp Cooling Water Disch Control) to obtain Primary IA Compressor Cooling Water Outlet Pressure of 11 - 23 psig.</p> <p><b>STANDARD:</b> The candidate determines that HPSW-767 is throttled correctly because cooling water flow pressure is within the acceptable range.</p> <p><b>Cue: Indicate 20 psig on Outlet Pressure gauge.</b></p> <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u>      Step 2.9 Depress START pushbutton.</p> <p><b><i>Cue: Indicate that the red "Machine Run" light has illuminated.</i></b></p> <p>Start the Primary Air Compressor by depressing the "Start" pushbutton on the control panel located on the north side housing of the compressor.</p> <p><u>STANDARD:</u> The candidate STARTS the Primary Air Compressor by depressing the "Start" pushbutton on the control panel located on the north side housing of the compressor.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u>      Step 2.10 <b>IF</b> Compressor fails to start, notify WCC SRO for aid in resolving problem.</p> <p><u>STANDARD:</u> The candidate determines that compressor is operating.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u>      Step 2.11                   VERIFY selected Enclosure fan is running.</p> <p><u>STANDARD:</u> The candidate determines that selected enclosure fan is operating.</p> <p><b><i>Cue: Inform the student that the selected Enclosure Fan is running properly</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u>      Step 2.12                   Verify all door panels are installed on the Primary IA Compressor Enclosure.</p> <p><u>STANDARD:</u> The candidate determines that all door panels located on the compressor enclosure are installed.</p> <p><b><i>Cue: Inform candidate that all door panels are installed on enclosure.</i></b></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Step 2.13 Throttle open IA-2735 (Primary Air Filter "A" Outlet) or IA-2736 (Primary Air Filter "B" Outlet) (TB5 L-39) and <u>slowly</u> pressurize the Dryer tanks to system pressure (100-110 psig).</p> <p><u>STANDARD:</u> The Candidate throttles open one of the following valves to SLOWLY PRESSURIZE the Desiccant Dryers:</p> <ul style="list-style-type: none"><li>• IA-2735 (Primary Air Filter "A" Outlet)</li></ul> <p style="text-align: center;"><b><u>OR</u></b></p> <ul style="list-style-type: none"><li>• IA-2736 (Primary Air Filter "B" Outlet)</li></ul> <p><b><i>Cue: Once the candidate has demonstrated his/her ability to properly throttle the valve, indicate to the student with a pointing device that the Desiccant Dryers have reached 104 psig.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Step 2.14 At the Primary IA Dryer A panel, position the (ON/OFF) switch to ON.</p> <p><u>STANDARD:</u> The candidate PLACES the Primary IA Dryers in service by positioning the following switches to the "ON" position:</p> <ul style="list-style-type: none"><li>• Primary IA Dryer "A" On/Off Selector</li></ul> <p><b><i>Cue: Indicate that Primary IA Dryer A panel is positioned to ON</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 11:</u>      Step 2.15 At the Primary IA Dryer B panel, position the (ON/OFF) switch to ON.</p> <p><b><i>Cue: Indicate that Primary IA Dryer B panel is positioned to ON</i></b></p> <p><u>STANDARD:</u> Locates "B" Dryer control panel and rotates the Primary IA Dryer "B" On/Off selector to the "ON" position</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u>      Step 2.16 Open IA-2735 (Primary Air Filter A Outlet). (TB5 L-39)</p> <p><b><i>Cue: Indicate that IA-2735 is OPEN</i></b></p> <p><u>STANDARD:</u> Slowly open IA-2735 (Primary Air Filter "A" Outlet)</p> <p><b><i>Note: The valve is fully open when the position indicator arrows are parallel to the piping.</i></b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u>      Step 2.17 Open IA-2736 (Primary Air Filter B Outlet). (TB5 L-39)</p> <p><b><i>Cue: Indicate that IA-2736 is OPEN</i></b></p> <p><u>STANDARD:</u> Slowly open IA-2736 (Primary Air Filter "B" Outlet)</p> <p><b><i>Note: The valve is fully open when the position indicator arrows are parallel to the piping.</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 2.18                     Slowly open IA-2730 ('A' Primary IA Desiccant Filter Outlet).</p> <p><b><i>Cue: Indicate that the valve is fully open.</i></b></p> <p><u>STANDARD:</u> The candidate slowly opens IA-2730 (Primary Desiccant Air Filter "A" Outlet)</p> <p><b>Note: The valve is fully open when the position indicator arrow is parallel to the piping.</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 2.19                     Slowly open IA-2732 (Primary IA Desiccant Filters Outlet X-Conn).</p> <p><u>STANDARD:</u> The candidate slowly opens IA-2732 (Primary IA Desiccant Filters Outlet X-Conn)</p> <p><b><i>Cue: Indicate that the valve is fully open.</i></b></p> <p><b>Note: The valve is fully open when the position indicator arrow is parallel to the piping.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 16:</u> Step 2.20 Slowly open IA-2731 ('B' Primary IA Desiccant Filter Outlet).</p> <p><u>STANDARD:</u> The candidate slowly opens IA-2731 ('B' Primary IA Desiccant Filter Outlet).</p> <p><b><i>Cue: Indicate that the valve is fully open.</i></b></p> <p><b>Note: The valve is fully open when the position indicator arrow is parallel to the piping.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17:</u> Step 2.21 Slowly open IA-2734 ('B' Primary IA Hdr Isol).</p> <p><u>STANDARD:</u> The candidate slowly opens IA-2734 ('B' Primary IA Hdr Isol).</p> <p><b><i>Cue: Indicate that the valve is fully open.</i></b></p> <p><b>Note: The valve is fully open when the position indicator arrow is parallel to the piping.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 18:</u> Step 2.22 As system pressure increases check for air leaks on the Primary IA Compressor, Air Dryers, and Air Filters.</p> <p><u>STANDARD:</u> The student checks for air leaks on the Primary IA Compressor, Air Dryers, and Air Filters as system pressure increases.</p> <ul style="list-style-type: none"><li>• Primary Air Compressor monitored for normal operation.</li></ul> <p><b><i>Cue: Another operator will look for leaks and complete this enclosure. 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>
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STOP TIME: \_\_\_\_\_

**CRITICAL STEP EXPLANATIONS:**

<b>STEP #</b>	<b>Explanation</b>
1	Open HPSW-771 (Primary IA Comp. Disc. Block) aligns cooling water to the compressor
5	Starts the compressor
9	Required to place air dryers in service
10	Energizes IA Dryer A for proper dryer operation
11	Energizes IA Dryer B for proper dryer operation
12-13	Pressurizes and places in service the primary air filter
14-15	Aligns the "A" Air Dryer in service
16-17	Aligns the "B" Air Dryer in service

## CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

### INITIAL CONDITIONS:

- Unit 1 is at 100% power.
- B3T de-energized, the automatic transfer to the backup source (B4T) did NOT occur and the Primary IA Compressor tripped.
- Power has been restored to the Primary IA Compressor
- The CR SRO entered "Loss of IA" AP/1/A/1700/22 as IA header pressure decreased and has sent an NEO to ensure the Primary IA Compressor is in operation. The NEO found the Primary IA Compressor tripped. The CR SRO has referred to OP/0/A/1106/27 to restore operable Primary IA compressors.
- HPSW Jockey pump is operating

### INITIATING CUES:

- "Primary IA Compressor Restart Following Trip" Enclosure of OP/0/A/1106/27 (Compressed Air System) is in progress and completed up to step 2.5.
- The Control Room SRO instructs you to utilize "Primary IA Compressor Restart Following Trip" Enclosure of OP/0/A/1106/27 (Compressed Air System) to **RESTART** the Primary IA Compressor beginning at step 2.5.