

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

CRO-106

Place Spare Deborating IX in Service

CANDIDATE

EXAMINER

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Place the Spare Deborating IX in service for purification

Alternate Path:

No

Facility JPM #:

CRO-106

K/A Rating(s):

System: 004

K/A: A4.17

Rating: 2.7/2.7

Task Standard:

Perform OP/1/A/1103/004 C (Deborating IXs) Encl. 4.9 (Spare Deborating IX For RCS Purification (Rx At Power)) to place the Spare Deborating IX in service.

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

OP/1/A/1103/004 C (Deborating IXs) Encl. 4.9 (Spare Deborating IX For RCS Purification (Rx At Power))

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:

Consider providing a copy of OP/1/A/1103/004 C, Deborating IXs to allow a review of limits and precautions prior to entering the simulator area. This will prevent using simulator time to perform this review.

1. Recall Snap 205 (3% IC), BOL,
2. Import files for CRO-106.
3. Update boron status board RCS = 1771 ppmb, A BHUT = 1950 ppmb
4. Verify ICS in Auto (diamond and both FDW Masters).
5. If not already done, provide a copy of OP/1/A/1103/004 C, Deborating IXs. and a working copy of Encl. 4.9, (Spare Deborating IX for RCS Purification)
6. Put completed IX status log and component boron log for the letdown filter to be place in service in appropriate logbooks.
7. Ensure reactivity management controls are established in the control room.
8. Ensure blank cover on 1CS-32/37
9. Go to Run

Tools/Equipment/Procedures Needed:

OP/1/A/1103/004 C (Deborating IXs) Encl. 4.9 (Spare Deborating IX For RCS Purification (Rx At Power))

Demineralizer Log Sheet for Spare Deb IX

Component Boron Concentration Log Sheet for 1B Letdown Filter

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 startup in progress following a refueling outage

Unit 1 Power = 3% stable for the past 45 mins.

Unit 1 RCS Boron = 1771 ppm

Primary Chemistry requests that the Spare Deborating IX be placed in service for RCS purification for the next two (2) hrs.

The Spare Deborating IX is loaded with cation resin.

Unit 2 & 3 are at 100%.

INITIATING CUES:

The Unit 1 CR SRO directs you to Place the Spare Deborating IX in service for RCS purification per OP/1/A/1103/004 C (Deborating IXs) Encl. 4.9 (Spare Deborating IX For RCS Purification (Rx At Power)) starting at step 2.4.

START TIME: _____

<p>NOTE: Placing an idle Letdown Filter in service can affect core reactivity by adding ≈ 60 gals of water at a different boron concentration. {5} {6} (R.M.)</p> <p><u>STEP 1:</u> Step 2.4</p> <p>IF two Letdown Filters are available AND NOT already in service, perform the following: (1A Letdown Filter is not in service)</p> <p>2.4.1 Review Component Boron Log for out-of-service Letdown Filter boron.</p> <p>2.4.2 Determine RCS boron based on placing second Letdown Filter in service.</p> <p>2.4.3 RCS boron <u>1771</u> ppm</p> <p>2.4.4 IF RCS makeup is required to achieve acceptable boron, determine RCS makeup sources and volumes per OP/1/A/1103/004 (Soluble Poison Control). (not required)</p> <p><u>STANDARD:</u> Candidate reviews the Component Boron Log for the 1A Letdown Filter and determines that: it will have no effect on RCS boron, additional makeup is NOT required, and that acceptable RCS boron will exist.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 2.5</p> <p>Perform one of the following (for all applicable steps 2.1 through 2.4):</p> <p><u> </u> Verify acceptable RCS boron.</p> <p>SRO</p> <p><u> </u> Ensure appropriate RCS makeup plans determined to ensure</p> <p>SRO acceptable boron.</p> <p><u>STANDARD:</u> Candidate has SRO sign the first block because all boron concentrations are acceptable.</p> <p>Examiner Cue: Sign the first block and inform the candidate to proceed to the next step</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3:</u> Step 2.6 IF two Letdown Filters are available AND NOT already in service, perform the following:</p> <ul style="list-style-type: none"> • Ensure 1HP-17 (1A LETDOWN FILTER INLET) switch to "OPEN" • Ensure 1HP-18 (1B LETDOWN FILTER INLET) switch to "OPEN" <p><u>STANDARD:</u> Candidate opens: 1HP-18 (already open) and 1HP-17 (must be opened); placing 1A Letdown Filter in service</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 2.7 IF RCS makeup is required to ensure acceptable boron, makeup per OP/1/A/1103/004 (Soluble Poison Control).</p> <p><u>STANDARD:</u> Candidate determines RCS makeup is not required and proceeds to step 2.8</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: Anytime IX is placed in service CRD movement may result. (R.M.)</p> <p><u>STEP 5:</u> Step 2.8 WHILE placing Spare Deborating IX in service, monitor the following indications: (R.M.)</p> <ul style="list-style-type: none"> • Appropriate ranged NIs • Primary tank levels • Neutron error • CRD position <p><u>STANDARD:</u> Candidate begins monitoring all above indications. No unexpected changes will occur.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6:</u> Step 2.9 Align Spare Deborating IX for service:</p> <ul style="list-style-type: none"> • Verify closed 1CS-27 (DEBOR IX INLET). • *Ensure closed 1CS-26 (LETDOWN TO RC BHUT). • *Open 1CS-32 & 37 (SPARE DEBOR IX INLET & OUTLET). • Verify 1HP-15 Controller in "MANUAL". • *Open 1HP-16 (LDST MAKEUP ISOLATION). <p><u>STANDARD:</u> The candidate performs the above items to align the Spare Deb IX:</p> <ul style="list-style-type: none"> • Verify closed 1CS-27 (already closed). • Ensure closed 1CS-26 (LETDOWN TO RC BHUT). • Open 1CS-32 & 37 (SPARE DEBOR IX INLET & OUTLET). • Verify 1HP-15 Controller in "MANUAL". (already in manual) • Open 1HP-16 (LDST MAKEUP ISOLATION). <p><u>COMMENTS:</u></p>	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 2.10 Position 1HP-14 (LDST BYPASS) to "BLEED" to place Spare Deborating IX in service.</p> <p><u>STANDARD:</u> The candidate positions 1HP-14 (LDST BYPASS) to "BLEED".</p> <p><i>Examiner Cue: Given time for the candidate to monitor indications from step 10, and when he begins to inform chemistry, tell him another operator will continue with this procedure.</i></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
6	Aligns the Spare Deborating IX
7	Initiates flow through the Spare Deborating IX

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

INITIAL CONDITIONS:

Unit 1 startup in progress following a refueling outage

Unit 1 Power = 3% stable for the past 45 mins.

Unit 1 RCS Boron = 1771 ppm

Primary Chemistry requests that the Spare Deborating IX be placed in service for RCS purification for the next two (2) hrs.

The Spare Deborating IX is loaded with cation resin.

Unit 2 & 3 are at 100%.

INITIATING CUES:

The Unit 1 CR SRO directs you to Place the Spare Deborating IX in service for RCS purification per OP/1/A/1103/004 C (Deborating IXs) Encl. 4.9 (Spare Deborating IX For RCS Purification (Rx At Power)) starting at step 2.4.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

CRO-204
ES Recovery

CANDIDATE

EXAMINER

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 X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Encl. 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 206
2. Go to Run

Tools/Equipment/Procedures Needed:

EOP Encl. 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 Encl. 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 Encl. 5.41 (ES Recovery).

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

START TIME: _____

<div data-bbox="131 262 1211 392" data-label="Text"> <p style="text-align: center;">NOTE</p> <p>Technical Specification entry is required when any ES component is in Manual while ES signal is present or ES Voters are in OVERRIDE. These conditions are exited when all channels are reset.</p> </div> <div data-bbox="131 407 1211 1056" data-label="Text"> <p><u>STEP 1:</u> Step 1</p> <p> WHEN all the following exist:</p> <ul style="list-style-type: none"> • ES Channels have actuated • Condition causing ES Channel actuation has cleared • ES Channel reset is desired • OSM concurs <p> THEN continue.</p> <p><u>STANDARD:</u> Determine ES Channels 1 and 2 have actuated by observing the White and Blue lights of Channels 1 and 2 on the Status Control Panel. Also Statalarms 1SA-1/A-10 (ES CHANNEL 1 TRIP and 1SA-1/B-10 (ES CHANNEL 1 TRIP) are illuminated.</p> <p> Determine that RCS pressure is now above ES Channel 1 and 2 actuation setpoint (1600 psig).</p> <p> Determine the OSM concurs.</p> <p> Continue to Step 2.</p> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1268 321 1377 357" data-label="Text"> <p>___ SAT</p> </div> <div data-bbox="1268 443 1421 478" data-label="Text"> <p>___ UNSAT</p> </div>
<div data-bbox="131 1304 1211 1491" data-label="Text"> <p><u>STEP 2:</u> Step 2</p> <p> Verify reset of <u>any</u> of the following is desired:</p> <ul style="list-style-type: none"> • ES Channel 1 • ES Channel 2 • Diverse HPI </div> <div data-bbox="131 1562 1211 1675" data-label="Text"> <p><u>STANDARD:</u> Determine reset of ES Channels 1 & 2 and Diverse HPI is desired by data on the cue sheet.</p> <p> Continue to step 3</p> </div> <div data-bbox="131 1701 1211 1736" data-label="Text"> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1268 1365 1377 1400" data-label="Text"> <p>___ SAT</p> </div> <div data-bbox="1268 1486 1421 1522" data-label="Text"> <p>___ UNSAT</p> </div>

<p><u>STEP 3:</u> Step 3 Verify the following Stat Alarms have cleared:</p> <ul style="list-style-type: none"> • 1SA-7/A-1 (1A1 ES TRIP) • 1SA-7/B-1 (1B1 ES TRIP) • 1SA-7/C-1 (1C1 ES TRIP) • 1SA-7/A-2 (1A2 ES TRIP) • 1SA-7/B-2 (1B2 ES TRIP) • 1SA-7/C-2 (1C2 ES TRIP) <p><u>STANDARD:</u> Candidate determines that the above Statalarms located on 1SA-7 are not illuminated. Continue to Step 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 4 Perform the following to reset ES (1UB1):</p> <ul style="list-style-type: none"> • Depress RESET for CH 1. • Depress RESET for CH 2. <p><u>STANDARD:</u> Depress digital channel RESET pushbuttons for the Channels 1 and 2 located on 1UB1. Continue to Step 5.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Step 5 Verify Diverse HPI Bypass BISTABLE TRIPPED light is off.</p> <p><u>STANDARD:</u> Candidate verifies Diverse HPI Bypass BISTABLE TRIPPED light is off. Continue to Step 6.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6:</u> Step 6</p> <p>Perform the following to reset Diverse HPI:</p> <ul style="list-style-type: none"> • Depress BYPASS. • Depress ENABLE. <p><u>STANDARD:</u> Candidate depresses BYPASS and ENABLE for Diverse HPI. Continue to Step 7.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 7</p> <p>Verify both Statalarms are off:</p> <ul style="list-style-type: none"> • 1SA-1 E-8 (DIVERSE HPI BYP) • 1SA-1 E-9 (DIVERSE HPI TRIP) <p><u>STANDARD:</u> Candidate verifies both Statalarms are off. Continue to Step 8.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 8</p> <p>Depress RESET on the DIVERSE HPI OVERRIDE switch.</p> <p><u>STANDARD:</u> Candidate depresses RESET. Continue to Step 9.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Step 9 Verify:</p> <ul style="list-style-type: none"> • CH 1 TRIPPED light off • CH 2 TRIPPED light off • DIVERSE HPI OVERRIDE light off <p><u>STANDARD:</u> Candidate verifies above lights are off Continue to Step 10.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Step 10 Dispatch an operator to perform Enclosure (SSF Restoration) of AP/1/A/1700/042 (Inadvertent ES Actuation).</p> <p><u>STANDARD:</u> Candidate calls kitchen to dispatch an operator to perform Enclosure (SSF Restoration) of AP/42. Continue to Step 11.</p> <p>Booth Cue: Inform candidate that an operator has been dispatched with Enclosure SSF Restoration,</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> Step 11 Verify both exist:</p> <ul style="list-style-type: none"> ▪ Keowee Hydro shutdown is desired. ▪ OSM concurs <p><u>STANDARD:</u> Candidate determines from cue that Keowee Hydro shutdown is not desired. Continue to Step 11 RNO.</p> <p>Examiner Cue: If asked, inform the candidate that Keowee Hydro shutdown is not desired (Information also provided in the Initiating Cue).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 12:</u> Step 11 RNO</p> <ul style="list-style-type: none"> • GO TO Step 23 <p><u>STANDARD:</u> Continue to Step 23.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u> Step 23 Stop the 1C HPI Pump.</p> <p><u>STANDARD:</u> Verifies that 1C HPI Pump is NOT operating by observing the red ON light not illuminated and no amps are indicated. Continue to Step 24.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> Step 24 Open 1HP-27.</p> <p><u>STANDARD:</u> Verifies 1HP-27 located on 1UB1 is open by observing the red OPEN light is lit or OAC indication. Continue to Step 25.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15:</u> Step 25 Close 1HP-409.</p> <p><u>STANDARD:</u> Verifies 1HP-409 located on 1UB1 is closed by observing the green CLOSED light is lit or OAC indication. Continue to Step 26.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<div data-bbox="131 186 1209 254" data-label="Text"> <p style="text-align: center;">NOTE The following steps will reset HPI pump ES logic.</p> </div> <div data-bbox="131 268 1209 342" data-label="Text"> <p><u>STEP 16:</u> Step 26 Verify 1A HPI PUMP operating.</p> </div> <div data-bbox="131 380 1209 489" data-label="Text"> <p><u>STANDARD:</u> Determines that the 1A HPI pump is operating by observing the red on light is lit and normal amps are indicated. Continue to Step 27.</p> </div> <div data-bbox="131 514 1209 688" data-label="Text"> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1268 247 1377 279" data-label="Text"> <p>___ SAT</p> </div> <div data-bbox="1268 369 1417 401" data-label="Text"> <p>___ UNSAT</p> </div>
<div data-bbox="131 730 1209 1010" data-label="Text"> <p><u>STEP 17:</u> Step 27 Perform the following: A. Ensure 1A HPI PUMP switch in AUTO. B. Place 1A HPI PUMP switch to ON. C. Ensure 1B HPI PUMP switch to OFF. D. Place 1B HPI PUMP switch to AUTO.</p> </div> <div data-bbox="131 1056 1209 1241" data-label="Text"> <p><u>STANDARD:</u> Position the switch for the 1A HPI pump to AUTO and then to the ON position. Position the switch for the 1B HPI pump to OFF and then to the AUTO position. Continue to Step 28.</p> </div> <div data-bbox="131 1266 1209 1440" data-label="Text"> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1239 730 1446 762" data-label="Section-Header"> <p>CRITICAL STEP</p> </div> <div data-bbox="1268 789 1377 821" data-label="Text"> <p>___ SAT</p> </div> <div data-bbox="1268 911 1417 942" data-label="Text"> <p>___ UNSAT</p> </div>

<p><u>STEP 18:</u> Step 28</p> <p>Verify both of the following breakers open:</p> <ul style="list-style-type: none"> • SL-1 CT5 STBY BUS 1 FEEDER • SL-2 CT5 STBY BUS 2 FEEDER <p><u>STANDARD:</u> Verifies SL-1 and SL-2 located on 2AB3 are open by observing the green OPEN light is illuminated.</p> <p>Continue to Step 29.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u> Step 29</p> <p>Verify both:</p> <ul style="list-style-type: none"> ▪ CC system operating with CC TOTAL FLOW > 575 gpm. ▪ RCP seal injection flow is between 6 and 12 gpm/RCP. <p><u>STANDARD:</u> Candidate verifies CC flow >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 30.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

STEP 20:

Step 30

Perform the following:

A. Open:

- 1HP-20
- 1HP-21

B. Open:

- 1HP-228
- 1HP-226
- 1HP-232
- 1HP-230

STANDARD:

Candidate verifies open the following valves:

- 1HP-20 red open light lit on the status control panel
- 1HP-21 red open light lit on 1UB1
- 1HP-228, 1HP-226, 1HP232, and 1HP-230 red open lights are lit on 1VB3.

Continue to Step 31.

COMMENTS:

___ SAT

___ UNSAT

<p><u>STEP 21:</u> Step 31 Restore RB RIAs as follows:</p> <p>A. Open:</p> <ul style="list-style-type: none"> • 1PR-7 • 1PR-9 • 1PR-8 • 1PR-10 <p>B. Start the RB RIA sample pump from the ENABLE CONTROLS screen on the RIA View Node as follows.</p> <ol style="list-style-type: none"> 1) Click on the Sample pump OFF icon. 2) WHEN "Processing Request" dialog is complete, THEN click on the Sample pump ON icon. <p><u>STANDARD:</u> 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.</p> <p>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.</p> <p>Select ENABLE CONTROLS screen on the RIA View Node.</p> <p>Click on the Sample pump OFF icon.</p> <p>WHEN "Processing Request" dialog is complete, THEN click on the Sample pump ON icon</p> <p>Cue: Another RO will complete Enclosure 5.41, this JPM is complete</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
4	This step is required to reset the ES channels.
6	This step is required to reset Diverse HPI.
17	This step is required to reset the 1A and 1B HPI pump.
21	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 Encl. 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 Encl. 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-303

Perform Required Actions for a Failed LPI Train

CANDIDATE

EXAMINER

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 X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Encl. 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 207
2. Import files for CRO-303
3. Call up BWST Level (**SHOWDIG O1P1600**) on OAC screen
4. Go to Run and acknowledge alarms
5. Go to Freeze
6. Go to Run when directed by lead examiner
7. IMMEDIATELY Fire Timer 1

Tools/Equipment/Procedures Needed:

EOP Encl. 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 is in progress and RCS Pressure has stabilized at 1000 psig

ES Channels 1-6 have actuated on high RB pressure

Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by another Reactor Operator

EOP Encl. 5.1(ES Actuation) has been completed up to Step 122

Rule 2 (Loss of SCM) is complete

INITIATING CUES:

The Control Room SRO instructs you to continue in Encl. 5.1 (ES Actuation) and respond to plant conditions.

THIS JPM IS TIME CRITICAL

START TIME: _____

<p><u>STEP 1:</u> Step 122 REFER TO Enclosure 5.1 IAAT Steps prior to Step 122.</p> <p><u>STANDARD:</u> Checks IAAT steps to determine if any apply Determines that IAAT Step 3 now applies Continue to Step 3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>															
<p><u>STEP 2:</u> Step 3 IAAT additional ES actuation setpoints are exceeded, THEN perform Steps 1 - 2.</p> <p><u>STANDARD:</u> Determines that ES Channels 7 and 8 have actuated Continue to Step 1.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>															
<p><u>STEP 3:</u> Step 1 Determine all ES channels that should have actuated based on RCS pressure and RB pressure.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 40%;">Actuation Setpoint (psig)</th> <th style="width: 50%;">Associated ES Channel</th> </tr> </thead> <tbody> <tr> <td>√</td> <td>1600 (RCS)</td> <td>1 & 2</td> </tr> <tr> <td></td> <td>550 (RCS)</td> <td>3 & 4</td> </tr> <tr> <td></td> <td>3 (RB)</td> <td>1, 2, 3, 4, 5, & 6</td> </tr> <tr> <td></td> <td>10 (RB)</td> <td>7 & 8</td> </tr> </tbody> </table> <p><u>STANDARD:</u> Determines that ES Channels 7 and 8 have actuated. Continue to Step 2.</p> <p><u>COMMENTS:</u></p>		Actuation Setpoint (psig)	Associated ES Channel	√	1600 (RCS)	1 & 2		550 (RCS)	3 & 4		3 (RB)	1, 2, 3, 4, 5, & 6		10 (RB)	7 & 8	<p>___ SAT</p> <p>___ UNSAT</p>
	Actuation Setpoint (psig)	Associated ES Channel														
√	1600 (RCS)	1 & 2														
	550 (RCS)	3 & 4														
	3 (RB)	1, 2, 3, 4, 5, & 6														
	10 (RB)	7 & 8														

<p><u>STEP 4:</u> Step 2 Verify all ES channels associated with actuation setpoints have actuated.</p> <p><u>STANDARD:</u> Determine ES Channels 7 & 8 have actuated by observing tripped lights on UB1 are illuminated. Continue to Step 122.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Step 122 REFER TO Enclosure 5.1 IAAT Steps prior to Step 122.</p> <p><u>STANDARD:</u> Checks IAAT steps to determine if any apply Determines that IAAT Step 89 now applies Continue to Step 89.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 89 IAAT RCS pressure is < LPI pump shutoff head, THEN perform Steps 90 - 91.</p> <p><u>STANDARD:</u> Determine that RCS pressure is < LPI pump shutoff head. (less than 180 psig) Continue to Step 90.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u> Step 90 Perform the following:</p> <ul style="list-style-type: none"> • Open 1LP-17 • Start 1A LPI Pump <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 20 RNO.</p> <p>Note: 1A LPI Pump fails to start</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>ALTERNATE PATH</p> <p><u>STEP 8:</u> Step 90 RNO 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. Continue to Step 91</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Step 91 Perform the following:</p> <ul style="list-style-type: none"> • Open 1LP-18 • Start 1B LPI Pump <p><u>STANDARD:</u> Determine that 1LP-18 is open by observing the red open light is lit located on 1UB2. Places 1B LPI pump switch to START and observes Red lights remain off and white light on. Continue to Step 91 RNO.</p> <p>TIME CRITICAL clock Starts:_____</p> <p>Note: 1B LPI Pump fails to start. Required completion time to start 1C LPI Pump is 60 minutes from failure of 1B LPI Pump.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>ALTERNATE PATH</p> <p><u>STEP 10:</u> Step 91 RNO Stop 1B LPI Pump Close 1LP-18</p> <p><u>STANDARD:</u> Determine the 1B LPI Pump is stopped by observing the green “off” light lit and close 1LP-18 located on 1UB2. Continue to Step 122</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 11:</u> Step 122 REFER TO Enclosure 5.1 IAAT Steps prior to Step 122.</p> <p><u>STANDARD:</u> Checks IAAT steps to determine if any apply Determines that IAAT Step 92 now applies Continue to Step 92.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> Step 92 IAAT 1A and 1B LPI PUMPs are off/tripped, AND all of the following exist</p> <ul style="list-style-type: none"> • RCS pressure < LPI pump shutoff head • 1LP-19 closed • 1LP-20 closed <p>THEN perform Steps 93 - 94.</p> <p><u>STANDARD:</u> Student determines the following:</p> <ul style="list-style-type: none"> • RCS pressure is < LPI pump shutoff head and • 1LP-19 and 1LP-20 green closed lights lit. <p>Continue to Step 93</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 13:</u> Step 93 Open the following:</p> <ul style="list-style-type: none"> • 1LP-9 and 1LP-10 • 1LP-6 and 1LP-7 • 1LP-17 and 1LP-18 • 1LP-21 and 1LP-22 <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"> • *1LP-9 • *1LP-10 • *1LP-6 • *1LP-7 • *1LP-18 • *1LP-17 <p>Candidate verifies red open lights lit for the following valves (located on 1UB2)::</p> <ul style="list-style-type: none"> • 1LP-21 • 1LP-22 <p>Continue to Step 94</p> <p><u>COMMENTS:</u></p>	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> Step 94 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>TIME CRITICAL clock Stopped:_____</p> <p>Examiner Note: 1C LPI pump must be started within 60 minutes of the 1B LPI pump failure to start.</p> <p><u>COMMENTS:</u></p> <p><i>Examiner Cue: Another operator will continue with this procedure</i></p> <p>END TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
13	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
14	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 is in progress and RCS Pressure has stabilized at 1000 psig

ES Channels 1-6 have actuated on high RB pressure

Steam Generator levels are being raised to the Loss of Subcooling Margin setpoint by another Reactor Operator

EOP Encl. 5.1(ES Actuation) has been completed up to Step 122

Rule 2 (Loss of SCM) is complete

INITIATING CUES:

The Control Room SRO instructs you, to continue in Encl. 5.1 (ES Actuation) and respond to plant conditions.

THIS JPM IS TIME CRITICAL

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

CRO-409

Depressurize SGs and Feed with CBPs

CANDIDATE

EXAMINER

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

Task:

Depressurize S/G's and Feed With CBPs

Alternate Path:

No

Facility JPM #:

CRO-014

K/A Rating(s):

System: APE 054

K/A: AA1.01

Rating: 4.5/4.4

Task Standard:

Both OTSG's are depressurized and fed with the CBP's until RCS temperature is controlled while maintaining RCS pressure between 2300 psig and 1600 psig.

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Rule 3 (Loss of Main or Emergency FDW)

Validation Time: 12 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. Import files for CRO-409
3. Provide a clean copy of Rule 3 (Loss of Main or Emergency FDW) on the front board
4. Go to run when directed by lead examiner

Tools/Equipment/Procedures Needed:

EOP Rule 3, Loss of Main or Emergency FDW

READ TO OPERATOR

DIRECTION TO TRAINEE

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

INITIAL CONDITIONS

The reactor has tripped.

The SRO directs you to perform a Symptom Check.

INITIATING CUES

You are to respond to the plant conditions found during the Symptom Check.

START TIME: _____

<p><u>STEP 1:</u> Step 1 Perform a Symptoms Check</p> <p><u>STANDARD:</u> Candidate ensures Power Range NIs are < 5% and decreasing. Candidate ensures Subcooling Margin > 0°F. Candidate diagnoses a Loss of Heat Transfer and attempts to start available EFDW pumps per OMP 1-18. Candidate requests concurrence to perform Rule 3. Examiner Cue: As CRSRO, Concur with the performance of Rule 3. Note: EFDW pumps will not start.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Rule 3 Step 1 Verify loss of Main FDW/EFDW is due to Turbine Building Flooding.</p> <p><u>STANDARD:</u> Candidate determines that loss of Main/EFDW is <u>not</u> due to Turbine Building Flooding by determining that 2SA-18/A-11 (TURBINE BST WATER EMERGENCY HIGH LEVEL) is not illuminated and continues to Step 1 RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Rule 3 Step 1 RNO GO TO Step 3.</p> <p><u>STANDARD:</u> Candidate continues to Step 3</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u> Rule 3 Step 3 IAAT NO SGs can be fed with FDW (Main/CBP/Emergency), AND <u>any</u> of the following exist:</p> <ul style="list-style-type: none"> • RCS pressure reaches 2300 psig OR NDT limit • Pzr level reaches 375" <p>THEN PERFORM Rule 4 (Initiation of HPI Forced Cooling)</p> <p><u>STANDARD:</u> Candidate determines that the IAAT step does not apply at this time and continues to Step 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Rule 3 Step 4 Start <u>operable</u> EFDW pumps, as required, to feed <u>all intact</u> SGs.</p> <p><u>STANDARD:</u> Candidate determines that both SGs are intact and that no EFDW pumps will start and continues to Step 5.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Rule 3 Step 5 Verify <u>any</u> EFDW pump operating.</p> <p><u>STANDARD:</u> Candidate determines that no EFDW pump is operating and continues to Step 5 RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u> Rule 3 Step 5 RNO GO TO Step 7</p> <p><u>STANDARD:</u> Candidate continues to Step 7</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Rule 3 Step 7 Place in MANUAL and close:</p> <ul style="list-style-type: none"> • 1FDW-315 • 1FDW-316 <p><u>STANDARD:</u> Candidate locates 1FDW-315 and 1FDW-316 Moore controllers on 1UB1 and places them in manual.</p> <p>Candidate closes 1FDW-315 and 1FDW-316 by reducing demand on the Moore controllers to zero.</p> <p>Continues to Step 8.</p> <p>Note: These valves may be operated simultaneously.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u> Rule 3 Step 8 Verify <u>both</u>:</p> <ul style="list-style-type: none"> • <u>Any</u> CBP operating • TBVs available on an <u>intact</u> SG <p><u>STANDARD:</u> Candidate determines that CBPs are operating by observing light indication and pump amps located on 1AB1.</p> <p>Candidate determines that both SGs are intact with TBVs available and continues to Step 9.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 10:</u> Rule 3 Step 9 Select OFF for <u>both</u> digital channels on AFIS HEADER A</p> <p><u>STANDARD:</u> Candidate locates AFIS Header A switches located on 1UB1 and depresses the OFF pushbutton for Channels 1 & 2. Candidate continues to Step 10.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>								
<p><u>STEP 11:</u> Rule 3 Step 10 Select OFF for <u>both</u> digital channels on AFIS HEADER B</p> <p><u>STANDARD:</u> Candidate locates AFIS Header B switches located on 1UB1 and depresses the OFF pushbutton for Channels 1 & 2. Candidate continues to Step 11.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>								
<p><u>STEP 12:</u> Rule 3 Step 11 Place Startup Block valve control switch for <u>all intact</u> SGs in OPEN:</p> <table><tr><td>√</td><td>1A SG</td><td>√</td><td>1B SG</td></tr><tr><td></td><td>1FDW-33</td><td></td><td>1FDW-42</td></tr></table> <p><u>STANDARD:</u> Candidate determines that both SGs are intact and locates the Startup Block valve switches on 1UB1 and rotates the switches to the OPEN position. Candidate continues to Step 12.</p> <p><u>COMMENTS:</u></p>	√	1A SG	√	1B SG		1FDW-33		1FDW-42	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
√	1A SG	√	1B SG						
	1FDW-33		1FDW-42						

<div>STEP 13:</div> <div>Rule 3 Step 12</div> <div>Simultaneously position Startup Control valves 10 – 20% open on <u>all intact</u> SGs:</div> <table><tr><td>√</td><td>1A SG</td><td>√</td><td>1B SG</td></tr><tr><td></td><td>1FDW-35</td><td></td><td>1FDW-44</td></tr></table> <div>STANDARD:</div> <div>Candidate determines that both SGs are intact and locates the Startup Control valve controllers on 1UB1 and simultaneously places the controllers in manual.</div> <div>Candidate positions Startup Control Valves 10 – 20% open.</div> <div>Candidate continues to Step 13.</div> <div>Note: Two handed operations are allowed for Startup Control valves.</div> <div>COMMENTS:</div>	√	1A SG	√	1B SG		1FDW-35		1FDW-44	<div>CRITICAL STEP</div> <div>___ SAT</div> <div>___ UNSAT</div>
√	1A SG	√	1B SG						
	1FDW-35		1FDW-44						
<div>STEP 14:</div> <div>Rule 3 Step 13</div> <div>Perform the following:</div> <div><div>• Place 1FDW-31 switch in CLOSE</div><div>• Place 1FDW-40 switch in CLOSE</div><div>• Close 1FDW-32</div><div>• Close 1FDW-41</div></div> <div>STANDARD:</div> <div>Candidate locates the control switches for 1FDW-31 and 1FDW-40 on 1UB1 and places the switches in CLOSE.</div> <div>Candidate locates the controllers for 1FDW-32 and 1FDW-41 on 1UB1 and places the controllers in manual and ensures demand is zero.</div> <div>Candidate continues to Step 14.</div> <div>COMMENTS:</div>	<div>___ SAT</div> <div>___ UNSAT</div>								

<p><u>STEP 15:</u> Rule 3 Step 14 Verify Rule 4 (Initiation of HPI Forced Cooling) in progress.</p> <p><u>STANDARD:</u> Candidate determines that Rule 4 is not in progress and continues to Step 14 RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16:</u> Rule 3 Step 14 RNO</p> <div data-bbox="316 636 1138 730" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><u>CAUTION</u></p> <p>Until SGs are dry, lower SG pressure slowly to prevent overcooling.</p> </div> <ol style="list-style-type: none"> 1. Lower SG pressure in <u>available</u> SGs to \approx 500 psig. 2. Control FDW flow to stabilize RCS P/T by throttling the following as necessary: <ul style="list-style-type: none"> • Startup Control valves • TBVs 3. Notify CR SRO that CBP feed is in progress. <p><u>STANDARD:</u> Candidate locates the Bailey controllers for 1A and 1B Turbine Bypass Valves on 1UB1 and places the controllers in HAND by depressing the white HAND pushbuttons.</p> <p>Candidate lowers SG pressure by using the raise/lower toggle switches on the 1A/1B TBVs to increase position demand to open the valves.</p> <p>Candidate controls FDW flow to stabilize RCS P/T by throttling Startup Control valves (1FDW-35 and 1FDW-44) and throttles TBVs to control steam pressure at \approx 500 psig.</p> <p>Examiner Note: Once the candidate demonstrates that they have gained control of RCS P/T and has notified the CR SRO CBP feed is in progress, inform the Candidate another operator will continue with this procedure.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS

STEP #	Explanation
10 & 11	Steps prevent actuation of AFIS circuit which would block feed from the CBPs if actuated.
12	Step aligns flow path to the Startup FDW valves.
13	Step decreases Startup FDW valve position to prevent excessive flow while allowing feed to enter the SG.
16	Step required to decrease SG pressure to below shutoff head of the CBPs and throttle FDW flow to stabilize RCS P/T.

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

INITIAL CONDITIONS

The reactor has tripped.

The SRO directs you to perform a Symptom Check.

INITIATING CUES

You are to respond to the plant conditions found during the Symptom Check.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

CRO-413

Initiate HPI Forced Cooling

CANDIDATE

EXAMINER

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Initiate HPI Forced Cooling

Alternate Path:

Yes

Facility JPM #:

CRO-019, CRO-020

K/A Rating(s):

System: EPE 074

K/A: EA1.08

Rating: 4.2/4.2

Task Standard:

Perform Rule 4 (Initiate HPI Forced Cooling).

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Rule 3 (Loss of Main or Emergency FDW)

EOP Rule 4 (Initiate HPI Forced Cooling)

TCA #26, Initiate HPI Forced Cooling when required

Validation Time: 3 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 209
2. Import simulator files for CRO-413
3. Go to run when directed by lead examiner

Tools/Equipment/Procedures Needed:

EOP Rule 3 (Loss of Main or Emergency FDW)
EOP Rule 4 (Initiate HPI Forced Cooling)

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 has tripped following a total loss of feedwater.
- IMAs are complete.
- You have been performing Rule # 3 (Loss of Main or Emergency FDW) to regain heat transfer.
- CBP feed could not be established and efforts to restore steam generator heat transfer per Rule # 3 have not been successful.
- You are at the step 22 “WHEN” step in Rule 3 (Loss of Main or Emergency FDW).

INITIATING CUES:

The CR SRO directs you to review outstanding IAAT's.

This JPM is Time Critical

START TIME: _____

<p><u>STEP 1:</u> The candidate determines that it is necessary to perform Rule 4 based on IAAT in Rule 3 or in OMP 1-18</p> <p><u>STANDARD:</u> Candidate announces the initiation of Rule 4.</p> <p><i>Examiner Cue: If requested, provide concurrence (as CR SRO) for initiation of Rule 4.</i></p> <p><i>EXAMINER NOTE: This starts the 5 minute "Time critical" time clock.</i></p> <p><i>Time = _____.</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 1 Verify <u>any</u> HPI pump can be operated.</p> <p><u>STANDARD:</u> The candidate recognizes one HPI pump is in operation.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 2 OPEN the following:</p> <ul style="list-style-type: none"> • 1HP-24 • 1HP-25 <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Rotates 1HP-24 switch on 1UB1 to the OPEN position and observes that the red open light comes ON and the green closed light goes OFF. • Rotates 1HP-25 switch on 1UB1 to the OPEN position and observes that the red open light comes ON and the green closed light goes OFF. <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 4:</u> Step 3 Start <u>all available</u> HPI pumps</p> <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Starts any non-running HPI pump by the control switches located on 1UB1. • The running HPI pump amps are verified stable. <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Step 4 OPEN the following:</p> <ul style="list-style-type: none"> • 1HP-26 • 1HP-27 <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Rotates and holds 1HP-26 switch on 1UB1 to the OPEN position Candidate notes that 1HP-26 did not open by observing the green "CLOSED" indication is still illuminated and the red "OPEN" light is extinguished. • Locates 1HP-27 ('1B' HP Injection) on 1UB1 and verifies red 'OPEN' indication is illuminated, and the green 'CLOSED' indication is extinguished,. <p><i>Examiner Note: 1HP-26 is failed closed.</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 5 OPEN 1RC-4</p> <p><u>STANDARD:</u> The candidate locates 1RC-4 control switch on 1UB1 and verifies that the red "OPEN" indication is illuminated and the green "CLOSED" indication is extinguished.</p> <p><i>Examiner Note: This valve should already be open</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u> Step 6 VERIFY flow exists in <u>any</u> HPI header.</p> <p><u>STANDARD:</u> The candidate locates HPI Flow Train A and B flow meters on 1UB1. Loop B flow is verified.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 7 Perform the following: A. Place 1RC-66 SETPOINT SELECTOR to OPEN B. Depress 1RC-66 OPEN PERMIT pushbutton</p> <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Rotates 1RC-66 SETPOINT SELECTOR switch on 1UB1 to the OPEN position • Depresses 1RC-66 OPEN PERMIT pushbutton on 1UB1 • Verifies PORV is open by verifying that the red "OPEN" indication is illuminated and the PORV Flow Statalarm (1SA18/A1) is in alarm. <p>EXAMINER NOTE: This stops the 5 minute "Time Critical" time clock.</p> <p>Time = _____.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u> Step 8 Verify <u>at least two</u> HPI pumps operating.</p> <p><u>STANDARD:</u> The candidate verifies that three HPI pumps are operating.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

STEP 10: Step 9

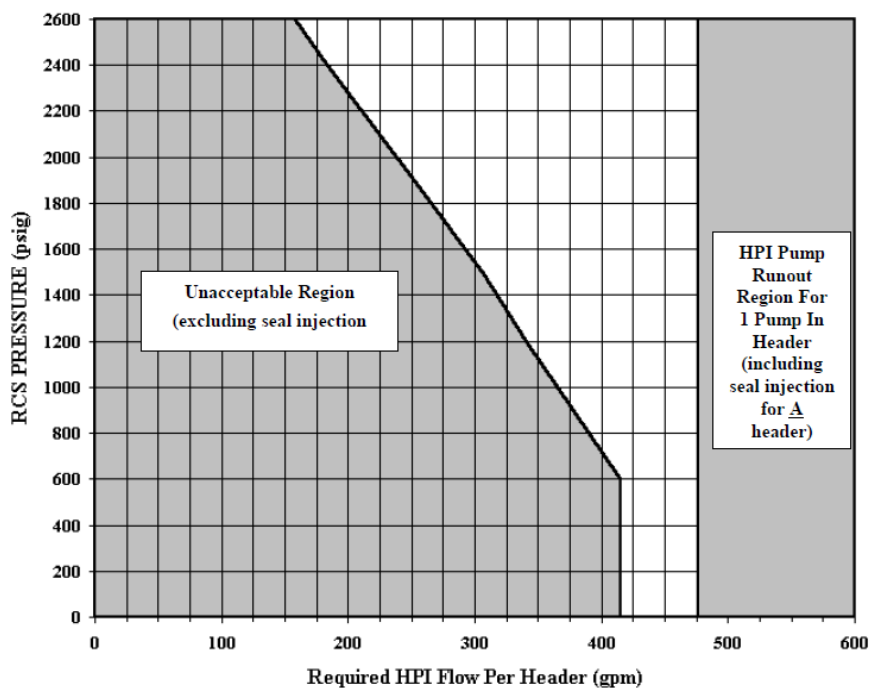
Verify flow in **both** HPI headers is in the acceptable region of Figure 1 (Required HPI Flow Per Header).

STANDARD: The candidate verifies HPI flow in the B HPI header is in the acceptable region of Figure 1 below, but that there is no flow in HPI header A, so he proceeds to step 9 **RNO**.

___ SAT

___ UNSAT

Figure 1
Required HPI Flow Per Header



Examiner Note: Since 1HP-26 failed closed earlier, there is no flow in HPI header A, so the candidate must go to the RNO to open 1HP-410.

COMMENTS:

<p><u>ALTERNATE PATH:</u></p> <p><u>STEP 11:</u> Step 9 RNO</p> <ol style="list-style-type: none"> IF 1A HPI header flow is unacceptable, THEN open 1HP-410. IF 1B HPI header flow is unacceptable, THEN open 1HP-409. <p><u>STANDARD:</u> The candidate determines that 1A HPI header flow is unacceptable and opens 1HP-410.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> Step 10</p> <p>Verify flow exists in <u>any</u> HPI header.</p> <p><u>STANDARD:</u> The candidate locates HPI Flow Train A and B flow meters on 1UB1. Loop A and Loop B flow is verified.</p> <p><i>Examiner Note: This flow has already been verified in step 7</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u> Step 11</p> <p>Perform the following:</p> <ol style="list-style-type: none"> Place 1RC-66 SETPOINT SELECTOR to OPEN Depress 1RC-66 OPEN PERMIT pushbutton <p><u>STANDARD:</u> The candidate verifies 1RC-66 open. These actions have already been taken in step 8:</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14:</u> Step 12 Verify > one RCP operating.</p> <p><u>STANDARD:</u> Candidate determines that all four RCPs are operating.</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><u>NOTE:</u> 1A1 RCP provides the best Pzr spray and is preferred to be left running in case recovery from HPI forced cooling is performed and a Pzr bubble drawn.</p> </div> <p><u>STEP 15:</u> Step 13 Stop <u>all but one</u> RCP.</p> <p><u>STANDARD:</u> The candidate stops three RCPs by rotating their control switches to “OFF” position on the three of the four RCPs.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>						
<p><u>STEP 16:</u> Step 14 IAAT the following limits are exceeded</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Pump Operation</th> <th style="padding: 5px;">Limit</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1 HPI pump/hdr</td> <td style="padding: 5px;">475 gpm (incl. seal injection for <u>A</u> hdr)</td> </tr> <tr> <td style="padding: 5px;">1A & 1B HPI pumps operating with 1HP-409 open</td> <td style="padding: 5px;">Total flow of 950 gpm (incl. seal injection)</td> </tr> </tbody> </table> <p>THEN throttle HPI to maximize flow ≤ flow limit.</p> <p><u>STANDARD:</u> The candidate verifies header flows less than the limits in the table above.</p> <p><u>COMMENTS:</u></p>	Pump Operation	Limit	1 HPI pump/hdr	475 gpm (incl. seal injection for <u>A</u> hdr)	1A & 1B HPI pumps operating with 1HP-409 open	Total flow of 950 gpm (incl. seal injection)	<p>___ SAT</p> <p>___ UNSAT</p>
Pump Operation	Limit						
1 HPI pump/hdr	475 gpm (incl. seal injection for <u>A</u> hdr)						
1A & 1B HPI pumps operating with 1HP-409 open	Total flow of 950 gpm (incl. seal injection)						

<p><u>STEP 17:</u> Step 15 De-energize <u>all</u> PZR heaters.</p> <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Rotates the PZR heater bank #1 on 1UB1 switch to the "OFF" position. • Presses the OFF pushbutton controls for PZR heater banks 2, 3 and 4 on 1UB1 <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18:</u> Step 16 Close 1HP-5 (LETDOWN ISOLATION)</p> <p><u>STANDARD:</u> The candidate:</p> <ul style="list-style-type: none"> • Rotates the switch for 1HP-5 on 1UB1 to the closed position. • Observes the red OPEN light go off and the green CLOSED light come on. <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u> Step 17 Close the following:</p> <ul style="list-style-type: none"> • TBVs • 1FDW-35 • 1FDW-44 <p><u>STANDARD:</u> Take the TBVs to HAND and reduce demand to zero using the toggle switch Take 1FDW-35 and 1FDW-44 to HAND and reduce demands to zero using the toggle switches.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 20:</u> Step 18 IAAT all HPI is lost, THEN: A. Stop all RCPs B. Position 1RC-66 SETPOINT SELECTOR to HIGH</p> <p><u>STANDARD:</u> The candidate verifies HPI is available and operating and the IAAT step does not apply at this time.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21:</u> Step 19 WHEN directed by CR SRO, THEN EXIT this rule.</p> <p><u>STANDARD:</u> The candidate announces that Rule 4 is complete with outstanding IAATs and returns the Cue sheet to the examiner indicating he has completed his JPM.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
3	Step is required provide proper system alignment for HPI forced cooling flow
7	Step is required to verify HPI flow available for forced cooling.
8	Step is required to open the PORV to initiate HPI forced cooling through the core (TCA #26).
11	Step required to allow flow in both HPI headers
15	Step required to limit the heat input to the RCS
17	Step required to limit the heat input to the RCS
18	Step required to Reduce the amount of heat energy added to the RB Containment

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

INITIAL CONDITIONS:

- Unit 1 has tripped following a total loss of feedwater.
- IMAs are complete.
- You have been performing Rule # 3 (Loss of Main or Emergency FDW) to regain heat transfer.
- CBP feed could not be established and efforts to restore steam generator heat transfer per Rule # 3 have not been successful.
- You are at the step 22 “WHEN” step in Rule 3 (Loss of Main or Emergency FDW).

INITIATING CUES:

The CR SRO directs you to review outstanding IAAT's.

This JPM is Time Critical

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

CRO-507

Perform EOP Encl. 5.35 (Containment Isolation)

CANDIDATE

EXAMINER

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

Task:

Perform EOP Encl 5.35 (Containment Isolation)

Alternate Path:

Yes

Facility JPM #:

CRO-503

K/A Rating(s):

System: 103
K/A: G2.1.23
Rating: 4.3/4.4

Task Standard:

Perform EOP Encl 5.35 (Containment Isolation).

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Encl 5.35 (Containment Isolation)

Validation Time: 10 min.

Time Critical: NO

Candidate: _____
NAME

Time Start: _____
Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____ / _____
NAME SIGNATURE DATE

Comments

SIMULATOR OPERATOR INSTRUCTIONS

1. Recall Snap 210
2. Import Simulator files for CRO-507
3. Go to Run and Acknowledge alarms
4. Go to Freeze
5. Go to Run when directed by lead examiner

Tools/Equipment/Procedures Needed

EOP Encl 5.35 (Containment Isolation)

READ TO OPERATOR

DIRECTIONS TO STUDENT

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

INITIAL CONDITIONS

Unit 1 reactor trips from 100% power due to a spurious Main Turbine trip

RCS leak of 190 gpm occurs as result of the trip

EOP LOCA CD tab is in progress

ES Actuation has **NOT** occurred

INITIATING CUE

The CR SRO directs you to perform EOP Encl 5.35 (Containment Isolation)

START TIME: _____

<p><u>STEP 1:</u> Step 1 Verify Encl 5.1 (ES Actuation) is in progress or complete.</p> <p><u>STANDARD:</u> Determine ES has NOT actuated and perform the RNO step. Continue to Step 1 RNO 1.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>																																																																								
<p><u>STEP 2:</u> Step 1 RNO 1. 1. Close the following ES operated RB isolation valves:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">√</th> <th style="width: 35%;">ES Chan 1</th> <th style="width: 10%;">√</th> <th style="width: 45%;">ES Chan 2</th> </tr> </thead> <tbody> <tr><td></td><td>1HP-3</td><td></td><td>1HP-5</td></tr> <tr><td></td><td>1HP-4*</td><td></td><td></td></tr> <tr><td></td><td>1GWD-12</td><td></td><td>1GWD-13</td></tr> <tr><td></td><td>1LWD-1</td><td></td><td>1LWD-2</td></tr> <tr><td></td><td>1CS-5</td><td></td><td>1CS-6</td></tr> <tr><td></td><td>1PR-1</td><td></td><td>1PR-2</td></tr> <tr><td></td><td>1PR-6</td><td></td><td>1PR-3</td></tr> <tr><td></td><td></td><td></td><td>1PR-4</td></tr> <tr><td></td><td></td><td></td><td>1PR-5</td></tr> <tr><td></td><td>1PR-7*</td><td></td><td>1PR-8*</td></tr> <tr><td></td><td>1PR-9*</td><td></td><td>1PR-10*</td></tr> <tr><td></td><td>1RC-5</td><td></td><td>1RC-7</td></tr> <tr><td></td><td>1RC-6</td><td></td><td></td></tr> <tr><td></td><td>1FDW-105</td><td></td><td>1FDW-106</td></tr> <tr><td></td><td>1FDW-107</td><td></td><td>1FDW-108</td></tr> <tr><td></td><td></td><td></td><td>1FDW-103</td></tr> <tr><td></td><td></td><td></td><td>1FDW-104</td></tr> </tbody> </table> <p><u>STANDARD:</u> The above valves are closed.</p> <p>ALTERNATE PATH: 1HP-3 will <u>NOT</u> close.</p> <p>Continue to Step 1 RNO 2.</p> <p><u>COMMENTS:</u></p>	√	ES Chan 1	√	ES Chan 2		1HP-3		1HP-5		1HP-4*				1GWD-12		1GWD-13		1LWD-1		1LWD-2		1CS-5		1CS-6		1PR-1		1PR-2		1PR-6		1PR-3				1PR-4				1PR-5		1PR-7*		1PR-8*		1PR-9*		1PR-10*		1RC-5		1RC-7		1RC-6				1FDW-105		1FDW-106		1FDW-107		1FDW-108				1FDW-103				1FDW-104	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
√	ES Chan 1	√	ES Chan 2																																																																						
	1HP-3		1HP-5																																																																						
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	1FDW-107		1FDW-108																																																																						
			1FDW-103																																																																						
			1FDW-104																																																																						

<p><u>STEP 3:</u> Step 1 RNO 2. 2. IF 1HP-3 fails to close, THEN close 1HP-1</p> <p><u>STANDARD:</u> Determine 1HP-3 is open by observing red open light on and green closed light off.</p> <p>Position 1HP-1 switch in closed position and verify green closed light on and red open light off.</p> <p>Continue to Step 1 RNO 3.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 1 RNO 3. 1. IF 1HP-4 fails to close, THEN close 1HP-2</p> <p><u>STANDARD:</u> Observe that 1HP-4 is closed with red light off and green light on.</p> <p>Continue to Step 1 RNO 4.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Step 1 RNO 4. 2. IF 1HP-5 fails to close, THEN close 1HP-7 and 1HP-6</p> <p><u>STANDARD:</u> Observe that 1HP-5 is closed with red light off and green light on.</p> <p>Continue to Step 2.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 2 Verify <u>all</u> RCPs off.</p> <p><u>STANDARD:</u> Determine that all RCPs are operating by observing red on light lit and RCP amps indicate normal. Perform RNO.</p> <p>GO TO Step 5</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u> Step 5 Rotate switches to the closed position for the following components.</p> <ul style="list-style-type: none"> • 1LPSW-1054 • 1LPSW-1055 • 1LPSW-1061 • 1LPSW-1062 <p>*Note: Either 1LPSW-1054 or 1LPSW-55 and 1LPSW-1061 or 1LPSW-1062 must be closed to satisfy this critical step.</p> <p><u>STANDARD:</u> Rotate the above switches to the closed position located on 1VB3.</p> <p>Continue to Step 6</p> <p><u>COMMENTS:</u></p>	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 6 Verify the following components indicate closed.</p> <ul style="list-style-type: none"> • 1LPSW-1054 • 1LPSW-1055 • 1LPSW-1061 • 1LPSW-1062 <p><u>STANDARD:</u> Verify the above valves indicate closed by observing the green closed light is lit located on 1VB3.</p> <p>Continue to Step 7</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u> Step 7 EXIT this enclosure.</p> <p><u>STANDARD:</u> Exit the enclosure.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

TIME STOP: _____

CRITICAL STEP EXPLANATIONS

STEP #	Explanation
2	This step is critical to isolate the Reactor Building.
3	This step is critical since 1HP-3 is failed open 1HP-1 isolates this pathway.
7	This step is critical to isolate the Reactor Building.

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

INITIAL CONDITIONS

Unit 1 reactor trips from 100% power due to a spurious Main Turbine trip

RCS leak of 190 gpm occurs as result of the trip

EOP LOCA CD tab is in progress

ES Actuation has **NOT** occurred

INITIATING CUE

The CR SRO directs you to perform EOP Encl 5.35 (Containment Isolation)

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

CRO-605

Energize Main Feeder Buses from CT-4

CANDIDATE

EXAMINER

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Energize Main Feeder Buses From CT-4

Alternate Path:

No

Facility JPM #:

CRO-007

K/A Rating(s):

System: EPE 055

K/A: EA2.03

Rating: 3.9/4.7

Task Standard:

Energize Main Feeder Buses from CT-4

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

EOP Encl 5.38 (Restoration of Power)

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 211
2. Import Files for CRO-605
3. Place simulator in Run and acknowledge alarms
4. Go to Freeze
5. Go to Run when directed by lead examiner

Tools/Equipment/Procedures Needed:

EOP Encl 5.38 (Restoration of Power)

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 experienced a lockout on CT-1 followed by a unit trip.

Keowee Unit 2 emergency Locks Out

Blackout tab of the EOP is in progress

The Blackout tab directs the initiation of Encl. 5.38 (Restoration of Power).

INITIATING CUES:

The CRS directs you to initiate Encl. 5.38 (Restoration of Power) to regain power to the Main Feeder Buses.

START TIME: _____

<p><u>STEP 1:</u> Step 1 Verify power has been restored.</p> <p><u>STANDARD:</u> Determine power has NOT been restored by observing MFB voltage on 1AB1. Perform RNO step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 1 RNO GO TO Step 3.</p> <p><u>STANDARD:</u> GO TO Step 3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 3 Place 1HP-31 in HAND <u>and</u> reduce demand to 0.</p> <p><u>STANDARD:</u> Place 1HP-31 in HAND and reduce demand to 0 using the toggle switch. Located on 1UB1. Continues to Step 4</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 4 Close 1HP-21.</p> <p><u>STANDARD:</u> Close 1HP-21 by rotating the switch to the close position and verifying the red open light goes out and the green closed light illuminates. Switch is located on 1UB2. Continues to Step 5</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u> Step 5 Verify any of the following energized:</p> <ul style="list-style-type: none"> • MFB1 • MFB2 <p><u>STANDARD:</u> Observes that zero (0) volts are indicated on both MFBs meters located on 1AB1 and performs RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 5 RNO GO TO Step 8.</p> <p><u>STANDARD:</u> GO TO Step 8.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 8 Verify CT-1 indicates ≈ 4160 volts.</p> <p><u>STANDARD:</u> Observes that zero (0) volts is indicated on CT-1 on 1AB1 and performs RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 8 RNO GO TO Step 18.</p> <p><u>STANDARD:</u> GO TO Step 18.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 9:</u> Step 18 Verify <u>both</u> Standby Bus #1 and Standby Bus #2 are de-energized.</p> <p><u>STANDARD:</u> Observes that zero (0) volts is indicated on both Standby Buses located on 2AB3. Continues to Step 19</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10:</u> Step 19 Verify <u>both</u> Keowee units operating.</p> <p><u>STANDARD:</u> Determine that Keowee Unit 1 is operating. Determine that Keowee Unit 2 is NOT operating (Emergency Lockout) by observing Statalarm 2SA-18/A1 is actuated. Perform RNO step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> Step 19 RNO 1. Emergency start Keowee units: <ul style="list-style-type: none"> • KEOWEE EMER START CHANNEL A • KEOWEE EMER START CHANNEL B 2. IF NO Keowee units are operating, THEN GO TO Step 36.</p> <p><u>STANDARD:</u> Place the KEOWEE EMER START CHANNEL A switch to start located on 1UB1. Continues to Step 20.</p> <p>Note: KEOWEE EMER START CHANNEL B switch is not modeled.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 12:</u> Step 20</p> <p>Verify both Keowee units in Oconee Control (statalarms on):</p> <ul style="list-style-type: none"> • UNIT 1 OCONEE CONTROL (2SA-17/E-1) • UNIT 2 OCONEE CONTROL (2SA-18/E-1). <p><u>STANDARD:</u> Determine that 2SA-17/E-1 and 2SA-18/E-1 are not actuated. Perform RNO step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13:</u> Step 20 RNO</p> <p>Notify Keowee Operator to place <u>both</u> Keowee units Master Transfer switches to remote.</p> <p><u>STANDARD:</u> Call Keowee and ask the Keowee Operator to place <u>both</u> Keowee units Master Transfer switches to remote. Verify that statalarm 2SA-17/E-1 and 2SA-18/E-1 actuate..</p> <p>Booth Cue: When directed by the candidate, use Quick Strike and place both KHU's in Remote.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> Step 21</p> <p>Verify <u>both</u> Keowee units operating.</p> <p><u>STANDARD:</u> Determine that Keowee Unit 1 is operating.</p> <p>Determine that Keowee Unit 2 is NOT operating (Emergency Lockout) by observing Statalarm 2SA-18/A1 is actuated. Perform RNO step</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 15:</u> Step 21 RNO</p> <p>1. IF UNIT 1 EMER FDR ACB 3 is closed, AND Unit 1 Keowee is NOT operating, THEN open UNIT 1 EMER FDR ACB 3.</p> <p>2. IF UNIT 2 EMER FDR ACB 4 is closed, AND Unit 2 Keowee is NOT operating, THEN open UNIT 2 EMER FDR ACB 4.</p> <p><u>STANDARD:</u> Determine Unit 2 Keowee is NOT operating and open UNIT 2 EMER FDR ACB 4 located on 2AB3. Continues to Step 22</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>								
<p><u>STEP 16:</u> Step 22</p> <p>Ensure one of the following is closed for an operating Keowee unit:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">✓</td> <td style="width: 100px;">Unit 1</td> <td style="width: 20px;">✓</td> <td style="width: 100px;">Unit 2</td> </tr> <tr> <td></td> <td>UNIT 1 EMER FDR ACB 3</td> <td></td> <td>UNIT 2 EMER FDR ACB 4</td> </tr> </table> <p><u>STANDARD:</u> Determine that KHU #1 is operating and closes ACB-3 located on 2AB3. Continues to Step 23</p> <p><u>COMMENTS:</u></p>	✓	Unit 1	✓	Unit 2		UNIT 1 EMER FDR ACB 3		UNIT 2 EMER FDR ACB 4	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
✓	Unit 1	✓	Unit 2						
	UNIT 1 EMER FDR ACB 3		UNIT 2 EMER FDR ACB 4						
<p><u>STEP 17:</u> Step 23</p> <p>Verify 4160 volt power has been restored to the MFB.</p> <p><u>STANDARD:</u> Candidate determines that 4160 volts has not been restored to the MFB. Continues to Step 23 RNO</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>								

<p><u>STEP 18:</u> Step 23 RNO GO TO step 25.</p> <p><u>STANDARD:</u> Continues to Step 25</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19:</u> Step 25 Verify CT-4 indicates \approx 4160 volts.</p> <p><u>STANDARD:</u> Verify CT-4 indicates \approx 4160 volts by observing CT-4 voltage gauge located on 2AB3. Continues to Step 26</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20:</u> Step 26 Place the following transfer switches in MAN:</p> <ul style="list-style-type: none"> • CT4 BUS 1 AUTO/MAN • CT4 BUS 2 AUTO/MAN <p><u>STANDARD:</u> Place the above transfer switches located on 2AB3 in MAN. Continues to Step 27</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21:</u> Step 27 Place the following switches in ON:</p> <ul style="list-style-type: none"> • STBY BUS 1 SYNCHRONIZING • STBY BUS 2 SYNCHRONIZING <p><u>STANDARD:</u> Place the above switches located on 2AB3 in ON. Continues to Step 28</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 22:</u> Step 28</p> <p>Close the following breakers:</p> <ul style="list-style-type: none"> • SK1 CT4 STBY BUS 1 FEEDER • SK2 CT4 STDY BUS 2 FEEDER <p><u>STANDARD:</u> Candidate observes that both SK1 and SK2 are already closed by observing both red "closed" lights are illuminated.. Continues to Step 29</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23:</u> Step 29</p> <p>Place the following switches in OFF:</p> <ul style="list-style-type: none"> • STBY BUS 1 SYNCHRONIZING • STBY BUS 2 SYNCHRONIZING <p><u>STANDARD:</u> Place the above switches located on 2AB3 in OFF. Continues to Step 30</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24:</u> Step 30</p> <p>Verify Standby Bus #1 energized.</p> <p><u>STANDARD:</u> Observes that \approx 4160 volts are indicated for Standby Bus #1 located on 2AB3. Continues to Step 31</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 25:</u> Step 31</p> <p>Notify CR SRO in each unit where a blackout exists that Standby Bus #1 is energized.</p> <p><u>STANDARD:</u> Notifies CR SRO that Standby Bus #1 is energized. Continues to Step 32</p> <p><i>Cue: If asked, inform candidate that only Unit 1 is affected.</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 26:</u> Step 32</p> <p>Place the following switches in MAN:</p> <ul style="list-style-type: none"> • MFB1 AUTO/MAN • MFB2 AUTO/MAN • STANDBY 1 AUTO/MAN • STANDBY 2 AUTO/MAN <p><u>STANDARD:</u> Place the above switches located on 1UB2 in MAN. Continues to Step 33</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 27:</u> Step 33</p> <p>Open the following breakers:</p> <ul style="list-style-type: none"> • N1₁ MFB1 NORMAL FDR • N2₁ MFB2 NORMAL FDR • E1₁ MFB1 STARTUP FDR • E2₁ MFB2 STARTUP FDR <p><u>STANDARD:</u> Verify the above breakers located on 1UB2 are OPEN. Continues to Step 34</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 28:</u> Step 34</p> <p>Close the following breakers:</p> <ul style="list-style-type: none"> • S1₁ STBY BUS 1 TO MFB1 • S2₁ STBY BUS 2 TO MFB2 <p><u>STANDARD:</u> Goes to the CLOSED position for each of the switches listed above. Continues to Step 35</p> <p><i>*Note: Only 1 of the Stby Busses must be energized to restore power to MFBs, and therefore only one (either one) of the above breaker closures is critical.</i></p> <p><u>COMMENTS:</u></p>	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 29:</u> Step 35</p> <p>Verify any of the following energized:</p> <ul style="list-style-type: none"> • 1TC • 1TD • 1TE <p><u>STANDARD:</u> Observes that ≈ 4160 volts indicated on either MFB voltmeters or OAC. Continues to Step 36</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 30:</u> Step 36</p> <p>Notify Unit 1 CR SRO of status of 4160V SWGR.</p> <p><u>STANDARD:</u> Notifies CR SRO of status of 4160V SWGR Continues to Step 37</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 31:</u> Step 37</p> <p>EXIT this enclosure,</p> <p><u>STANDARD:</u> Notifies CR SRO that Encl. 5.38 is complete.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
3	Step is required to protect the RCP seals.
13	Step is required to satisfy power switching logic.
16	Step is required to satisfy power switching logic.
28	Step is required to energize the Main Feeder Bus.

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

INITIAL CONDITIONS:

Unit 1 experienced a lockout on CT-1 followed by a unit trip.

Keowee Unit 2 emergency Locks Out

Blackout tab of the EOP is in progress

The Blackout tab directs the initiation of Encl. 5.38 (Restoration of Power).

INITIATING CUES:

The CRS directs you to initiate Encl. 5.38 (Restoration of Power) to regain power to the Main Feeder Buses

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

CRO-902

Place Reactor Building Purge in Operation

CANDIDATE

EXAMINER

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

Task:

Place the Reactor Building Purge In Operation

Alternate Path:

Yes

Facility JPM #:

CRO-100

K/A Rating(s):

System: 029
K/A: A2.03
Rating: 2.7/3.1

Task Standard:

RB Purge is placed in operation in accordance with OP/1/A/1102/014 (RB Purge System) and the RB Purge Fan secured and valves closed following 1RIA-45 HIGH alarm.

Preferred Evaluation Location:

Simulator X In-Plant

Preferred Evaluation Method:

Perform X Simulate

References:

OP/1/A/1102/014 (RB Purge System)
PT/0/A/0230/001 (Radiation Monitor Check)
AP/1/A/1700/018 (Abnormal Release of Radioactivity)
OP/1/A/6101/008 (Alarm Response Guide 1SA-08) B-9 and D-9

Validation Time: 15 min.

Time Critical: NO

Candidate: _____

NAME

Time Start: _____

Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____

NAME

SIGNATURE

DATE

Comments

SIMULATOR OPERATOR INSTRUCTIONS

1. Recall Snap 212
2. Import files for CRO-902
3. Go to run

Tools/Equipment/Procedures Needed

OP/1/A/1102/014 (RB Purge System) Encl. 4.1 (RB Purge Release)

AP/1/A/1700/018 (Abnormal Release of Radioactivity)

READ TO OPERATOR

DIRECTIONS TO STUDENT

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

INITIAL CONDITIONS

RCS temperature = 114°F

RCS pressure = 45 psig

No Gaseous or Liquid releases are in progress

RB Hatch is closed

Continuous release is NOT in progress

RB Purge startup is in progress using OP/1/A/1102/014 (RB Purge System), Encl. 4.1 (RB Purge Release)

INITIATING CUE

The CRS directs you to place the RB Purge in operation at 1/3 Station Limit using OP/1/A/1102/014 (RB Purge System) Encl. 4.1 (RB Purge Release) starting at Step 3.8.

START TIME: _____

<p><u>STEP 1:</u> Step 3.8 Perform the following: 3.8.1. Ensure one of the following:</p> <ul style="list-style-type: none"> • 1A RB AUX FAN is Off. • 1B RB AUX FAN is Off. <p>3.8.2. Ensure "T/O Sheet" Control Room Tag on 1A RB AUX FAN. 3.8.3. Ensure "T/O Sheet" Control Room Tag on 1B RB AUX FAN. 3.8.4. Ensure note on Turnover sheet: "If RB Purge Fan is operating, 1A RB Aux Fan or 1B RB Aux Fan should be off."</p> <p><u>STANDARD:</u> *Secure the 1A or 1B RB AUX FAN and place a "T/O Sheet" Control Room Tag on the 1A and 1B RB AUX FAN control room switches. Note: Placing tags on the RB Aux Fan switches in NOT critical.</p> <p>Candidate should state they would place note on Turnover sheet: "If RB Purge Fan is operating, 1A RB Aux Fan or 1B RB Aux Fan should be off."</p> <p>Continue to Step 3.9</p> <p>Examiner Cues: <i>If asked as the SRO, inform the candidate that the 1A RB Aux Fan should be secured.</i></p> <p><i>When appropriate, inform candidate that note has been placed on Turnover sheet per 3.8.4.</i></p> <p><u>COMMENTS:</u></p>	<p>*CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<div data-bbox="186 1262 1174 1392" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>NOTE: Completion of Step 3.9 establishes an appropriate vent path during Fuel Movement Operations with any Transfer Tube open per the Shutdown Protection Plan. This prevents FTC and SFP level variations caused by differential pressures between RB and SFP.</p> </div> <p><u>STEP 2:</u> Step 3.9 Perform the following: 3.9.1 - Open 1PR-1 (RB PURGE OUTLET (RB)).</p> <p><u>STANDARD:</u> Open 1PR-1 by rotating the switch located on 1AB3 to open and verifying that the red open light illuminates and the green closed light goes out. May verify 1PR-1 open on the OAC.</p> <p>Continue to Step 3.9.2</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3:</u> Step 3.9.2 Open 1PR-2 (RB PURGE OUTLET (PR)).</p> <p><u>STANDARD:</u> Open 1PR-2 by rotating the switch located on 1AB3 to open and verifying that the red open light illuminates and the green closed light goes out. May verify 1PR-2 open on the OAC. Continue to Step 3.9.3</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 3.9.3 Ensure closed 1PR-3 (RB PURGE FLOW). (Bailey Controller)</p> <p><u>STANDARD:</u> Rotate 1PR-3 controller knob until the position indication indicates zero. Continue to Step 3.9.4</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> Step 3.9.4 Verify 1PR-3 closed using alternate indication.</p> <p><u>STANDARD:</u> Verify 1PR-3 is closed by observing the closed light is lit on the ES Component Status Panel on 1VB2 or verifying 1PR-3 position on the OAC. Continue to Step 3.9.5</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 3.9.5 WHILE RB Purge operating, monitor unit vent RIAs.</p> <p><u>STANDARD:</u> Candidate monitors unit vent RIAs. Continue to Step 3.9.6</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 7:</u> Step 3.9.6</p> <p>Perform the following:</p> <div data-bbox="175 260 1185 331"><p>NOTE: When 1PR-3 (RB PURGE OUTLET SWITCH) is positioned to open, 1PR-3 will remain in the closed position since 1PR-3 Bailey Controller is closed.</p></div> <p> A. Position 1PR-3 (RB PURGE OUTLET SWITCH) to open.</p> <p> B. Throttle > 60% open 1PR-3 (RB PURGE FLOW). (Bailey Controller)</p> <p><u>STANDARD:</u> Position 1PR-3 (RB PURGE OUTLET SWITCH) to open on 1VB2. Rotate knob on the Bailey Controller for 1PR-3 until it indicates > 60% open on 1AB3.</p> <p> Continue to Step 3.10</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>____ SAT</p> <p>____ UNSAT</p>
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STEP 8:	*CRITICAL STEP
<p>Step 3.10</p> <p>IF required to operate the RB Purge Fan, perform the following:</p> <p>3.10.1 Perform one of the following:</p> <p>A. Perform the following:</p> <ul style="list-style-type: none"> *Open 1PR-4 (RB PURGE INLET) *Open 1PR-5 (RB PURGE INLET (PR)) *Open 1PR-6 (RB PURGE INLET (RB)) <p>B. Ensure the following: (these steps will be N/Aed)</p> <ul style="list-style-type: none"> 1PR-4 (RB PURGE INLET) valve position interlock jumpered per IP/0/A/0161/004 (Outage Interlock Bypass For Purge Isolation Valves) 1PR-5 (RB PURGE INLET (PR)) valve position interlock jumpered per IP/0/A/0161/004 (Outage Interlock Bypass For Purge Isolation Valves) 1PR-6 (RB PURGE INLET (RB)) valve position interlock jumpered per IP/0/A/0161/004 (Outage Interlock Bypass For Purge Isolation Valves) Open RB Equipment Hatch <p>Examiner Cue: If asked, inform the candidate that there is no information regarding the purge valves on the turnover sheet.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>NOTE: Starting/Stopping RB Purge may cause SFP level changes. Entry into AP/1&2/A/1700/35 not required if SFP level changes are evaluated and stabilizes as expected.</p> </div> <p>3.10.2 *Start RB Purge Fan.</p> <p>Examiner Note: The RB Purge fan has a 20 second delay to allow dampers to operate.</p> <p>3.10.3 Ensure 1PR-3 (RB PURGE FLOW) (Bailey Controller) adjusted to < recommended release rate.</p> <p>STANDARD: Open 1PR-4, 5, and 6 by rotating the switches located on 1AB3 to open and verifying that the red open lights are illuminated and the green closed lights go out. May verify 1PR-4, 5, and 6 open on the OAC.</p> <p>Start RB Purge Fan by placing the switch located on 1AB3 to start and verifying that the red on light illuminates.</p> <p>Adjust 1PR-3 (RB PURGE FLOW) (Bailey Controller) < recommended release rate as read on Chessell Misc. System Recorder 1 located on 1VB1.</p> <p>Continue to Step 3.11</p> <p>Note: After the RB Purge Fan is started, the HIGH alarm for 1RIA-45 will actuate. The associated interlock will not occur.</p> <p>COMMENTS:</p>	<p>___ SAT</p> <p>___ UNSAT</p>

ATLERNATE PATH	CRITICAL STEP
<p>The following Statalarms will actuate:</p> <ul style="list-style-type: none"> • 1SA-08/D-9 (RM Reactor Building Purge Discharge Radiation Inhibit) • 1SA-08/B-9 (Process Monitor Radiation High) <p>Examiner Cue: <i>IF SRO is informed of the alarms actuating, inform the candidate that the SRO reply is to “Refer to the alarm response guides”.</i></p> <p>Examiners Note: <i>The candidate may refer to one or both ARGs. If 1SA-08/D-9 is selected, then STEP 9 will be performed and that will end the task. If 1SA08/B-9 is selected, then STEPs 10 - 13 will be performed and that will end the task. Either step 9 or step 13 is Critical but not both.</i></p> <p><u>STEP 9:</u> Refer to 1SA-08/D-9 (RM Reactor Building Purge Discharge Radiation Inhibit)</p> <ul style="list-style-type: none"> 3.1 Ensure auto action has taken place. 3.2 Observe Reactor Building RIAs and evacuate personnel as it becomes necessary. 3.3 Determine cause of inhibit and correct. <p><u>STANDARD:</u> Determine that the automatic actions have NOT taken place and using ARG guidance perform the following:</p> <ul style="list-style-type: none"> • Stop the RB Purge Fan • Close 1PR-2 • Close 1PR-3 • Close 1PR-4 • Close 1PR-5 <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STEP 10: Refer to **1SA-08/B-9** (Process Monitor Radiation High

3.1 Perform **one** of the following:

3.1.1. Determine radiation monitors in alarm.

3.1.2. **IF** Radiation Monitoring data from the PMC System is **NOT** in service, refer to OP/1/A/1103/026, (Loss of Sorrento Radiation Monitor).

NOTE: Loss of power to a process monitor skid actuates the Process Monitor Fault alarm, causes the associated RIA to activate the High alarm, and actuates any associated interlocks from the High alarm. The actual RIA readout may indicate magenta with readings of negative values.

3.2 **IF** 1SA-08/B-10 (Process Monitor Fault) has occurred for the same monitor, **Go To** the ARG for 1SA-08/B-10 (Process Monitor Fault). {3}

3.3 **IF** 1RIA-40 alarms, Go To the appropriate procedure:

- < 25 gpm (36,000 gpd) - AP/1/A/1700/031 (Primary To Secondary Leakage)
- ≥ 25 gpm (36,000 gpd) - EP/1/A/1800/001 (Emergency Operating Procedure)

3.4 **IF** any of the following RIAs have valid alarms, **Go To** AP/1/A/1700/018 (Abnormal Release of Radioactivity).

√	RIA
	RIA-31
	1RIA-35
	1RIA-39
	1RIA-41
	1RIA-42
	1RIA-45, 46
	1RIA-49A
	1RIA-50
	1RIA-54

___ SAT

___ UNSAT

STANDARD: Determine 1RIA-45 is in HIGH alarm

Determine that Radiation Monitoring data from the PMC System is in service

Determine 1SA-08/B-10 (Process Monitor Fault) is NOT in alarm

Determine 1RIA-40 is NOT in alarm

Determine 1RIA-45 is in alarm and **Go To** AP/1/A/1700/018 (Abnormal Release of Radioactivity).

COMMENTS:

<p><u>STEP 11:</u> AP/1/A/1700/018 (Abnormal Release of Radioactivity)</p> <p>Step 4.1 - Perform the following:</p> <ul style="list-style-type: none"> • At the discretion of the CRS, make a PA announcement of the event including any necessary precautions to be observed. • Notify OSM to reference the following: <ul style="list-style-type: none"> ○ RP/0/B/1000/001 (Emergency Classification). ○ NSD-202 (Reportability) ○ OMP 1-14 (Notifications) <p><u>STANDARD:</u> Candidate makes announcement and notifies OSM</p> <p>Continue to Step 4.2</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>																																	
<p><u>STEP 12</u> Step 4.2</p> <p>GO TO appropriate sections for any monitors in High or Alert alarm:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 5%;">√</th> <th style="width: 25%;">Section</th> <th style="width: 70%;">Monitor</th> </tr> </thead> <tbody> <tr><td></td><td>4A</td><td>RIA-31</td></tr> <tr><td></td><td>4B</td><td>1RIA-32</td></tr> <tr><td></td><td>4C</td><td>1RIA-35</td></tr> <tr><td></td><td>4D</td><td>1RIA-39</td></tr> <tr><td></td><td>4E</td><td>1RIA-41</td></tr> <tr><td></td><td>4F</td><td>1RIA-42</td></tr> <tr><td></td><td>4G</td><td>1RIA-45 or 46</td></tr> <tr><td></td><td>4H</td><td>1RIA-47, 1RIA-48, 1RIA-49, or 1RIA-49A</td></tr> <tr><td></td><td>4I</td><td>1RIA-50</td></tr> <tr><td></td><td>4J</td><td>1RIA-54</td></tr> </tbody> </table> <p><u>STANDARD:</u> Candidate determines that 1RIA-45 is the alarming monitor and that he must proceed to Section 4G</p> <p>Continue to Section 4G</p> <p><u>COMMENTS:</u></p>	√	Section	Monitor		4A	RIA-31		4B	1RIA-32		4C	1RIA-35		4D	1RIA-39		4E	1RIA-41		4F	1RIA-42		4G	1RIA-45 or 46		4H	1RIA-47, 1RIA-48, 1RIA-49, or 1RIA-49A		4I	1RIA-50		4J	1RIA-54	<p>___ SAT</p> <p>___ UNSAT</p>
√	Section	Monitor																																
	4A	RIA-31																																
	4B	1RIA-32																																
	4C	1RIA-35																																
	4D	1RIA-39																																
	4E	1RIA-41																																
	4F	1RIA-42																																
	4G	1RIA-45 or 46																																
	4H	1RIA-47, 1RIA-48, 1RIA-49, or 1RIA-49A																																
	4I	1RIA-50																																
	4J	1RIA-54																																

<p><u>STEP 13:</u> AP/1/A/1700/018 (Abnormal Release of Radioactivity)</p> <p><u>Section 4G Step 1</u></p> <p>IAAT 1RIA-45 or 1RIA-46 reaches the High set point, THEN ensure automatic actions occurred:</p> <ul style="list-style-type: none">A. RB PURGE FAN secured.B. 1PR-2 closed.C. 1PR-3 closed.D. 1PR-4 closed.E. 1PR-5 closed. <p><u>STANDARD:</u> Determine 1RIA-45 is in High alarm and perform the following:</p> <ul style="list-style-type: none">• Stop the RB Purge Fan• Close 1PR-2• Close 1PR-3• Close 1PR-4• Close 1PR-5 <p><i>Cue: Another operator will continue with this procedure.</i></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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TIME STOP: _____

CRITICAL STEP EXPLANATIONS

STEP #	Explanation
1	This step is required to prevent tripping 1XR incoming feeder breaker.
2	This step is required to establish RB Purge flow.
3	This step is required to establish RB Purge flow.
7	This step is required to establish desired RB Purge flow.
8	This step is required to start the RB Purge fan.
9 or 13	One of these steps is required to stop the RB Purge fan and isolate the RB.

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

INITIAL CONDITIONS

RCS temperature = 114°F

RCS pressure = 45 psig

No Gaseous or Liquid releases are in progress

RB Hatch is Closed

Continuous release is NOT in progress

RB Purge startup is in progress using OP/1/A/1102/014 (RB Purge System), Encl. 4.1 (RB Purge Release)

INITIATING CUE

The CRS directs you to place the RB Purge in operation at 1/3 Station Limit using OP/1/A/1102/014 (RB Purge System) Encl. 4.1 (RB Purge Release) starting at Step 3.8.

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

NLO-100

**Trip the Reactor from the Control Rod Drive
Breakers**

CANDIDATE

EXAMINER

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

Task:

Trip the Reactor from the Control Rod Drive Breakers

Alternate Path:

No

Facility JPM #:

Modified

K/A Rating(s):

System: EPE 029

K/A: EA1.11

Rating: 3.9*/4.1

Task Standard:

Both 600 volt CRD breakers are opened.

Preferred Evaluation Location:

Simulator _____ In-Plant X

Preferred Evaluation Method:

Perform _____ Simulate X

References:

Unit 3 EOP Rule 1 (ATWS/Unanticipated Nuclear Power Production)

Validation Time: 4 min.

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:

None

READ TO OPERATOR

DIRECTIONS TO STUDENT:

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

INITIAL CONDITIONS:

Unit 3 is at 100% power

The reactor should have tripped.

Rule 1 (ATWS/Unanticipated Nuclear Power Production) in progress

INITIATING CUE:

The OATC directs you to open 600V CRD breakers (without wearing Arc Flash PPE):

- 3X9-5C (U-3 CRD Trip Bkr A) (U3 Equipment Rm)
- 2X2-5D (U-3 CRD Alternate Fdr Bkr) (T-3/Fa-28)

START TIME: _____

<u>STEP 1:</u> Open 3X9-5C (U-3 CRD Trip Bkr A) (U3 Equipment Rm) <u>STANDARD:</u> Locates and opens 3X9-5C by rotating switch to the trip position. <u>COMMENTS:</u>	CRITICAL STEP ___ SAT ___ UNSAT
<u>STEP 2:</u> Open 2X2-5D (U-3 CRD Alternate Fdr Bkr) (T-3/Fa-28) <u>STANDARD:</u> Locates and opens 2X2-5D by rotating switch to the trip position. <u>COMMENTS:</u> END OF TASK	CRITICAL STEP ___ SAT ___ UNSAT

TIME STOP: _____

CRITICAL STEP EXPLANATIONS

STEP #	Explanation
1	This step is required to trip the reactor.
2	This step is required to trip the reactor.

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

INITIAL CONDITIONS:

Unit 3 is at 100% power

The reactor should have tripped.

Rule 1 (ATWS/Unanticipated Nuclear Power Production) in progress

INITIATING CUE:

The OATC directs you to open 600V CRD breakers (without wearing Arc Flash PPE):

- 3X9-5C (U-3 CRD Trip Bkr A) (U3 Equipment Rm)
- 2X2-5D (U-3 CRD Alternate Fdr Bkr) (T-3/Fa-28)

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

NLO-606

**Makeup to Unit 1 CBAST from Unit 1 & 2 BAMT
During a Unit 2 Blackout**

CANDIDATE

EXAMINER

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

Task:

Makeup to Unit 1 CBAST From Unit 1 & 2 BAMT during a Unit 2 blackout

Alternate Path:

No

Facility JPM #:

New

K/A Rating(s):

System: B/WE14

K/A: EA1.1

Rating: 3.8/3.6

Task Standard:

Makeup to Unit 1 CBAST from Unit 1 & 2 BAMT in accordance with Unit 2 EOP Encl. 5.39.

Preferred Evaluation Location:

Simulator _____ In-Plant X

Preferred Evaluation Method:

Perform _____ Simulate X

References:

Unit 2 EOP Encl. 5.39 (Makeup to the BWST During Blackout)

Validation Time: 12 min.

Time Critical: No

Candidate: _____
NAME

Time Start: _____

Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____ / _____
NAME SIGNATURE DATE

Comments

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

Tools/Equipment/Procedures Needed:

Unit 2 EOP Encl. 5.39 (Makeup to the BWST During Blackout)

READ TO OPERATOR

DIRECTIONS TO STUDENT:

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

INITIAL CONDITIONS:

A blackout is in progress on Oconee Unit 2

EOP Enclosure 5.39 (Makeup to the BWST During Blackout) is in progress and is complete up thru Step 16.

It is necessary to pump the BAMT to Unit 1's CBAST

The BAMT is filled and mixed and ready to be transferred

INITIATING CUE:

The CRS directs you to continue with EOP Enclosure 5.39 (Makeup to the BWST During Blackout) beginning at Step 17 to transfer the entire contents of the BAMT to Unit 1's CBAST using the B LP Boric Acid Pump

START TIME: _____

<p><u>STEP 1:</u> Step 17</p> <p>Locally perform the following (A-1, 1&2 BAMT Rm):</p> <p>A. Close CA-38 (Unit 1/2 HP Boric Acid Pump Suction Tell Tale).</p> <p>B. Open the following:</p> <ul style="list-style-type: none"> • CA-4 (Unit 1/2 BAMT Outlet) • CA-20 (Boric Acid Hdr To CBAST) <p><u>STANDARD:</u> Locate and Close CA-38 (Unit 1/2 HP Boric Acid Pump Suction Tell Tale).</p> <p>Locate and open:</p> <ul style="list-style-type: none"> • CA-4 (Unit 1/2 BAMT Outlet) • CA-20 (Boric Acid Hdr To CBAST) <p><i>Cue: Inform the candidate that CA-38 is closed and CA-4 and CA-20 are open.</i></p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Step 18</p> <p>Verify B LP Boric Acid Pump will be used for transfer of BAMT to CBAST.</p> <p><u>STANDARD:</u> Determine that B LP Boric Acid Pump will be used for transfer of BAMT to CBAST using the cue sheet.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> Step 19</p> <p>Locally open CA-11 (A/B LP BAMT Pumps Disch Tie) (A-1, 1&2 BAMT Rm).</p> <p><u>STANDARD:</u> Locate and open CA-11</p> <p><i>Cue: Inform the candidate that CA-11 is open.</i></p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Step 20</p> <p>Locally start B LP Boric Acid Pump (A-2, 1&2 Chem Add Panel).</p> <p><u>STANDARD:</u> Start B LP Boric Acid Pump by taking the switch to the start position.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 5:</u> Step 21 Locally cycle DW-119 (Boric Acid Mix Pumps Suction Hdr Flush) (A-1, 1&2 BAMT Rm).</p> <p><u>STANDARD:</u> Candidate cycles DW-119 fully open and then fully closed.</p> <p>Note: This is a quarter turn valve and a stop has to be pulled out of allow the valve to operate.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> Step 22 Notify Units 1 and 2 to monitor for reactivity effects due to possible leakage of 1&2 BAMT into LDST.</p> <p><u>STANDARD:</u> Candidate notifies Units 1 and 2 to monitor for possible reactivity effects.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> Step 23 Locally perform the following (A-2, 1&2 Chem Add Panel):</p> <ul style="list-style-type: none"> Place Unit 1&2 BAMT Heater switch in OFF. Stop Unit 1&2 BAMT Agitator. <p><u>STANDARD:</u> Candidate places the Unit 1&2 BAMT Heater switch to the OFF position and turns the Unit 1 & 2 BAMT Agitator to the STOP position (spring return to neutral).</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Step 24 WHEN transfer is complete, THEN locally stop the selected LP Boric Acid Pump (A-2, 1&2 Chem Add Panel).</p> <p><u>STANDARD:</u> Determine that the transfer is complete and stop the B LP Boric Acid Pump.</p> <p>Cue: Indicate that BAMT level is zero inches.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

TIME STOP: _____

CRITICAL STEP EXPLANATIONS

STEP #	Explanation
1	This step is required to align the BAMT to Unit 1's CBAST.
3	This step is required to align the BAMT to Unit 1's CBAST.
4	This step is required to start the B Boric Acid Pump.
7	This step is required to prevent equipment damage.
8	This step is required to prevent equipment damage.

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

INITIAL CONDITIONS:

A blackout is in progress on Oconee Unit 2

EOP Enclosure 5.39 (Makeup to the BWST During Blackout) is in progress and is complete up thru Step 16.

It is necessary to pump the BAMT to Unit 1's CBAST

The BAMT is filled and mixed and ready to be transferred

INITIATING CUE:

The CRS directs you to continue with EOP Enclosure 5.39 (Makeup to the BWST During Blackout) beginning at Step 17 to transfer the entire contents of the BAMT to Unit 1's CBAST using the B LP Boric Acid Pump

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

NLO-802

Start Diesel Air Compressor and Align to Service Air Header

CANDIDATE: _____

EXAMINER: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Start Diesel Air Compressor and Align to Service Air Header

Alternate Path:

Yes

Facility JPM #:

NLO-007

K/A Rating(s):

System: APE 065

K/A: AA1.04

Rating: 3.5*/3.4*

Task Standard:

The Diesel Air Compressor NOT operating is started and aligned to the Service Air Header correctly per procedure.

Preferred Evaluation Location:

Simulator _____ In-Plant X

Preferred Evaluation Method:

Perform _____ Simulate X

References:

AP/2/A/1700/022 (Loss of Instrument Air) Encl. 5.4 (Emergency Start of the Diesel Air Compressor)

AP/2/A/1700/022 (Loss of Instrument Air) Encl. 5.7 (Manual Start of Diesel Air Compressors)

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:

AP/2/A/1700/022 (Loss of Instrument Air) Encl. 5.4 (Emergency Start of the Diesel Air Compressor)

AP/2/A/1700/022 (Loss of Instrument Air) Encl. 5.7 (Manual Start of Diesel Air Compressors)

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:

Units 1, 2, and 3 are operating at 100% power.

The Unit 1 Control Room Operator receives the "INSTRUMENT AIR SYSTEM TROUBLE" Statalarm and observes that Instrument Air pressure is decreasing on the Control Room IA pressure gauge.

INITIATING CUES:

The Unit 2 Control Room Operator directs you to perform Encl. 5.4 (Emergency Start of the Diesel Air Compressor) of AP/2/A/1700/022 (Loss Of Instrument Air).

START TIME: _____

Note: The procedure is pre-staged at the Diesel Air Compressor. After the candidate locates the procedure, hand him a copy of the procedure to use.

<p style="text-align: center;">NOTE</p> <p>Ingersoll-Rand Diesel Air Compressor SNs 340574, 339718 and 339713 have Auto Start capability.</p>	<p>___ SAT</p>
<p><u>STEP 1:</u> Encl. 5.4 Step 1 Verify all Diesel Air Compressors with Auto / Manual switches in Auto are running.</p> <p><u>STANDARD:</u> Determine that Ingersoll-Rand Diesel Air Compressor SN 340574 is in AUTO and NOT operating and perform RNO step.</p> <p>Cue: <i>Indicate to the operator that Ingersoll-Rand Diesel Air Compressor SN 340574 is in AUTO and NOT operating. (No noise, RPMs, or discharge pressure) and the other two compressors are in AUTO and operating.</i></p> <p><u>COMMENTS:</u></p>	<p>___ UNSAT</p>
<p>ALTERNATE PATH</p> <p><u>STEP 2:</u> Encl. 5.4 Step 1 RNO Perform one manual start on each Diesel Air Compressor that did NOT Auto start using Encl 5.7 (Manual Start of Diesel Air Compressors).</p> <p><u>STANDARD:</u> Perform a manual start on Ingersoll-Rand Diesel Air Compressor SN 340574 using Encl 5.7 (Manual Start of Diesel Air Compressors).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 3:</u> Encl. 5.7 Step 1 GO TO applicable step to manually start Diesel Air Compressor:</p> <table border="1" data-bbox="344 247 896 525"> <tr> <td>√</td> <td>Compressor</td> <td>Step</td> </tr> <tr> <td></td> <td>Ingersoll-Rand (Auto start capability) SNs 340574, 339718 and 339713</td> <td>2</td> </tr> <tr> <td></td> <td>Ingersoll-Rand (5421)</td> <td>10</td> </tr> <tr> <td></td> <td>Any other Diesel Air Compressor</td> <td>19</td> </tr> </table> <p><u>STANDARD:</u> Note the compressor that did not start from the table (340574) and GO TO Step 2.</p> <p><u>COMMENTS:</u></p>	√	Compressor	Step		Ingersoll-Rand (Auto start capability) SNs 340574, 339718 and 339713	2		Ingersoll-Rand (5421)	10		Any other Diesel Air Compressor	19	<p>___ SAT</p> <p>___ UNSAT</p>
√	Compressor	Step											
	Ingersoll-Rand (Auto start capability) SNs 340574, 339718 and 339713	2											
	Ingersoll-Rand (5421)	10											
	Any other Diesel Air Compressor	19											
<p><u>STEP 4:</u> Encl. 5.7 Step 2 Position Auto / Manual toggle switch to Manual.</p> <p><u>STANDARD:</u> Locate and position Auto / Manual toggle switch to Manual.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>												
<p><u>STEP 5:</u> Encl. 5.7 Step 3 Ensure Battery Switch is in ON position (Behind panel door on West side of Diesel Air Compressor).</p> <p><u>STANDARD:</u> Open panel door on West side of compressor and ensure the battery Switch is in ON position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>												

<div data-bbox="142 170 1219 541" data-label="Text"> <p style="text-align: center;">NOTE</p> <p>Engine ignition switch has 3 positions, STOP, ON, and ENGINE START.</p> <p>The engine ignition switch must be ON to have panel indication. All warning lamps will illuminate briefly to test the lamps: the Low Engine Oil Pressure light and the Low Battery Voltage light will remain flashing until the engine is started.</p> <p>Control panel display will display 1.70 when engine ignition switch is turned to the ON position and then clear, if no fault is present.</p> <p>The (LAMPS) switch may be used to illuminate the panel for night operation.</p> </div> <div data-bbox="152 575 943 825" data-label="Text"> <p><u>STEP 6:</u> Encl. 5.7 Step 4 Position engine ignition switch to ON.</p> <p><u>STANDARD:</u> Position engine ignition switch to ON (already ON).</p> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1279 197 1424 348" data-label="Text"> <p>___ SAT</p> <p>___ UNSAT</p> </div>
<div data-bbox="142 1010 1219 1108" data-label="Text"> <p style="text-align: center;">CAUTION</p> <p>The engine starter motor should NOT be operated continuously for more than 10 seconds.</p> </div> <div data-bbox="152 1144 1198 1631" data-label="Text"> <p><u>STEP 7:</u> Encl. 5.7 Step 5 Position engine ignition switch to ENGINE START position until engine starts, then release.</p> <p><u>STANDARD:</u> Position engine ignition switch to ENGINE START position after verifying that engine start release switch.</p> <p><i>Examiner Cue: Indicate that the compressor starts when engine ignition switch is placed in the ENGINE START position.</i></p> <ul style="list-style-type: none"> • <i>RPMs increase</i> • <i>Oil pressure increases</i> • <i>Air pressure increases</i> <p><u>COMMENTS:</u></p> </div>	<div data-bbox="1263 1010 1468 1222" data-label="Text"> <p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p> </div>

<p><u>STEP 8:</u> Encl. 5.7 Step 6 Depress PRESSURE CONTROL button to allow compressor to load fully.</p> <p><u>STANDARD:</u> Locate and depress PRESSURE CONTROL pushbutton.</p> <p>Cue: <i>Indicate to the candidate that the compressor is loaded by the change in the sound.</i></p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>												
<p><u>STEP 9:</u> Encl. 5.7 Step 7 Open SA-2955; SERVICE AIR VALVE (South end of compressor at discharge hose).</p> <p><u>STANDARD:</u> Locate and verify SA-2955 is open by observing the handle parallel with the hose.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>												
<p><u>STEP 10:</u> Encl. 5.7 Step 8 Locate check valve at end of compressor discharge hose and open associated block valve per table below:</p> <table border="1" data-bbox="344 1278 859 1461"> <tr> <th>√</th> <th>Check Valve</th> <th>Block Valve</th> </tr> <tr> <td></td> <td>SA-2944</td> <td>SA-2797</td> </tr> <tr> <td></td> <td>SA-2947</td> <td>SA-2945</td> </tr> <tr> <td></td> <td>SA-2950</td> <td>SA-2948</td> </tr> </table> <p><u>STANDARD:</u> Verify SA-2948 is open by observing the handle parallel with the hose and then GO TO Encl. 5.4 Step 2.</p> <p><u>COMMENTS:</u></p>	√	Check Valve	Block Valve		SA-2944	SA-2797		SA-2947	SA-2945		SA-2950	SA-2948	<p>___ SAT</p> <p>___ UNSAT</p>
√	Check Valve	Block Valve											
	SA-2944	SA-2797											
	SA-2947	SA-2945											
	SA-2950	SA-2948											

<p><u>STEP 11:</u> Encl. 5.4 Step 2 Position Auto / Manual toggle switches to Manual for all running Diesel Air Compressors.</p> <p><u>STANDARD:</u> Position Auto / Manual toggle switches to Manual for ALL Ingersoll-Rand Diesel Air Compressors.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> Encl. 5.4 Step 3 Verify any Diesel Air Compressor running.</p> <p><u>STANDARD:</u> Determine that ALL Diesel Air Compressors are running by observing RPMs, discharge pressure, etc.</p> <p><i>Cue: Indicate that the compressors have normal RPMs and discharge pressure.</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<div data-bbox="142 1115 1219 1423" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">NOTE</p> <p>When the SA system is operational, SA-141 (SA TO IA CONTROLLER) automatically regulates IA header pressure to 85 psig if IA pressure decreases to < 85 psig. Opening SA-143 will bypass SA-141 and allow the SA header to pressurize the IA header greater than 85 psig.</p> <p>During some SA tag outs for maintenance, SA-143 may be red tagged closed. If SA-143 is red tagged closed, then the Diesel Air Compressors will already be aligned (via an alternate flow path) to supply directly into the IA system <u>and</u> opening SA-143 is <u>not</u> required.</p> </div> <p><u>STEP 13:</u> Encl. 5.4 Step 4 Verify SA-143 (SA TO IA CONTROLLER BYPASS) (T-1/L-33, 15' E on chain) is red tagged closed.</p> <p><u>STANDARD:</u> Valve is located in the Turbine Building basement and determine that it is not red tagged closed. Continue to the RNO step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14:</u> Encl. 5.4 Step 4 RNO</p> <p>Open SA-143 (SA TO IA CONTROLLER BYPASS) (T-1/L-33, 15' E on chain)</p> <p><u>STANDARD:</u> SA-143 chain is pulled to rotate the valve counter clockwise until it reaches a hard stop.</p> <p>Cue: <i>After the operator indicates that he will open SA-143, inform operator that valve is open</i></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> Encl. 5.4 Step 5</p> <p>Notify Unit 2 CR of Diesel Air Compressor status.</p> <p><u>STANDARD:</u> Unit 2 CR is notified that ALL Diesel Air Compressors are operating using a phone or radio.</p> <p>Cue: <i>Inform the candidate that another operator will continue with this procedure.</i></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
4	Required to manually start compressor
7	Required to manually start compressor
8	Required to manually start compressor

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

INITIAL CONDITIONS:

Units 1, 2, and 3 are operating at 100% power.

The Unit 1 Control Room Operator receives the "INSTRUMENT AIR SYSTEM TROUBLE" Statalarm and observes that Instrument Air pressure is decreasing on the Control Room IA pressure gauge.

INITIATING CUES:

The Unit 2 Control Room Operator directs you to perform Encl. 5.4 (Emergency Start of the Diesel Air Compressor) of AP/2/A/1700/022 (Loss Of Instrument Air).