

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM A

NRC 2009

SAFETY FUNCTION 1

ALTERNATE PATH

MAY BE PERFORMED IN MAIN CONTROL ROOM

**PERFORM AN RCS BORATION PER EOP-2, VITAL
SYSTEM STATUS VERIFICATION**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 07/03/09

VALIDATED BY: Tyrie / Rop

Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen
(Nuclear Training Supervisor)

Date: 07/20/09

CONCURRED BY: Mike Kelly
(Operations Representative)

Date: 07/20/09

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim A – NRC 2009 [Bank #136]

Task: Complete RCS boration.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 1

K/A Rating/Importance: 024AA2.04 RO 3.4 SRO 4.2

Task Number: 0090502001

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Perform an RCS boration using EOP-2, Vital System Status Verification.

Preferred Evaluation Location:

☒ SIM ☒ PLANT ☐ ADMIN

Preferred Evaluation Method:

☒ PERFORM ☒ SIMULATE

References:

EOP-2, Rev. 11

Validation Time: 10 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name

Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **163** developed for this JPM (Exam 4 directory).
2. Freeze the simulator and notify the examiner.

OR

1. Establish steady state 100% power conditions
2. Insert the following failures
 - a. Control rod fail to insert (4-1) TFLISR16 = TRUE
 - b. Control rod fail to insert (2-8) TFLISR28 = TRUE
 - c. Control rod fail to insert (6-7) TFLISR32 = TRUE
 - d. CAV-60 / Fail as is TFBYV60M = TRUE
 - e. FW heater vents nuisance alarms TCD2FWH = TRUE
 - f. Override additional nuisance alarms 1500, 1670, 0303, 1128, 1129, 1914, 1986
3. Trip reactor
4. Depress Global Silence pushbutton
5. Allow simulator to run for 2 minutes
6. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. NONE

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-2, with steps marked through Step 3.3.

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

A reactor trip has occurred.

Immediate Actions of EOP-2, Vital System Status Verification, have been completed.

A Symptom Scan has been performed.

Progression to Step 3.4 of EOP-2 has been made.

INITIATING CUE:

The Control Room Supervisor has directed you to perform Step 3.4 of EOP-2.

SIMULATOR JOB PERFORMANCE MEASURE

TIME START: _____

<p><u>STEP 1:</u></p> <p>Obtain a copy of EOP-2.</p> <p><u>STANDARD:</u></p> <p>Candidate locates EOP-2 and reviews the status of the plant.</p> <p><u>EXAMINER NOTE:</u></p> <p>Provide candidate with a consumable copy of EOP-2 with steps marked through Step 3.3</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 2:</u> (Step 3.4)</p> <p>Verify all control rods are fully inserted.</p> <p><u>IF</u> > 1 control rod is <u>NOT</u> fully inserted, <u>THEN</u> start RCS boration.</p> <p><u>IF</u> BASTs are available with at least 1 running MUP aligned to MUT, <u>THEN</u> use BASTs:</p> <ol style="list-style-type: none"> 1. Ensure at least 1 post-filter is in service 2. Open CAV-60 3. Start CAP-1A or CAP-1B <p><u>STANDARD:</u></p> <p>Candidate notes that 3 safety rods are not fully inserted.</p> <p>Candidate notes that the BASTs are available.</p> <ol style="list-style-type: none"> 1. Candidate verifies that at least one post-filter is in service. <i>MUV-91 and MUV-96 open and/or MUV-90 and MUV-97 open.</i> 2. Candidate locates CAV-60 (Emergency Boration Valve) on the MCB and places C/S to the OPEN position. Candidate observes that the GREEN closed light does NOT go out and the RED open light does NOT come on. <p>Candidate should continue on to the next detail.</p> <p><u>EXAMINER CUE:</u> <i>(Main Control Room ONLY)</i></p> <p>Inform the candidate that 3 control rod GREEN IN-LIMIT lights are not illuminated.</p> <p><u>EXAMINER CUE:</u></p> <p>If asked by the candidate both BASTs and both CAPs are available.</p> <p><u>EXAMINER CUE:</u> <i>(Main Control Room ONLY)</i></p> <p>When candidate selects CAV-60 to OPEN inform the candidate that the GREEN closed light does NOT go out and the RED open light does NOT come on.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 2A:</u> (Step 3.4, continued)</p> <p><u>IF</u> BASTs are <u>NOT</u> available, <u>THEN</u> use BWST:</p> <ol style="list-style-type: none"> 1. Open MUV-73 (MUP suction from BWST)* 2. Open MUV-58 (MUP suction from BWST) 3. Align letdown to an RCBT* 4. Concurrently perform AP-490, RCS Boration <p><u>STANDARD:</u></p> <p>Candidate notes that the BASTs are NOT available.</p> <ol style="list-style-type: none"> 1. *Candidate locates MUV-73 on the MCB and places C/S to the OPEN position. Candidate observes that the GREEN closed light goes out and the RED open light comes on. 2. Candidate locates MUV-58 on the MCB and verifies this valve open. 3. *Candidate aligns letdown to an RCBT (should perform actions from memory) <ul style="list-style-type: none"> • *Candidate selects a bleed tank with the "Bleed Selector Switch" and pulls the handle out. • Candidate verifies the white "Bleed Permit" light comes on • *Candidate selects MUV-112 (MU System Bleed) to "Bleed" and verifies the red light comes on • Candidate should verify that the open (red) light for the selected RCBT also comes on <p><u>EXAMINER CUE:</u> (<i>Main Control Room ONLY</i>)</p> <ol style="list-style-type: none"> 1. Inform candidate that the GREEN closed light goes out and the RED open light comes on for MUV-73. 2. Inform candidate that MUV-58 indication is "as seen" (RED open light illuminated). 3. If candidate requests which RCBT to use then reply "A" RCBT. <ul style="list-style-type: none"> • Inform candidate that "Bleed Selector Switch" handle is out. • Wait 30 seconds then inform candidate that the white "Bleed Permit" light comes on. • When candidate selects MUV-112 to "Bleed" inform candidate that the RED NORM light goes out, the AMBER mid-position light comes on momentarily then the AMBER mid-position light goes out and the RED BLEED light comes on. <p><u>COMMENTS:</u></p>	<p>*Critical Step</p> <p>BASIS: Candidate recognizes that the alternate boration path must be used.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<u>TERMINATION CRITERIA:</u>	
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When candidate states that AP-490 should be concurrently performed then this JPM may be terminated.	
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TIME STOP: _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

A reactor trip has occurred.

Immediate Actions of EOP-2, Vital System Status Verification, have been completed.

A Symptom Scan has been performed.

Progression to Step 3.4 of EOP-2 has been made.

INITIATING CUE:

The Control Room Supervisor has directed you to perform Step 3.4 of EOP-2.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM B

NRC 2009

SAFETY FUNCTION 2

ALTERNATE PATH

Restore PZR Level During An OTSG Tube Rupture

PREPARED/REVIEWED BY: Alan Kennedy Date: 07/03/09

VALIDATED BY: Tyrie / Rop Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim B – NRC 2009 [Bank #389]

Task: Restore PZR level during OTSG Tube Rupture.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 2

K/A Rating/Importance: 004A4.06 RO 3.6 SRO 3.1

Task Number: 1150502005

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Restore PZR level IAW EOP-13, Rule 7, PZR Level Control.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method:

☒ PERFORM ☐ SIMULATE

References:

EOP-06, Rev 19
EOP-13, Rev 10

Validation Time: 10 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name

Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Initialize previous stored IC# 162 (Exam 4 directory)
Or
- 1 Initialize the simulator to a 100% IC and:
 - A. Set Letdown flow to 70 gpm.
 - B. Fail MUV-49 open (TFBVO049 = True).
 - C. Set the "A" OTSG high tube leak to 270 gpm (TVHH0601 = 0.70).
 - D. Unfreeze and allow PZR level to lower to approx 195" (190-195")
 - E. Clear unrelated distracting alarms and freeze the simulator.
 - F. Set Alarm Points ALA1977, ALA1722, ALA1716 to TRUE (to avoid cycling)
 - G. Set alarm point ALA1986 to False.

SIMULATOR OPERATOR INSTRUCTIONS:

1. None

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of EOP-06
2. Consumable copies of page 3 to replace marked up copies.

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 1.

An OTSG Tube Rupture is in progress.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-06, Steam Generator Tube Rupture, Step 3.1.

SIMULATOR JOB PERFORMANCE MEASURE

TIME START: _____

<p><u>STEP 1:</u></p> <p>The guidance of the EOP would normally be read by the CRS. For the purpose of this JPM a copy of EOP-06 will be given to the operator.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the guidance of EOP-06, Step 3.1 and determines that Rule 7 should be used.</p> <p><u>EXAMINER CUE:</u></p> <p>Examiner will provide operator with a copy of EOP-06.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (Rule 7, Step 1, Detail 1)</p> <p><u>IF</u> PZR level is < PZR level band,</p> <p><u>THEN</u> restore PZR level.</p> <p><u>STANDARD:</u></p> <p>Candidate will review the table in Rule 7 and determine PZR level meets the criteria for the rule.</p> <p><u>EXAMINER NOTE:</u></p> <p>Simulator set up will establish conditions of an OTSG tube rupture greater than makeup capabilities with letdown in service at 70 gpm. This condition will continue until PZR level is < 200". This will be the status of the plant when the candidate enters the control room. Based on these conditions; Rx power > 20% and PZR level < 200 in, the candidate should recognize the need to restore PZR level per detailed actions.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Rule 7, Step 1, Detail 2)</p> <p>Cycle appropriate BWST to MUP valve to maintain $MUT \geq 55''$.</p> <p><u>STANDARD:</u></p> <p>1. Operator opens MUV-73 and verifies that MUV-58 is open.</p> <p><u>EXAMINER NOTE:</u></p> <p>Candidate may not perform these actions at this time if MUT level is $> 55''$. MUT level of $< 55''$ is not the critical step.</p> <p>If candidate allows the loss of MUP-1B due to MUT level then this would constitute failure of this Critical Step.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>(Conditional)</p> <p>Basis: A loss of MUT inventory leads to MUP damage.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 4:</u> (Rule 7, Step 1, Detail 3)</p> <p>Close MUV-49</p> <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Operator selects closed on MUV-49 and recognizes the valve fails to close. 2. Operator uses an alternate method to isolate Letdown Flow. <ol style="list-style-type: none"> a. Locate and select closed on MUV-567 control switch. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> <ol style="list-style-type: none"> b. Locate and select closed on MUV-50 control switch and rotate the control knob for MUV-51 in the counter-clockwise direction to close MUV-51. <p><u>EXAMINER NOTE:</u></p> <p>MUV-49 is failed open as part of the setup for the JPM. Operator should recognize the intent of closing MUV-49 is to isolate Letdown flow and use an alternate method to accomplish this step. The two methods listed above are the most probable operator actions. This action is justified IAW AI-505 4.1.4 step 1 c.</p> <p>IF the student elects to call the PPO to close MUV-49 locally, wait approximately 1 minute and report that this cannot be accomplished. Other methods to isolate letdown may be used by the student and will be acceptable as long as they can be accomplished in a timely manner and do not create unacceptable operational or radiological concerns (i.e. isolating in a manner that lifts the letdown system relief valve would not be acceptable). Additionally, the candidate may choose not to take contingency action and provide additional makeup. In either case the operator must restore PZR level.</p> <p><u>EXAMINER CUE:</u></p> <p>If SRO direction is requested when MUV-49 failure is identified, then direct the candidate to "Isolate letdown using an alternative method".</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 5:</u> (Rule 7, Step 2, Detail 1)</p> <p>1 ____ Open MUV-24</p> <p><u>STANDARD:</u></p> <p>Candidate locates control switch for MUV-24 and holds the switch in the clockwise (open) direction until the green light is extinguished and the red light is on.</p> <p><u>EXAMINER NOTE:</u></p> <p>Opening MUV-24 is important to maximizing the time allowed for plant shutdown without PZR level lowering to a point requiring a reactor trip.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 6:</u> (Rule 7, Step 2, Detail 2)</p> <p>2 ____ Notify the Shift Manager to evaluate Emergency Plan entry.</p> <p><u>STANDARD:</u></p> <p>Operator notifies the Shift Manager that MUV-24 has been opened.</p> <p><u>EXAMINER CUE:</u></p> <p>Acknowledge notification that MUV-24 has been opened.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 7:</u> (Rule 7, Step 2, Detail 3)</p> <p>3 ____ <u>IF</u> PZR level does <u>NOT</u> recover, <u>THEN</u> start second MUP and required cooling pumps.</p> <p>[Rule 5, EDG Control]</p> <p><u>STANDARD:</u></p> <p>Candidate observes that PZR level continues to lower. Candidate locates the control switches for DCP-1B, RWP-3B and MUP-1C and rotates each switch to the "start" position, observing the red "run" light being illuminated for each pump. All three pumps must be started for successful completion of step.</p> <p><u>EXAMINER NOTE:</u></p> <p>Rule 5 is not applicable with offsite power available.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: PZR level continues to lower without additional flow.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 8:</u> (Rule 7, Step 2, Detail 4)</p> <p>4 ____ <u>IF</u> PZR level does <u>NOT</u> recover, <u>THEN</u> open additional HPI valves.</p> <p><u>STANDARD:</u></p> <p>Candidate observes that PZR level is continuing to lower.</p> <p>Candidate locates the control switches for MUV-23, 25 and 26 and holds the individual valve control switches in the "open" direction to establish additional flow to the RCS. Candidate monitors PZR level trend and establishes sufficient flow to cause a rising PZR level trend.</p> <p><u>EXAMINER NOTE:</u></p> <p>Minimum of 2 HPI valves required to raise PZR level.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: PZR level continues to lower without additional flow.</p> <p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 9:</u> (Rule 7, Step 2, Detail 5)</p> <p>5 ____ <u>IF</u> PZR level does <u>NOT</u> recover, <u>THEN</u> close MUP recirc to MUT valves:</p> <p style="padding-left: 100px;">____ MUV-53 ____ MUV-257</p> <p><u>STANDARD:</u></p> <p>Operator should NA this step due to success in the previous steps. However, if the operator has not opened the HPI injection valves sufficiently to cause an upward trend he/she may unnecessarily close the recirc valves. If the operator closes the recirc valves and total flow through each HPI pump is <100 gpm this would constitute a failure.</p> <p><u>EXAMINER NOTE:</u></p> <p>When the Candidate has established sufficient makeup to cause PZR level to rise the JPM can be stopped.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>Sufficient Make-up flow exists to cause PZR level to rise.</p>	
<p>END OF TASK</p>	

TIME STOP: _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 1.

An OTSG Tube Rupture is in progress.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-06, Steam Generator Tube Rupture, Step 3.1.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM C

NRC 2009

SAFETY FUNCTION 3

ALTERNATE PATH

RESPOND TO A STUCK OPEN SPRAY VALVE

PREPARED/REVIEWED BY: Alan Kennedy

Date: 06/05/09

VALIDATED BY: Tyrie / Rop

Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen
(Nuclear Training Supervisor)

Date: 07/20/09

CONCURRED BY: Mike Kelly
(Operations Representative)

Date: 07/20/09

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim C – NRC 2009 [Bank #439]

Task: Perform actions specified for a stuck open spray valve.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 3

K/A Rating/Importance: 002A4.01 RO 4.2 SRO 4.4

Task Number:

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Using OP-305 or AP-520 perform the actions specified for a stuck open PZR spray valve.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method:

☒ PERFORM ☐ SIMULATE

References:

OP-305, Rev 37
AP-520, Rev 12

Validation Time: 15 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name

Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previous stored IC# 167 developed for this JPM. (Exam 4 directory)

OR

1. Establish steady state 4% power conditions
2. Insert the following failures
 - a. RCV-13 fail to position TVHV0131 = 0.05 COND ON A3_A2_DS53_1
 - b. RCV-14 run open TFHV0143 = True COND ON A3_A2_DS56_1
 - c. Override nuisance alarm ALA1986
3. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-305 with steps 4.9.1 and 4.9.2 signed off.
2. Consumable copies of AP-520.

TO SAVE TIME:

CANDIDATES MAY REVIEW THE CUE SHEET AND OP-305 PRIOR TO ENTERING THE SIMULATOR

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 2.

RCS boron concentration is 1400 ppm.

PZR boron concentration is 1510 ppm.

INITIATING CUE:

The Control Room Supervisor has directed you to perform a boron equalization per Section 4.9 of OP-305, Operation of the Pressurizer. Steps 4.9.1 and 4.9.2 have already been completed.

Maintain RCS pressure between 2120 psig and 2180 psig.

SIMULATOR JOB PERFORMANCE MEASURE

TIME START _____

<p><u>STEP 1:</u></p> <p>Candidate will be given a copy of OP-305 with Steps 4.9.1 and 4.9.2 signed off.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the status of the plant and Steps 4.9.3 and 4.9.4.</p> <p><u>EXAMINER NOTE:</u></p> <p>Examiner will provide operator with a copy of OP-305.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 2: (Step 4.9.3)</p> <p>Establish Pressurizer Spray</p> <ol style="list-style-type: none">1. Select PZR Heater Banks "D" & "E" to "ON"2. Select RCV-14 to "MANUAL"3. Throttle OPEN RCV-14 to maintain normal RCS pressure, AND maintain PZR Heater demand between 50 & 90% <p>STANDARD:</p> <ol style="list-style-type: none">1. Candidate selects PZR Heater Banks "D" and "E" to "ON"2. Candidate selects RCV-14 to Manual3. Candidate throttles OPEN RCV-14. When candidate throttles RCV-14 it will experience a failure and run full open. The candidate will attempt to close RCV-14. The valve will not close. Candidate will probably attempt to close RCV-13 (Spray Block valve). RCV-13 will not close. <p>EXAMINER CUE:</p> <p>If SRO direction is requested direct the candidate to stop the pressure reduction using the appropriate procedure.</p> <p>EXAMINER NOTE:</p> <p>At this point the candidate will take one of two routes. Section 4.5 of this procedure, OP-305, provides guidance to shutdown RCP-1B. Candidate may also elect to enter AP-520. Either method will result in securing RCP-1B.</p> <p>EXAMINER NOTE:</p> <p>Candidate may elect to take "prompt and prudent" action at this time and secure RCP-1B.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Step 4.5.1 of OP-305)</p> <p>IF at any time during performance of this section RCV-13 will not close when called to do so, then minimize Pressurizer Spray</p> <ol style="list-style-type: none"> Shutdown RCP-1B and refer to AP-545, Plant Runback. <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> Candidate secures RCP-1B and verifies RCS pressure begins to recover. <p><u>EXAMINER CUE:</u></p> <p>If SRO direction is requested direct the candidate to follow the procedural guidance.</p> <p><u>EXAMINER NOTE:</u></p> <p>If RCP-1B is shutdown at this point then RCS pressure will begin to recover. When the candidate states this fact then this JPM may be terminated.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required action to minimize spray flow and stop RCS pressure reduction.</p> <p>(If OP-305 used to stop RCP-1B)</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 4:</u></p> <p>The guidance of the AP would normally be read by the CRS. For the purpose of this JPM the candidate will use the simulator copy and perform the actions without SRO guidance.</p> <p><u>STANDARD:</u></p> <p>Candidate enters AP-520.</p> <p><u>EXAMINER CUE:</u></p> <p>Notify the candidate that Steps 3.1 through 3.3 will be performed by the other operator.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 5:</u> (Step 3.4 of AP-520)</p> <p>Step should be marked NA.</p> <p><u>STANDARD:</u></p> <p>Candidate determines that Step 3.4 is N/A and continues to Step 3.5.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 6:</u> (Step 3.5 of AP-520)</p> <p>STATUS: RCS Pressure lowering.</p> <p>Verify proper operation of PZR heaters.</p> <ul style="list-style-type: none"> ● PZR Heater Control ● PZR Htr Banks ● RC-203-JI ● RC-204-JI <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate will verify RC-3-PIC in AUTO with a heater demand. 2. Candidate will ensure power to PZR heater banks. 3. Candidate will check power output on RC-203 and 204-JI. <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 7:</u> (Step 3.6 of AP-520)</p> <p><u>IF</u> RCS PRESS continues to lower, <u>THEN</u> isolate possible sources of RCS PRESS reduction.</p> <p>Close the following valves:</p> <ul style="list-style-type: none">• DHV-91• RCV-53• RCV-11• PORV• RCV-13• RCV-14 <p><u>STANDARD:</u></p> <ol style="list-style-type: none">1. Candidate selects closed on all the indicated valves and verifies GREEN light ON, with exception of RCV-14 which is failed open.2. Candidate recognizes that RCV-13 probably did not close completely. <p><u>EXAMINER NOTE:</u></p> <p>RCV-13 will stop movement mid-stroke when candidate tries to close. With no GREEN light and RCS pressure still decreasing the candidate will determine that RCV-13 is still open partially and continue on in the procedure.</p> <p><u>EXAMINER CUE:</u></p> <p>If SRO direction is requested when RCV-13 failure is identified, then direct the candidate to continue on in the procedure.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 8:</u> (Step 3.7 of AP-520)</p> <p>IF RCS PRESS continues to lower, AND RCV-13 is NOT closed, THEN stop RCP-1B.</p> <p>When RX power is <72%, THEN stop RCP-1B. (CS)</p> <p>Concurrently Perform AP-545, Plant Runback</p> <p><u>STANDARD:</u></p> <p>Candidate determines that RCS pressure is still lowering, notifies the CRS and stops RCP-1B. Candidate will continue to monitor plant parameters. Candidate also notifies the CRS to concurrently perform AP-545.</p> <p><u>EXAMINER CUE:</u></p> <p>If SRO direction is requested when securing RCP-1B, then direct the candidate to perform the actions of the AP.</p> <p>State that the other Reactor Operator will perform the actions of AP-545.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required action to minimize spray flow and stop RCS pressure reduction.</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 9:</u> (Step 3.8 of AP-520)</p> <p>IF RCS PRESS continues to lower, THEN trip the RX and Concurrently Perform EOP-2, Vital System Status Verification.</p> <p><u>STANDARD:</u></p> <p>Candidate determines that RCS pressure is recovering.</p> <p><u>EXAMINER NOTE:</u></p> <p>Terminate the JPM when the candidate states that RCS pressure is recovering.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>TERMINATION CRITERIA:</u> RCS pressure recovering.</p>	

TIME STOP _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 2.

RCS boron concentration is 1400 ppm.

PZR boron concentration is 1510 ppm.

INITIATING CUE:

The Control Room Supervisor has directed you to perform a boron equalization per Section 4.9 of OP-305, Operation of the Pressurizer. Steps 4.9.1 and 4.9.2 have already been completed.

Maintain RCS pressure between 2120 psig and 2180 psig.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM D

NRC 2009

SAFETY FUNCTION 4 (PRIMARY)

**ESTABLISH EFW to TREND OTSG LEVEL
TOWARD ISCM SETPOINT**

PREPARED/REVIEWED BY: Alan Kennedy Date: 06/05/09

VALIDATED BY: Tyrie / Rop Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim D – NRC 2009 [Bank # 405]

Task: Ensure proper OTSG level control for plant conditions.

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☒ YES ☐ NO

Safety Function: 4 (Primary)

K/A Rating/Importance: E03EA1.3 RO 3.6 SRO 3.8
035A4.05 RO 3.8 SRO 4.0

Task Number: 0190502003

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Establish manual control of EFW to increase OTSG levels toward ISCM setpoint IAW EOP-3 and EOP-13, Rule 3.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

EOP-3, Rev 15
EOP-13, Rule 3, Rev 10

Validation Time: 6 Minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT **Performance Time:** _____

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **164** developed for this JPM (Exam 4 directory).
2. Freeze the simulator and notify the examiner.

OR

1. Initialize 100% IC.
2. Run JPM #405 lesson plan from Exam 2 directory.
3. Ensure RCP targets are matched.
4. Take snapshot for subsequent use.

OR

1. Establish steady state 100% power conditions
2. Insert the following failures

a. ISCM setpoint selection failure	TFF3AFR = TRUE
b. ISCM setpoint selection failure	TFF3BFR = TRUE
c. RCS leak	TVHH0401 = .0015
d. Disable FWH alarms	TCD2FWH = TRUE
e. Disable nuisance alarms	0085, 0089, 0787, 0948, 1206, 1210, 0974, 0988
3. Trip reactor
4. Depress Global Silence pushbutton
5. Perform Rule 1
6. Allow simulator to run for 2 minutes
7. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

Unfreeze the simulator, silence ISCM alarms, then refreeze the simulator.

Do not unfreeze the simulator until the student is prepared to begin his task.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-3 with steps 3.1 through 3.6 checked off.

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

A small break LOCA has resulted in a plant trip and a loss of ASCM.

The reactor was tripped four minutes ago.

The CRS has entered EOP-3, Inadequate Subcooling Margin.

INITIATING CUE:

The CRS directs you to perform EOP-3, beginning with Step 3.7.

SIMULATOR JOB PERFORMANCE MEASURE

START TIME _____

<p><u>STEP 1:</u> Candidate obtains a copy of EOP-3 and refers to Step 3.7.</p> <p><u>STANDARD:</u> Candidate is given EOP-3 completed up to Step 3.7.</p> <p><u>EXAMINER NOTE:</u> Provide candidate with a copy of EOP-3 completed up to Step 3.7.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 2:</u> (EOP-3, Step 3.7)</p> <p>0.1 <input type="checkbox"/> Verify EFW is operating and flow is controlled.</p> <p style="padding-left: 40px;">[Rule 3, EFW/AFW Control]</p> <p style="padding-left: 40px;"><input type="checkbox"/> <u>IF</u> EFW is <u>NOT</u> operating, <u>THEN</u> ensure feedwater flow exists.</p> <p style="padding-left: 40px;">1 <input type="checkbox"/> Depress "EFW INITIATE" push buttons on EFIC channels A and B.</p> <p style="padding-left: 40px;">2 <input type="checkbox"/> Ensure at least 1 EFWP starts and flow is controlled.</p> <p style="padding-left: 40px;">[Rule 3, EFW/AFW Control]</p> <p style="padding-left: 40px;">3 <input type="checkbox"/> <u>IF</u> no EFWPs are running, <u>THEN CONCURRENTLY PERFORM</u> EOP-14, Enclosure 7, EFWP Management.</p> <p><u>STANDARD:</u></p> <p>Candidate observes EFW system status and OTSG levels. Candidate observes OTSG levels NOT progressing toward ISCM setpoint and the ISCM setpoint is not selected.</p> <p>Candidate may attempt to select ISCM setpoint but when this fails should select manual on EFW control valves (EFV-55/56/57/58). Flow should be established to both OTSGs IAW EOP-13, Rule 3 guidance. (See next step of this JPM).</p> <p><u>EXAMINER CUE:</u></p> <p>If asked, state that Rule 1 was performed by the other operator.</p> <p><u>COMMENTS:</u></p> 	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 3: (EOP-13, Rule 3)</p> <p>Establish manual control of EFW.</p> <ul style="list-style-type: none">• ____ <u>IF</u> manual control of EFW flow is desired, <u>THEN</u> establish manual EFIC control. <ol style="list-style-type: none">1 ____ Obtain SRO concurrence to place EFIC in manual.2 ____ Control EFW to maintain required EFW and OTSG level.3 ____ <u>IF</u> EFW flow is <u>NOT</u> controlled, <u>THEN</u> depress EFIC channels A and B “MANUAL PERMISSIVE” push buttons and close affected EFW block valve. <p><u>STANDARD:</u></p> <p>Candidate requests permission from SRO to place EFW flow control valve hand/auto stations in manual.</p> <p>Candidate places hand/auto stations in manual and may establish EFW flow in this step.</p> <p><u>EXAMINER CUE:</u></p> <p>Acknowledge as the SRO when asked for permission to place EFW in manual.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 4: (EOP-13, Rule 3)</p> <p>Control EFW flow to make both OTSGs trend towards the ISCM setpoint.</p> <ul style="list-style-type: none"> • <u>IF</u> adequate SCM does <u>NOT</u> exist, <u>AND</u> level in available OTSGs is <u>NOT</u> at or trending toward "ISCM" level, <u>THEN</u> establish manual required flow. <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr> <td rowspan="2" style="padding: 5px;">EFW</td> <td style="padding: 5px;">2 OTSGs</td> <td style="padding: 5px;">> 280 gpm in 1 line to each OTSG</td> </tr> <tr> <td style="padding: 5px;">1 OTSG</td> <td style="padding: 5px;">> 470 gpm in 1 line to 1 OTSG</td> </tr> <tr> <td rowspan="2" style="padding: 5px;">AFW</td> <td style="padding: 5px;">2 OTSGs</td> <td style="padding: 5px;">> 250 gpm to < 300 gpm/OTSG</td> </tr> <tr> <td style="padding: 5px;">1 OTSG</td> <td style="padding: 5px;">> 450 gpm to < 600 gpm</td> </tr> </table> <p><u>STANDARD:</u></p> <p>Candidate establishes > 280 gpm EFW flow in a single line to each OTSG. EFW flow should be controlled using EFV-55 or EFV-57 (B OTSG) AND EFV-56 or EFV-58 (A OTSG).</p> <p><u>COMMENTS:</u></p> <p><u>TERMINATION CRITERIA:</u></p> <p>EFW flow of > 280 gpm, in a single line, to each OTSG established.</p> <p style="text-align: center;">END OF TASK</p>	EFW	2 OTSGs	> 280 gpm in 1 line to each OTSG	1 OTSG	> 470 gpm in 1 line to 1 OTSG	AFW	2 OTSGs	> 250 gpm to < 300 gpm/OTSG	1 OTSG	> 450 gpm to < 600 gpm	<p>Critical Step</p> <p>Basis: Provides flow to OTSGs.</p> <p>SAT _____</p> <p>UNSAT _____</p>
EFW		2 OTSGs	> 280 gpm in 1 line to each OTSG								
	1 OTSG	> 470 gpm in 1 line to 1 OTSG									
AFW	2 OTSGs	> 250 gpm to < 300 gpm/OTSG									
	1 OTSG	> 450 gpm to < 600 gpm									

TIME STOP _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

A small break LOCA has resulted in a plant trip and a loss of ASCM.
The reactor was tripped four minutes ago.
The CRS has entered EOP-3, Inadequate Subcooling Margin.

INITIATING CUE:

The CRS directs you to perform EOP-3, beginning with Step 3.7.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM E

NRC 2009

ALTERNATE PATH

SAFETY FUNCTION 4 (Secondary)

PERFORM ACTIONS FOR A STUCK OPEN MSSV

PREPARED/REVIEWED BY: Alan Kennedy Date: 08/08/09

VALIDATED BY: Vansicklen / Kelly Date: 08/08/09

APPROVAL BY: Lawrence / Vansicklen Date: 08/08/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 08/08/09
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim E – NRC 2009 [Bank # 035]

Task: Perform the required actions if a MSSV fails to reseal following a Reactor/Turbine trip.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 4 (Secondary)

K/A Rating/Importance: 039A2.04 RO 3.4 SRO 3.7

Task Number: 0390502002

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Perform the required actions if an MSSV fails to reseal following a Reactor/Turbine trip.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

EOP-2, Step 3.6, Rev. 11

Validation Time: 6 Minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____

Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT **Performance Time:** _____

Examiner: _____

Printed Name

Signature

Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# 165 developed for this JPM (Exam 4 directory).

OR

1. If creating IC perform the following in order:
 - Fail MSV-48 (TVSVSR48) to position 0.1 conditional on Rx power < 10% (rrswtp le 10)
 - Trip Rx
 - Set Conditional to *delete* the MSV-48 failure (TVSVSR48) when header pressure is < 940#. (A4_A2_A7_3 le 940)
 - Allow plant to stabilize until all MSSVs are closed except MSV-48
 - Run IC until header pressure is 1000 psig
 - FREEZE the simulator
 - Defeat FWHTR alarms (TCD2FWH = TRUE)
 - Disable nuisance alarms – 1500, 1670, 1986, 0085, 0089, 0092, 0094
 - Set label TFF3ASB2 = TRUE EFIC A MSLI failure
 - Set label TFF3BSB2 = TRUE EFIC B MSLI failure
 - Set label H_A3_A2_A50_1 conditional on H_A3_A2_A50_1 > .1 (TBV meter)
 - Set label TVSVLM11 = 1.0 conditional on H_A3_A2_A50_1 > .1 (MSV-11)
 - Set label TVSVLM14 = 1.0 conditional on H_A3_A2_A50_1 > .1 (MSV-14)
 - Store IC

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-02 with steps up to and including Step 3.5 checked off.

**ENSURE MSIV COVERS REPLACED PRIOR TO ADMITTING
CANDIDATE**

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

A Reactor Trip has occurred.

EOP-02, Vital System Status Verification, Immediate Actions have been completed.

EOP-02, Steps 3.1 thru 3.5, have been completed.

INITIATING CUE:

The Control Room Supervisor directs you to perform EOP-02, Step 3.6.

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 1:</u></p> <p>Candidate obtains copy of EOP-02.</p> <p><u>STANDARD:</u></p> <p>Candidate locates EOP-02.</p> <p><u>EXAMINER NOTE:</u></p> <p>Provide candidate with a copy of EOP-02 completed through Step 3.5.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 2:</u> (Step 3.6)</p> <p>Verify MSSVs are closed.</p> <p><u>IF</u> MSSVs are <u>NOT</u> closed, <u>THEN</u> attempt to reseal MSSVs.</p> <p><u>IF</u> OTSG PRESS is > desired setpoint, <u>THEN</u> control OTSG PRESS using TBVs (preferred) or ADVs.</p> <p><u>IF</u> OTSG PRESS is \leq 1050 psig, <u>AND</u> any MSSV is open, <u>THEN</u> momentarily lower associated OTSG PRESS to \geq 900 psig.</p> <p><u>IF</u> any MSSV is <u>NOT</u> reset, <u>THEN</u> notify Maintenance to start repair efforts.</p> <p><u>STANDARD:</u></p> <p>Observes MSSV lifting on MSSV monitor.</p> <p><i>This step may be accomplished by either of the following:</i></p> <p>FIRST METHOD:</p> <p style="padding-left: 40px;">Locate the hand/Auto station for TBVs on affected OTSG.</p> <p style="padding-left: 80px;">"B" OTSG MSV-11 & MSV-14</p> <p style="padding-left: 40px;">Depress the Manual pushbutton to select manual.</p> <p style="padding-left: 40px;">Depress the Open pushbutton to lower OTSG pressure to desired set point.</p> <p style="padding-left: 40px;">Due to failure OTSG pressure will continue to lower.</p> <p style="padding-left: 40px;">Depress the Close pushbutton to close MSV-11 and 14.</p> <p style="padding-left: 40px;">May depress the Auto pushbutton to return MSV-11 and 14 to Auto control.</p> <p style="padding-left: 40px;">Observe OTSG pressure and take appropriate actions.</p> <p style="padding-left: 40px;">Notify the Control Room Supervisor of the OTSG pressure reduction.</p>	<p>SAT_____</p> <p>UNSAT_____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

(STEP-2) (continued)

SECOND METHOD:

Locate the Hand/Auto station for the UNAFFECTED OTSG.

"A" OTSG MSV-9 & MSV-10

Depress the Manual pushbutton for MSV-9 & 10.

Locate the Turbine Header Pressure set point control knob.

Rotate the set point knob to lower OTSG pressure.

Due to failure OTSG pressure will continue to lower.

May return setpoint to normal (≈ 47) and TBVs to Auto.

Observe OTSG pressure and take appropriate actions.

Notify the Control Room Supervisor of the OTSG pressure reduction.

EXAMINER CUE:

If questioned by the candidate as to how much to lower OTSG pressure or candidate does not lower pressure sufficient to reseal the MSSV tell them as the CRS to follow the actions directed by Step 3.6.

The Simulator is setup to close MSV-48 when OTSG pressure is lowered to ≈ 940 psig.

COMMENTS:

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u></p> <p>When the TBV controller demand reaches 10% both "B" OTSG TBVs will fail open.</p> <p><u>STANDARD:</u></p> <p>When the pressure reduction is recognized the candidate, using Prompt and Prudent guidance, will isolate the "B" OTSG using the EFIC MSLI and MFLI pushbuttons.</p> <p>MFLI isolation will work as designed but MSLI will fail to close MSIVs.</p> <p>* The candidate will select closed on MSV-413 and MSV-414 (TGF panel) and observe RED light out and GREEN light on.</p> <p><u>EXAMINER NOTE:</u></p> <p>The candidate may elect to enter EOP-5, Excessive Heat Transfer, and perform Step 3.1. Either method of OTSG isolation is acceptable.</p> <p><u>EXAMINER NOTE:</u></p> <p>The intent of the task is for the operator to isolate the "B" OTSG by actuating MSLI and MFLI and closing MSV-413 and MSV-414 when the failure is recognized. If the OTSG is not isolated before OTSG pressure reaches 500 psig then this JPM should be graded as UNSAT.</p>	<p>*Critical Step</p> <p>BASIS: Uncontrolled cooldown results in excessive stresses on multiple plant components.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>MSIVs manually closed on the "B" OTSG.</p>	
<p style="text-align: center;">END OF TASK</p>	

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

A Reactor Trip has occurred.

EOP-02, Vital System Status Verification, Immediate Actions have been completed.

EOP-02, Steps 3.1 thru 3.5, have been completed.

INITIATING CUE:

The Control Room Supervisor directs you to perform EOP-02, Step 3.6.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM F

NRC 2009

SAFETY FUNCTION 5

ALTERNATE PATH

ENSURE PROPER ALIGNMENT OF ES EQUIPMENT

PREPARED/REVIEWED BY: Alan Kennedy Date: 06/08/09

VALIDATED BY: Tyrie / Rop Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim F NRC 2009 [NEW]

Task: Respond to an HPI ES A/B actuation.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 5

K/A Rating/Importance:

022A4.01	RO 3.6	SRO 3.6
013A4.02	RO 4.3	SRO 4.4
006A1.18	RO 4.0	SRO 4.3

Task Number: 0130502001

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Respond to an actuation of Engineered Safeguards IAW EOP-02, Vital System Status Verification.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

EOP-02, Rev. 11

Validation Time: 10 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# 166 developed for this JPM (Exam 4 directory).
2. Freeze the simulator and notify the examiner.

OR

- 100% IC
- Fail AHF-1A low speed windings TFC10502 = TRUE
- Fail AHF-1B low speed windings TFC10504 = TRUE
- Remove AHF-1B failure TFC10504 = FALSE conditional on A1_A2_S179_1 AND A1_A2_S179_4
- Disable FW heater vents nuisance alarms TCD2FWH = TRUE
- Override nuisance alarm ALA1986
- Manually open the PORV
- Close the PORV when ES actuates
- Close the PORV Block valve
- Depress Global Silence pushbutton following reactor trip
- Allow simulator to run until RCS pressure is 1900 psig
- Acknowledge all alarms
- Freeze the simulator and notify the lead examiner

SIMULATOR OPERATOR INSTRUCTIONS:

Unfreeze the simulator when the student is prepared to begin his task.

TOOLS/EQUIPMENT/PROCEDURES NEEDED:

Copies of EOP-02, Rev. 11, with appropriate steps checked off through Step 3.16.

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

A malfunction caused the PORV to fail open.

An HPI actuation occurred before the PORV Block valve was closed.

EOP-02, Vital System Status Verification, is in progress and completed through Step 3.16.

INITIATING CUE:

The Control Room Supervisor directs you to perform Step 3.17 of EOP-2.

SIMULATOR JOB PERFORMANCE MEASURE

START TIME: _____

<p><u>STEP 1:</u></p> <p>Candidate will be given a copy of EOP-02 with appropriate steps checked off through Step 3.16.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the status of the plant and Step 3.17.</p> <p><u>EXAMINER NOTE:</u></p> <p>Provide candidate with a copy of EOP-02 with appropriate steps checked off.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 2: EOP-02, Step 3.17 (Detail 1)</p> <p>3.17 <u>IF</u> at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p>1 Ensure at least 1 train of ES components is properly aligned:</p> <p style="margin-left: 40px;"> <input type="checkbox"/> HPI (1625 psig RCS PRESS) <input type="checkbox"/> Diverse Containment Closure <input type="checkbox"/> LPI (500 psig RCS PRESS) <input type="checkbox"/> RBIC (4 psig RB PRESS) <input type="checkbox"/> RB Spray (30 psig RB PRESS) </p> <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate uses the ES status lights for "A" and "B" ES trains to determine equipment alignment. 2. Candidate determines AHF-1A has not started in Low speed as required and all other equipment has aligned properly. 3. Candidate locates AHF-1A's control switch, rotates switch to the Normal-After-Stop position and pulls handle out. Control switch is then rotated to the Start position and released. 4. Candidate recognizes that AHF-1A did not start. Candidate may inform the CRS of the failure at this point (not required). 5. *Candidate locates AHF-1B's control switch, rotates switch to the Normal-After-Stop position and pulls handle out. Control switch is then rotated to the Start position and released. 6. Candidate verifies red Low speed light ON and green Low speed light OFF. <p><u>EXAMINER CUE:</u></p> <p>Acknowledge as CRS if candidate informs you of the status of AHFs.</p> <p><u>EXAMINER NOTE:</u></p> <p>Candidate may perform these steps in a different order than written and may not attempt to start AHF-1A. As long as AHF-1B is started in Low speed and the proper equipment alignment is verified on at least one (1) ES train then this Critical Step is met.</p> <p><u>COMMENTS:</u></p>	<p>*Critical Step</p> <p>Basis: Action required to ensure sufficient RB cooling following a LOCA.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 3: EOP-02, Step 3.17 (Detail 2)</p> <p>2 Reset ES actuation:</p> <p style="margin-left: 40px;"><input type="checkbox"/> Auto <input type="checkbox"/> Manual</p> <p><u>STANDARD:</u></p> <p>1. Based on determining that RCS pressure is greater than the ES bypass setpoint (1800 psig) the candidate will reset at least 2/3 HPI actuation bistables in the ES cabinets.</p> <p><u>EXAMINER CUE:</u></p> <p>IF the candidate asks for permission to reset ES acknowledge concurrence as the CRS.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required to reposition components.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 4: EOP-02, Step 3.17 (Detail 3)</p> <p>3 ___ Control ES systems as required.</p> <p> [Rule 2, HPI Control] [Rule 5, Diesel Load Control]</p> <p><u>STANDARD:</u></p> <p>1. Candidate obtains EOP-13, Rule 2, HPI Control, and based on existence of adequate SCM and rising PZR level determines that HPI flow needs to be throttled.</p> <p>2. Candidate may notify the CRS that HPI needs to be throttled, and/or may notify the CRS that Step 1 of Rule 2 has been completed.</p> <p><u>EXAMINER CUE:</u></p> <p>IF the candidate asks for permission to throttle HPI flow, or states that Step 1 of Rule 2 has been completed, acknowledge as the CRS.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 5: EOP-13, Rule 2, Step 2</p> <p>2 ___ Open MUP recirc prior to throttling HPI flow < 200 gpm/pump.</p> <p> ___ <u>IF</u> recirc to MUT is desired, <u>THEN</u> open MUP recirc to MUT valves:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"><div style="border-right: 1px solid black; padding: 0 10px;">___ MUV-53</div><div style="padding: 0 10px;">___ MUV-257</div></div> <p>STANDARD:</p> <p>1. Candidate opens MUV-53 and MUV-257 to maintain minimum flow on running HPI pumps.</p> <p><u>EXAMINER NOTE:</u></p> <p>Based on actual plant conditions if PZR level is rising at a rapid rate the candidate may choose to perform Step 4 of this Rule first to stop one of the HPI pumps. Stopping one of the HPI pumps would have a greater effect on HPI flow reduction than throttling HPI flow. Flexibility in the order of these actions is based on the need to control adequate SCM or control inventory (prevent going solid) when the RCS is intact. This action is acceptable because the steps of the Rule are bulleted.</p> <p>The recirc flowpath is not required to be established until total HPI flow is throttled to < 200 gpm per running pump. HPI pump damage could occur if it is run for an extended time without adequate recirc flow.</p> <p>PHYSICAL DAMAGE MUST OCCUR TO THE MAKEUP PUMP FOR THIS CRITICAL TASK TO BE UNSAT.</p> <p>Although not required by Rule 2 the candidate may close MUV-73 (BWST to MUP) to control MUT level when the MUP recircs are opened.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Makeup pump protection.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 6: EOP-13, Rule 2, Step 3</p> <p>3 ___ <u>IF</u> adequate SCM exists based on Tincore, <u>THEN</u> throttle HPI to maintain required conditions.</p> <ul style="list-style-type: none"> • ___ Prevent exceeding NDT limit. • ___ <u>IF</u> OTSG isolated for TRACC, <u>THEN</u> maintain RCS PRESS <1000 psig. • ___ <u>IF</u> PTS, SGTR, or dry OTSG exists, <u>THEN</u> maintain minimum adequate SCM. <p>STANDARD:</p> <p>1. *Candidate throttles HPI valves (MUV-23, MUV-24, MUV-25, MUV-26) as necessary to prevent RCS from going solid and to maintain adequate SCM.</p> <p><u>EXAMINER CUE:</u></p> <p>If candidate asks for a PZR level band then as the CRS inform the candidate that PZR level should be stabilized and a level band will be given after stabilization.</p> <p><u>EXAMINER NOTE:</u></p> <p>Based on actual plant conditions if PZR level is rising at a rapid rate the candidate may choose to perform Step 4 of this Rule first to stop one of the HPI pumps. Stopping one of the HPI pumps would have a greater effect on HPI flow reduction than throttling HPI flow. Flexibility in the order of these actions is based on the need to control adequate SCM or control inventory when the RCS is intact. This action is acceptable because the steps of the Rule are bulleted.</p> <p>The RCS was made intact by closing the PORV Block valve. In order to stabilize PZR level, HPI flow should be throttled to minimal. The JPM is complete when the candidate stabilizes PZR level by stopping one of the 2 running HPI pumps and closes/throttles to minimum all 4 HPI valves.</p> <p>If MUP-1C was stopped prior to performing this step then the JPM is complete.</p> <p><u>COMMENTS:</u></p>	<p>*Critical Step</p> <p>Basis: Action required to prevent RCS from going solid and challenging PZR code safeties.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 7:</u> EOP-13, Rule 2, Step 4</p> <p>4 <u>IF</u> adequate SCM can be maintained with 1 HPI pump, <u>AND</u> stopping second HPI pump is desired, <u>THEN</u> stop 1 HPI pump.</p> <p style="margin-left: 40px;">• <u> </u> Ensure running HPI pump is aligned to MUT.</p> <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate stops MUP-1C with the control switch. 2. Candidate verifies that pump is stopped. 3. Candidate evaluates changes to HPI flow and PZR level. <p><u>EXAMINER NOTE:</u></p> <p>Based on actual plant conditions if PZR level is rising at a rapid rate the candidate may have performed this step before Step 3 of this procedure. Flexibility in the order of actions is based on the need to control adequate SCM or control inventory when the RCS is intact. It is acceptable to perform this step out of order because the steps of the Rule are bulleted.</p> <p>The RCS was made intact by closing the PORV Block valve. In order to stabilize PZR level, HPI flow should be throttled to minimal. The JPM is complete when the candidate stabilizes PZR level by stopping one of the 2 running HPI pumps and closes/throttles to minimum all 4 HPI valves.</p> <p><u>COMMENTS:</u></p> 	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>One HPI pump running with all HPI valves closed.</p>	

TIME STOP: _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

A malfunction caused the PORV to fail open.

An HPI actuation occurred before the PORV Block valve was closed.

EOP-02, Vital System Status Verification, is in progress and completed through Step 3.16.

INITIATING CUE:

The Control Room Supervisor directs you to perform Step 3.17 of EOP-2.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM G

NRC 2009

SAFETY FUNCTION 6

ENERGIZE A DEAD BUS

PREPARED/REVIEWED BY: Alan Kennedy

Date: 06/08/09

VALIDATED BY: Tyrie / Rop

Date: 07/08/09

APPROVAL BY: Lawrence / Vansicklen
(Nuclear Training Supervisor)

Date: 07/20/09

CONCURRED BY: Mike Kelly
(Operations Representative)

Date: 07/20/09

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim G NRC 2009 [Bank #329]

Task: Supply pressurizer heaters from B ES 4160V Bus.

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 6

K/A Rating/Importance: 062A2.05 RO 2.9 SRO 3.3

Task Number: 0620402006

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Supply pressurizer heaters from the B ES 4160V Bus using AP-770.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

AP-770, Rev. 36

Validation Time: 15 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT **Performance Time:** _____

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# 168 developed for this JPM (Exam 4 directory).
2. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Respond from the booth as SPO for applicable portions of Enclosure 4 of AP-770.

Tools/Equipment/Procedures Needed:

1. AP-770, Enclosure 4

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Balance of Plant Operator (BOP).

A Loss of Offsite Power (LOOP) has occurred.

INITIATING CUE:

You are requested to power the pressurizer heaters from the B ES 4160V Bus IAW AP-770, Emergency Diesel Actuation, Enclosure 4 and restore RCS pressure to its normal band.

SIMULATOR JOB PERFORMANCE MEASURE

START TIME: _____

<p><u>STEP 1:</u></p> <p>Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u></p> <p>Candidate obtains a copy of AP-770 completed up to Step 3.36.</p> <p><u>EXAMINER NOTE:</u></p> <p>Provide candidate with a copy of AP-770 completed up to Step 3.36.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 2:</u> (Step 4.1)</p> <p>4.1 ____ If 480V REACTOR AUX BUS 3B is energized, THEN go to Step 4.8 in this enclosure.</p> <p><u>STANDARD:</u></p> <p>Candidate verifies that the 480V REACTOR AUX BUS 3B is not energized and continues on in the procedure. This step is N/A.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Step 4.2)</p> <p>4.2 ___ Verify equipment alignment supports energizing PZR Htrs.</p> <p style="padding-left: 40px;">___ Verify the following NOT running:</p> <p style="padding-left: 80px;">___ DHP-1B</p> <p style="padding-left: 80px;">___ RWP-3B</p> <p style="padding-left: 80px;">___ DCP-1B</p> <p style="padding-left: 80px;">___ AHF-15B</p> <p style="padding-left: 80px;">___ BSP-1B</p> <p><u>STANDARD:</u></p> <p>Candidate locates each of the above components and verifies they are not running.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 4:</u> (step 4.3)</p> <p>4.3 ___ Ensure 480V feeder and Cross-Tie Bkrs are open.</p> <p style="padding-left: 40px;">___ Bkr 3399</p> <p style="padding-left: 40px;">___ Bkr 3393</p> <p style="padding-left: 40px;">___ Bkr 3394</p> <p style="padding-left: 40px;">___ Bkr 3306*</p> <p style="padding-left: 40px;">___ Bkr 3396</p> <p style="padding-left: 40px;">___ Bkr 3312</p> <p style="padding-left: 40px;">___ Bkr 3392</p> <p><u>STANDARD:</u></p> <p>Candidate will locate each breaker and for those that are not already open, rotate the control handle to the open position. Breakers 3399, 3393, 3394, 3396, 3312 and 3392 are open. Candidate may match targets for 3312 and 3392. Breaker 3306 will have to be opened. Candidate may verify green target and will verify green light ON and red light OFF for each breaker.</p> <p><u>COMMENTS:</u></p>	<p>*Critical Step</p> <p>Basis: Action required to prevent overloading the crosstie breakers.</p> <p>SAT ____</p> <p>UNSAT ____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 5:</u> (Step 4.4)</p> <p>4.4 ___ Prepare 480V Buses for backfeed. Notify SPO to ensure all breakers on the following are open: ___ 480V PLANT AUX BUS 3 ___ 480V REACTOR AUX BUS 3B ___ 480V PZR HTR MCC 3B</p> <p><u>STANDARD:</u></p> <p>Candidate contacts and instructs the SPO to perform Step 4.4 of Enclosure 4 of AP-770. (Alarms P-2-9, P-2-10 and I-8-2)</p> <p><u>EXAMINER CUE:</u></p> <p>Notify candidate when step is complete.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 6:</u> (Step 4.5)</p> <p>4.5 ___ When notified that all Bkrs on the following are open: ___ 480V PLANT AUX BUS 3 ___ 480V REACTOR AUX BUS 3B ___ 480V PZR HTR MCC 3B Then energize 480V PLANT AUX BUS 3 1. ___ Close Bkr 3222 2. ___ Close Bkr 3312</p> <p><u>STANDARD:</u></p> <p>Candidate locates breaker 3222 and rotates the control handle in the CLOSE direction (Candidate may match targets first). Candidate will verify red target and red light ON and green light OFF. Candidate locates breaker 3312 and rotates the control handle in the CLOSE direction (P-2-7 clears). Candidate will verify red target and red light ON and green light OFF. Candidate verifies the 480V PLANT AUX BUS is reading approximately 480V.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Action required to prevent overloading the crosstie breakers.</p> <p>SAT ____</p> <p>UNSAT ____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 6:</u> (Step 4.6)</p> <p>4.6 ___ Energize 480V Reactor AUX BUS 3B.</p> <p> 1. ___ Close Bkr 3392</p> <p> 2. ___ Close Bkr 3396</p> <p><u>STANDARD:</u></p> <p>Candidate locates breaker 3392 and rotates the control handle in the CLOSE direction. Candidate will verify red target and red light ON and green light OFF. Candidate locates breaker 3396 and rotates the control handle in the CLOSE direction (G-2-2 clears). Candidate will verify red target and red light ON and green light OFF. Candidate verifies the 480V Reactor AUX BUS 3B is reading approximately 480V.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: 480V Reactor AUX Bus 3B must be energized to power PZR heaters.</p> <p>SAT ___</p> <p>UNSAT ___</p>
<p><u>STEP 7:</u> (Step 4.7)</p> <p>4.7 ___ Energize 480V PZR HTR MCC 3B</p> <p> ___ Notify SPO to close 480V REACTOR AUX BUS 3B-1C</p> <p> BREAKER 3356 FEED TO PZR HTR MCC 3B</p> <p><u>STANDARD:</u> Candidate contacts and instructs the SPO to perform step 4.6 of Enclosure 4 of AP-770. (P-3-9 clears)</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: PZR Heater MCC 3B must be energized to power PZR heaters.</p> <p>SAT ___</p> <p>UNSAT ___</p>

SIMULATOR JOB PERFORMANCE MEASURE

STEP 8:	(Step 4.8)		Critical Step
4.8	_____	<p>Energize 4 groups of PZR Htrs:</p> <p>1. _____ Ensure EDG-1B load is \leq 2700 KW.</p> <p>2. _____ Place <u>ALL</u> PZR Htr banks in OFF:</p> <p style="padding-left: 40px;">_____ Bank A</p> <p style="padding-left: 40px;">_____ Bank B</p> <p style="padding-left: 40px;">_____ Bank C</p> <p style="padding-left: 40px;">_____ Bank D</p> <p style="padding-left: 40px;">_____ Bank E</p> <p>3. _____ Notify SPO to close the following Bkrs on 480V PZR HTR MCC 3B:</p> <p style="padding-left: 40px;">_____ 1A PZR HEATER CONTROL TRANSFORMER B-1</p> <p style="padding-left: 40px;">_____ 1B PZR HEATER CONTROL TRANSFORMER B-2</p> <p>4. _____ Notify SPO to close the following Bkrs on 480V PZR HTR MCC 3B:</p> <p style="padding-left: 40px;">_____ 1D PZR HEATER GROUP 10</p> <p style="padding-left: 40px;">_____ 2C PZR HEATER GROUP 11</p> <p style="padding-left: 40px;">_____ 3C PZR HEATER GROUP 12</p> <p style="padding-left: 40px;">_____ 4C PZR HEATER GROUP 13</p>	<p>Basis: Step ensures load margin on the EDG and provides power to the PZR heaters.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STANDARD:</u></p> <p>Candidate reads EDG-1B digital load meter to ensure load is \leq 2700 KW. Candidate rotates each pressurizer heater bank control switch to the OFF direction. Candidate contacts and instructs the SPO to perform Step 4.8 details 3 and 4 of Enclosure 4 of AP-770.</p> <p><u>COMMENTS:</u></p>			

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 9:</u> (Step 4.9)</p> <p>4.9 ____ If PZR Htrs are desired, THEN select PZR Htr Bank E to control RCS PRESS.</p> <p><u>STANDARD:</u></p> <p>Candidate selects PZR Htr Bank E to ON / Auto</p> <p><u>EXAMINER NOTE:</u></p> <p>Heaters should be required at this point because RCS pressure is low.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required to restore RCS pressure to normal band (per cue)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 10:</u> (Step 4.10)</p> <p>4.10 ____ EXIT this enclosure.</p> <p><u>STANDARD:</u></p> <p>Candidate exits the enclosure.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>PZR heater group energized and available for use.</p>	
<p style="text-align: center;">END OF TASK</p>	

TIME STOP _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Balance of Plant Operator (BOP).

A Loss of Offsite Power (LOOP) has occurred.

INITIATING CUE:

You are requested to power the pressurizer heaters from the B ES 4160V Bus IAW AP-770, Emergency Diesel Actuation, Enclosure 4 and restore RCS pressure to its normal band.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SIMULATOR JPM H

NRC 2009

SAFETY FUNCTION 8

ALTERNATE PATH

RESPOND TO AN INVALID ES ACTUATION

PREPARED/REVIEWED BY: Alan Kennedy Date: 06/08/09

VALIDATED BY: Tyrie / Rop Date: 07/09/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim H NRC 2009 [Bank #434]

Task: Take actions required to stabilize the plant following an inappropriate or spurious actuation of a safety features actuation system.

Alternate Path: ☒ YES ☐ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 8

K/A Rating/Importance: 008A3.08 RO 3.6 SRO 3.7

Task Number: 1150402015

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Respond to an invalid actuation of Engineered Safeguards IAW AP-340, Invalid ES Actuation.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

AP-340, Rev. 1

Validation Time: 4 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# _____ developed for this JPM (Exam 4 directory).

OR

1. "Restore" the simulator to 100% IC.
2. Fail SWV-109 closed after actuation TFKS109C = TRUE cond on A1_A2_DS676_1
3. Fail BS-28-PS TFL6P28C = TRUE
4. Fail 63X1 RBIC ACT RELAY TFL663R6 = TRUE
5. Allow all block loading actions to occur.
6. Freeze the simulator
7. SHOOT SNAPSHOT
8. Install Himelee on BS-28-PS Reset/Bypass switch

SIMULATOR OPERATOR INSTRUCTIONS:

Do not unfreeze the simulator until the student is prepared to begin his task.

TOOLS/EQUIPMENT/PROCEDURES NEEDED:

Copies of AP-340, Rev 1

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

Following the failure of BS-28-PS, 4 psig pressure switch on “B” Train ES Channel 2, another problem occurs.

An actuation of Engineered Safeguards is underway.

INITIATING CUE:

The Control Room Supervisor directs you to respond to the ES actuation.

SIMULATOR JOB PERFORMANCE MEASURE

START TIME: _____

<p><u>STEP 1:</u></p> <p>Recognize AP entry conditions and locate correct procedure.</p> <p><u>STANDARD:</u></p> <p>Candidate recognizes an invalid ES Actuation has occurred and locates AP-340 for guidance.</p> <p><u>EXAMINER NOTE:</u></p> <p>When candidate identifies the correct procedure then provide a copy of AP-340.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> AP-340 Step 3.1</p> <p>3.1 ___ IF ES actuation was valid, ___ THEN EXIT this procedure.</p> <ul style="list-style-type: none">• ___ VERIFY RCS PRESS using redundant indications• ___ VERIFY RB PRESS using redundant indications <p><u>STANDARD:</u></p> <p>Candidate uses redundant RCS and RB pressure instruments to verify that a valid condition for the RBIC actuation does not exist.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

STEP 3:	AP-340 Step 3.2	Critical Step								
3.2	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>_____ Select <u>all</u> Auto Test Select pistol grips to Push-in "TEST 1" position for the affected train.</p> </div> <div style="flex: 1; border: 1px solid black; padding: 5px; margin-left: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="padding: 5px;">A Train</th> <th style="padding: 5px;">B Train</th> </tr> <tr> <td style="padding: 5px;">_____ HPI</td> <td style="padding: 5px;">_____ HPI</td> </tr> <tr> <td style="padding: 5px;">_____ LPI</td> <td style="padding: 5px;">_____ LPI</td> </tr> <tr> <td style="padding: 5px;">_____ RB ISO</td> <td style="padding: 5px;">_____ RB ISO</td> </tr> </table> </div> </div>	A Train	B Train	_____ HPI	_____ HPI	_____ LPI	_____ LPI	_____ RB ISO	_____ RB ISO	<p>Basis: Action required to gain control of ES equipment.</p> <p>SAT _____</p> <p>UNSAT _____</p>
A Train	B Train									
_____ HPI	_____ HPI									
_____ LPI	_____ LPI									
_____ RB ISO	_____ RB ISO									
<p><u>STANDARD:</u></p> <p>Candidate recognizes that only a B train actuation has occurred. Candidate locates the 3 Auto Test Select pistol grips on the B Train and rotates them to the Pushed-In "Test 1" position.</p> <p><u>EXAMINER NOTE:</u></p> <p>If candidate selects the "A" side ES pistol grips to "Test" then grade this JPM as "Unsat". This would needlessly defeat the "A" side of ES.</p> <p><u>EXAMINER NOTE:</u></p> <p><i>Open spray valve fully if requested by candidate.</i></p> <p><u>COMMENTS:</u></p>										

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 4: AP-340 Step 3.3</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 40%;"> <p>3.3 Stop <u>all</u> MUPs.</p> </div> <div style="width: 20%; border: 1px solid black; padding: 5px; margin: 10px auto;"> <div style="border-bottom: 1px solid black; padding: 2px 10px;">___ MUP-1A</div> <div style="border-bottom: 1px solid black; padding: 2px 10px;">___ MUP-1B</div> <div style="padding: 2px 10px;">___ MUP-1C</div> </div> <div style="width: 35%; text-align: right;"> <p>SAT _____</p> <p>UNSAT _____</p> </div> </div> <p><u>STANDARD:</u></p> <p>Candidate rotates the control switches for MUP-1B and MUP-1C to the normal-after-stop position.</p> <p><u>EXAMINER NOTE:</u></p> <p>Both MUPs must be stopped to terminate HPI flow</p> <p>If HPI flow is not terminated within approximately 2 minutes 15 seconds, a high RCS pressure reactor trip will occur.</p> <p><u>COMMENTS:</u></p>	
<p>STEP 5: AP-340 Step 3.4</p> <p><u>IF</u> B RBIC is actuated, <u>THEN</u> select the “ES TRAIN “B” NON-ESSEN. VALVES” switch to “OPEN”.</p> <p><u>STANDARD:</u></p> <p>Candidate locates this switch and selects “OPEN”. Candidate recognizes multiple valves repositioning.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

STEP 6:	AP-340 Step 3.5	Critical Step
3.5	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>— <u>IF</u> CRDMs are energized, <u>THEN</u> ensure SW valves to CRDMs are open.</p> <p>— <u>IF</u> CRD SW flow is <u>NOT</u> restored, <u>THEN</u> trip the Reactor and CONCURENTLY PERFORM EOP-02, VSSV.</p> </div> <div style="flex: 1; border: 1px solid black; padding: 5px; margin-left: 10px;"> <div style="border-bottom: 1px solid black; padding-bottom: 5px;">— SWV-109</div> <div style="padding-top: 5px;">— SWV-110</div> </div> </div>	<p>Basis: Required action due to loss of cooling water to the CRDMs.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STANDARD:</u></p> <p>Candidate locates SWV-109 and SWV-110 and recognizes SWV-109 is closed.</p> <p>Candidate attempts to open valve and reports to CRS that SWV-109 has failed to open.</p> <p>Candidate trips the reactor.</p> <p><u>COMMENTS:</u></p>		
<p><u>TERMINATION CRITERIA:</u> Reactor is tripped.</p>		

TIME STOP: _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

Following the failure of BS-28-PS, 4 psig pressure switch on “B” Train ES Channel 2, another problem occurs.

An actuation of Engineered Safeguards is underway.

INITIATING CUE:

The Control Room Supervisor directs you to respond to the ES actuation.

CRYSTAL RIVER UNIT 3 JPM COVER SHEET

PLANT JPM I

NRC 2009

SAFETY FUNCTION 3

RCS DEPRESSURIZATION USING HIGH PRESSURE AUXILIARY SPRAY

PREPARED BY: Alan Kennedy Date: 07/17/09

VALIDATED BY: Atkinson Date: 07/17/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

IN-PLANT JOB PERFORMANCE MEASURE

JPM #: Plant I – NRC 2009 [Bank #177]

Task: Depressurize the RCS using High pressure Auxiliary Spray.

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 3

K/A Rating/Importance: E14EA1.1 RO 3.8 SRO 3.6

Task Number: 0040403006

Position: ☐ SRO ONLY ☐ RO/SRO ☒ NLO/RO/SRO

Task Standard: Depressurize the RCS using High pressure Auxiliary Spray.

Preferred Evaluation Location:

☐ SIM ☒ PLANT ☐ ADMIN

Preferred Evaluation Method

☐ PERFORM ☒ SIMULATE

References:

EOP-14, Enclosure 13, Rev 18

Validation Time: 10 Minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____
Printed Name

Time Started: _____

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name

Signature

Date

Comment: _____

IN-PLANT JOB PERFORMANCE MEASURE

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-14, Enclosure 13, Rev 18

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Primary Plant Operator.

The plant has tripped.

High Pressure Auxiliary Spray is required to lower RCS pressure.

DHV-91, RCV-53 and RCV-13 have been closed from the control room.

INITIATING CUE:

You are directed to perform the actions of the PPO to establish High Pressure Auxiliary Spray using EOP-14, Enclosure 13.

IN-PLANT JOB PERFORMANCE MEASURE

TIME START: _____

<p><u>STEP 1:</u></p> <p>Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u></p> <p>Candidate obtains a copy of EOP-14, Enclosure 13.</p> <p><u>EXAMINER NOTE:</u></p> <p>Once candidate indicates where he/she would acquire the enclosure provide them with a copy.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (Step 13.1)</p> <p>Ensure DHV-91 is closed.</p> <p><u>STANDARD:</u></p> <p>N/A. DHV-91 is closed per cue.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Step 13.2)</p> <p>Align MU system to supply Aux spray.</p> <p>1 ____ Close RCV-53</p> <p>2 ____ Close RCV-13</p> <p>3 Notify PPO to perform the following (119 ft AB penetration area):</p> <p style="padding-left: 40px;">Open MUV-273 Open DHV-95 Open DHV-126</p> <p><u>STANDARD:</u></p> <p>N/A. RCV-53 and RCV-13 are closed per cue.</p> <p>Candidate locates MUV-273 and rotates hand-wheel in the counter-clockwise direction until the valve is open.</p> <p>Candidate locates DHV-95 and rotates hand-wheel in the counter-clockwise direction until the valve is open.</p> <p>Candidate locates DHV-126 and rotates hand-wheel in the counter-clockwise direction until the valve is open.</p> <p>Candidate calls the Control Room to report that Detail 3 of Step 13.2 in Enclosure 13 of EOP-14 is complete.</p> <p><u>EXAMINER NOTE:</u></p> <p>Candidate may simulate ladder usage and dress-out.</p> <p><u>EXAMINER CUE:</u></p> <p>MUV-273 is open. DHV-95 is open. DHV-126 is open. Control Room understands that Detail 3 of Step 13.2 in Enclosure 13 of EOP-14 is complete.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>BASIS: Valve alignment required to establish high pressure aux spray.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

TERMINATION CRITERIA: When candidate has successfully located and simulated the opening of MUV-273, DHV-95 and DHV-126 inform him/her that the JPM is complete.	
END OF TASK	

TIME STOP: _____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Primary Plant Operator.

The plant has tripped.

High Pressure Auxiliary Spray is required to lower RCS pressure.

DHV-91, RCV-53 and RCV-13 have been closed from the control room.

INITIATING CUE:

You are directed to perform the actions of the PPO to establish High Pressure Auxiliary Spray using EOP-14, Enclosure 13.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

PLANT JPM J

NRC 2009

SAFETY FUNCTION 4 (PRIMARY)

ESTABLISH DHR FROM OUTSIDE CONTROL ROOM

PREPARED/REVIEWED BY: Alan Kennedy Date: 07/01/09

VALIDATED BY: Atkinson Date: 07/17/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

IN-PLANT JOB PERFORMANCE MEASURE

JPM #: Plant J – NRC 2009 [NEW]

Task: Establish DHR from outside control room.

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 4 (Primary)

K/A Rating/Importance: BW/A06AA1.1 RO 4.3 SRO 4.2

Task Number: – PPO

Position: ☐ SRO ONLY ☐ RO/SRO ☒ NLO/RO/SRO

Task Standard: Establish DHR from outside control room.

Preferred Evaluation Location:

☐ SIM ☒ PLANT ☐ ADMIN

Preferred Evaluation Method

☐ PERFORM ☒ SIMULATE

References:

AP-990, Enclosure 8, Rev 27

Validation Time: 25 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name Signature Date

Comment: _____

IN-PLANT JOB PERFORMANCE MEASURE

TOOLS/EQUIPMENT/PROCEDURES NEEDED:

Consumable copies of AP-990, Enclosure 8, Rev 27

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Primary Plant Operator.

AP-990, Shutdown from Outside the Control Room, is in progress.
Instrument Air is available.

INITIATING CUES:

The CRS has directed you to establish DHR using DHP-1A IAW AP-990, Enclosure 8.

IN-PLANT JOB PERFORMANCE MEASURE

TIME START: _____

<p><u>STEP 1:</u></p> <p>Candidate obtains copy of AP-990.</p> <p><u>STANDARD:</u></p> <p>Candidate identifies where he/she would obtain AP-990.</p> <p><u>EXAMINER NOTE:</u></p> <p>Provide the candidate with a copy of AP-990, Enclosure 8.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 2: (Step 8.1)</p> <p>Ensure DHP to MUP suction isolation valves are closed.</p> <ol style="list-style-type: none"> 1 ____ Open ES MCC 3A1, Bkr 7A "A DECAY HEAT PUMP DISCH TO MUP-1A SUCT" (95 ft AB) 2 ____ Open ES MCC 3B1, Bkr 5A "B DECAY HEAT PUMP DISCH TO MUP-1C SUCT" " (119 ft AB) 3 ____ Ensure DHV-11 "DHP-1A TO MUP SUCTION ISO" closed (95 ft AB between DH Rooms) 4 ____ Ensure DHV-12 "DHP-1B TO MUP SUCTION ISO" closed (95 ft AB between DH Rooms) <p>STANDARD:</p> <p>Candidate locates:</p> <ol style="list-style-type: none"> 1. ES MCC 3A1, Bkr 7A, and rotates lever to the Lock/Reset position. 2. ES MCC 3B1, Bkr 5A, and rotates lever to the Lock/Reset position. 3. DHV-11 "DHP-1A TO MUP SUCTION ISO" and verifies closed 4. DHV-12 "DHP-1B TO MUP SUCTION ISO" and verifies closed <p>EXAMINER CUE:</p> <ol style="list-style-type: none"> 1. Breaker lever in Lock/Reset position 2. Breaker lever in Lock/Reset position 3. DHV-11 indicates closed 4. DHV-12 indicates closed <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Step 8.2)</p> <p><u>IF</u> DHP-1B will be placed in service, <u>THEN GO TO</u> Step 8.11 in this enclosure.</p> <p><u>STANDARD:</u></p> <p>DHP-1A will be placed in service. This step is N/A.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 4:</u> (Step 8.3)</p> <p>STATUS: DHP-1A will be aligned for DHR.</p> <p><u>IF</u> IA is <u>NOT</u> available, <u>THEN GO TO</u> Step 8.6 in this enclosure.</p> <p><u>STANDARD:</u></p> <p>IA is available. This step is N/A.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 5: (Step 8.4)</p> <p>Align A DH cooler controls.</p> <p>1 ____ Position DCV-17-MS to "0".</p> <p>2 Notify PPO to perform the following (95 ft AB between DH Room entrances):</p> <p>____ Close DCV-195 "VENT TO DC-17-POS".</p> <p>____ Open DCV-194 "AIR SUPPLY TO DC-17-POS".</p> <p>3 ____ Notify RO (PP0) to ensure "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" control switch is selected to "A ES 4160V SWGR ROOM DCV-17-MS" (A ES 4160V SWGR Room).</p> <p>STANDARD:</p> <p>1. Checks with RO and ensures DCV-17-MS is set to "0".</p> <p>2. Candidate locates DCV-195 (AB between DH pits 95') and rotates hand-wheel CW to CLOSE.</p> <p>Candidate locates DCV-194 (AB between DH pits 95') and rotates handwheel CCW to OPEN.</p> <p>3. Candidate notifies RO to ensure "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" control switch is selected to "A ES 4160V SWGR ROOM DCV-17-MS" (A ES 4160V SWGR Room).</p> <p>EXAMINER CUE:</p> <p>1. Respond as RO that DCV-17-MS is set to "0".</p> <p>2. Inform the candidate that DCV-195's handwheel rotates and comes to a hard stop. Inform the candidate that DCV-194's handwheel rotates and comes to a hard stop.</p> <p>3. Inform candidate that switch has been verified selected to "A ES 4160V SWGR Room" position by the RO.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Air must be aligned to allow controller to control valves.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 6:</u> (Step 8.5)</p> <p><u>WHEN</u> A DH cooler controls are aligned, <u>THEN</u> ensure proper operation of A DH cooler control valves.</p> <p><u>STANDARD:</u></p> <p>N/A</p> <p><u>EXAMINER CUE:</u></p> <p>Inform candidate that due to ALARA concerns the candidate does not need to enter the DH vault. Valve operation will be determined by alternate methods.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 7: (Step 8.6)</p> <p>Establish A Train DHR alignment.</p> <p>1 Ensure the following are closed:</p> <p>___ DHV-8 "DHP-1A RECIRC ISO" (95 ft AB by A DH Room entrance)</p> <p>___ DHV-105 "A DH PURIFICATION SUPPLY ISO" (95 ft AB between DH Room entrances)</p> <p>___ DHV-75 "A DH PURIFICATION RETURN ISO" (95 ft AB between DH Room entrances)</p> <p>___ DHV-42 "RB SUMP TO DHP-1A SUCTION ISO" (75 ft AB A DH Room)</p> <p>___ BSV-17 "BSP-1A SUCTION ISO" (75 ft AB A DH Room)</p> <p>STANDARD:</p> <p>Candidate locates:</p> <ol style="list-style-type: none"> 1. DHV-8 and verifies closed. 2. DHV-105 and verifies closed. 3. DHV-75 and verifies closed. 4. DHV-42 and verifies closed. 5. BSV-17 and verifies closed. <p>EXAMINER CUE:</p> <p>When candidate locates each valve respond with the following:</p> <ol style="list-style-type: none"> 1. DHV-8 indicates closed 2. DHV-105 indicates closed 3. DHV-75 indicates closed 4. DHV-42 indicates closed 5. BSV-17 indicates closed <p>Valve was verified closed prior to leaving MCR. Valve was verified closed prior to leaving MCR.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 8: (Step 8.7)</p> <p>Open DHV-39</p> <p>1 Perform the following at ES MCC 3A1-6C (95 ft AB):</p> <p>___ Depress "OPEN" push button for "DHV-39 A DECAY HEAT PUMP DROPLINE SUCT".</p> <p>___ IF DHV-39 indicates open, OR fails to open, THEN open Bkr for "DHV-39 A DECAY HEAT PUMP DROPLINE SUCT".</p> <p>2 ___ Ensure DHV-39 "RCS DROPLINE TO DHP-1A SUCTION ISO" is open (95 ft AB by A DH Room entrance).</p> <p>STANDARD:</p> <p>Candidate:</p> <p>1. Locates ES MCC 3A1, Bkr 6C.</p> <p>Depresses the "OPEN" pushbutton for DHV-39.</p> <p>Opens breaker for DHV-39.</p> <p>2. Ensures DHV-39 is open.</p> <p>EXAMINER CUE:</p> <p>1. DHV-39 indicates open.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Required valve alignment to establish DHR flow.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 9:</u> (Step 8.8)</p> <p>Ensure DHV-5 is open.</p> <p>____ Select DHV-5 switch on RSD Panel to "OPEN".</p> <p><u>STANDARD:</u></p> <p>Candidate notifies RO to open DHV-5 from RSD Panel.</p> <p><u>EXAMINER CUE:</u></p> <p>1. Respond as RO that DHV-5 is open.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 10:</u> (Step 8.9)</p> <p>Ensure DHV-210 is open.</p> <p>1 ____ Depress "OPEN" push button on ES MCC 3A3-4EG for DHV-210 "DHHE-1A OUTLET ISOL/TEST" (119 ft AB)</p> <p>2 ____ Open Bkr ES MCC 3A3-4EG, "DHHE-1A OUTLET ISOL/TEST"</p> <p>3 ____ Manually open DHV-210 "DHHE-1A OUTLET ISOLATION / TEST" (75 ft AB A DH Room)</p> <p><u>STANDARD:</u></p> <p>Candidate:</p> <p>1. Candidate locates ES MCC 3A3, Bkr 4EG and depresses the OPEN pushbutton.</p> <p>2. Candidate places the breaker in Lock/Reset.</p> <p>3. This step is N/A due to ALARA concerns.</p> <p><u>EXAMINER CUE:</u></p> <p>Inform candidate that DHV-210 appears open based on RED light indication. Due to ALARA concerns the candidate does not need to enter the DH vault.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required valve alignment to establish DHR flow.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 11:</u> (Step 8.10)</p> <p>EXIT this enclosure.</p> <p><u>STANDARD:</u></p> <p>Candidate exits enclosure.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>DHR removal valve lineup complete.</p>	
<p style="text-align: center;">END OF TASK</p>	

TIME STOP:_____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Primary Plant Operator.

AP-990, Shutdown from Outside the Control Room, is in progress.

INITIATING CUES:

The CRS has directed you to establish DHR using DHP-1A IAW AP-990, Enclosure 8.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

PLANT JPM K

NRC 2009

SAFETY FUNCTION 6

**TRANSFER VITAL BUS TO NORMAL POWER
SUPPLY**

PREPARED/REVIEWED BY: Alan Kennedy Date: 07/01/09

VALIDATED BY: Jim Atkinson Date: 07/17/09

APPROVAL BY: Lawrence / Vansicklen Date: 07/20/09
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/20/09
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

IN-PLANT JOB PERFORMANCE MEASURE

JPM #: Plant K – NRC 2009 [Bank #429]

Task: Transfer vital bus to alternate/normal power supplies.

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☐ YES ☒ NO

Safety Function: 6

K/A Rating/Importance: 062K4.10 RO 3.1 SRO 3.5
062A3.04 RO 2.7 SRO 2.9

Task Number: 0620403001 – PPO

Position: ☐ SRO ONLY ☐ RO/SRO ☒ NLO/RO/SRO

Task Standard: Transfer VBDP-3 and VBDP-8 back to VBIT-1A.

Preferred Evaluation Location:

☐ SIM ☒ PLANT ☐ ADMIN

Preferred Evaluation Method

☐ PERFORM ☒ SIMULATE

References:

OP-703, Section 4.6 & Enclosure 1, Rev 94

Validation Time: 10 minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: ☐ SAT ☐ UNSAT

Performance Time: _____

Examiner: _____
Printed Name Signature Date

Comment: _____

IN-PLANT JOB PERFORMANCE MEASURE

TOOLS/EQUIPMENT/PROCEDURES NEEDED:

Consumable copies of OP-703, Section 4.6 & Enclosure 1, Rev 94

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Primary Plant Operator.

Electricians have completed maintenance on VBIT-1A.
VBIT-1A is energized with a CVT core temperature of 93° C.

INITIATING CUES:

The CRS has directed you to transfer VBDP-3 and VBDP-8 back to their normal power source (VBIT-1A) per OP-703, Plant Distribution System, Section 4.6.1.

IN-PLANT JOB PERFORMANCE MEASURE

TIME START: _____

<p><u>STEP 1:</u></p> <p>Candidate obtains copy of OP-703.</p> <p><u>STANDARD:</u></p> <p>Candidate identifies where he/she would obtain OP-703.</p> <p><u>EXAMINER NOTE:</u></p> <p>Once the candidate has identified where he/she would find OP-703 provide the candidate with a copy of OP-703, Section 4.6 and Enclosure 1.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (Step 4.6.1.1)</p> <p>Procedure Note: Only one Vital Bus should be transferred at a time. All reset functions should be completed prior to transfer of subsequent Vital Bus power supplies.</p> <p>DETERMINE Plant effects of inadvertent de-energization of Vital Bus, <u>AND</u> REVIEW Enclosure 1, Static Switch Schematic, to familiarize yourself with the Static Switch</p> <ul style="list-style-type: none"> • A Vital Bus: <ul style="list-style-type: none"> ___ VBXS-1A ___ VBXS-3A ___ VBDP-3 ___ VBDP-8 <p><u>STANDARD:</u></p> <p>Candidate should verify if plant effects have been determined and review Enclosure 1.</p> <p><u>EXAMINER CUE:</u></p> <p>Inform the candidate that the CRS has reviewed this step, is aware of possible plant effects and will make all needed notifications.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (Step 4.6.1.2)</p> <p>NOTIFY Security of potential to de-energize VBDP-3 (Bkr 32 provides the alternate source for ACDP-196 and ACDP-199 transfer switches)</p> <p><u>STANDARD:</u></p> <p>Candidate verifies security notification.</p> <p><u>EXAMINER CUE:</u></p> <p>Inform candidate that security notification has been made.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 4:</u> (Step 4.6.1.3)</p> <p><u>IF</u> A Inverter startup is required, <u>THEN</u> PERFORM the following to energize VBIT-1A</p> <p><u>STANDARD:</u></p> <p>Initial cue states that the inverter is energized. This step is N/A.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 5:</u> (Step 4.6.1.4)</p> <p><u>WHEN</u> A Inverter startup is complete, <u>THEN</u> NOTIFY Electric Shop to verify CVT core temperature</p> <p><u>STANDARD:</u></p> <p>Initial cue states that CVT core temperature is 93° C. This step is N/A.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 6:</u> (Step 4.6.1.5)</p> <p>VERIFY Normal Inverter AC Output voltage</p> <ul style="list-style-type: none"> • Voltage is 120 (117.6 to 122.4) VAC <p><u>STANDARD:</u></p> <p>Candidate locates "Inverter Output" voltage meter and verifies approximately 120 volts.</p> <p><u>EXAMINER CUE:</u></p> <p>Voltage is "as seen".</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 7: (Step 4.6.1.6)</p> <p>Procedure Note: VBTR-4A input and output Bkrs are to remain closed at all times unless required open for maintenance</p> <p><u>WHEN</u> transferring Vital Bus from Alternate Source to Inverter, <u>THEN</u> VERIFY the following indications on VBXS-1A</p> <ul style="list-style-type: none"> • ___ Inverter Supplying Load lamp is OFF • ___ Alternate Source Supplying Load lamp is OFF • ___ In Sync lamp is OFF • ___ Inverter Available FU-204 lamp is LIT • ___ Auto Retransfer switch is OFF • ___ Alternate Source AC Input circuit bkr is OFF • ___ Manual Bypass switch is in ALTERNATE SOURCE TO LOAD position <p><u>STANDARD:</u></p> <p>Candidate locates VBXS-1A and verifies status.</p> <p><u>EXAMINER CUE:</u></p> <p>When candidate locates each device respond with the following:</p> <ul style="list-style-type: none"> • ___ Inverter Supplying Load lamp is OFF • ___ Alternate Source Supplying Load lamp is OFF • ___ In Sync lamp is OFF • ___ Inverter Available FU-204 lamp is ON • ___ Auto Retransfer switch is OFF • ___ Alternate Source AC Input circuit bkr is OFF • ___ Manual Bypass Switch is in ALTERNATE SOURCE TO LOAD position <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 8:</u> (Step 4.6.1.7)</p> <p>SELECT VBXS-1A Alternate Source AC Input circuit bkr to ON</p> <p><u>STANDARD:</u></p> <p>Candidate locates Alternate Source AC Input circuit bkr and selects to ON.</p> <p><u>EXAMINER CUE:</u></p> <p>Alternate Source AC Input circuit bkr is ON.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required to power VBDP-1A from inverter.</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 9:</u> (Step 4.6.1.8)</p> <p>VERIFY VBXS-1A Alternate Source Supplying Load lamp and In Sync lamps are LIT</p> <ul style="list-style-type: none"> • ___ Alternate Source Supplying Load lamp is LIT • ___ In Sync lamp is LIT <p><u>STANDARD:</u></p> <p>Candidate locates and verifies the Alternate Source Supplying Load and In Sync lamps are LIT.</p> <p><u>EXAMINER CUE:</u></p> <p>1. Alternate Source Supplying Load lamp is LIT. 2. In Sync lamp is LIT.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 10:</u> (Step 4.6.1.9)</p> <p>SELECT VBXS-1A Manual Bypass switch to NORMAL OPERATION position</p> <p><u>STANDARD:</u></p> <p>Candidate locates the Manual Bypass switch and rotates CCW to the NORMAL OPERATION position.</p> <p><u>EXAMINER CUE:</u></p> <p>Manual Bypass switch is selected to the NORMAL OPERATION position.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required to power VBDP-1A from inverter.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 11:</u> (Step 4.6.1.10)</p> <p>DEPRESS VBXS-1A Inverter to Load pushbutton</p> <p><u>STANDARD:</u></p> <p>Candidate locates the Inverter to Load pushbutton and depresses.</p> <p><u>EXAMINER CUE:</u></p> <p>Inverter to Load pushbutton is depressed.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Required to power VBDP-1A from inverter.</p> <p>SAT _____</p> <p>UNSAT _____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 12: (Step 4.6.1.11)</p> <p>VERIFY Inverter Supplying Load lamp is LIT and Alternate Source Supplying Load lamp is OFF</p> <ul style="list-style-type: none"> • <input type="checkbox"/> Inverter Supplying Load lamp is LIT • <input type="checkbox"/> Alternate Source Supplying Load lamp is OFF <p>STANDARD:</p> <p>Candidate locates and verifies the Inverter Supplying Load lamp is LIT and the Alternate Source Supplying Load lamp is OFF.</p> <p>EXAMINER CUE:</p> <p>Inverter Supplying Load lamp is LIT. Alternate Source Supplying Load lamp is OFF.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 13: (Step 4.6.1.12)</p> <p>SELECT VBXS-1A Auto Retransfer switch to ON</p> <p>STANDARD:</p> <p>Candidate locates and selects the VBXS-1A Auto Retransfer switch to ON.</p> <p>EXAMINER CUE:</p> <p>Auto Retransfer switch is ON.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 14: (Step 4.6.1.13)</p> <p>VERIFY VBIT-1A status meters are stable</p> <p><u>STANDARD:</u></p> <p>Candidate verifies the 6 status meters are stable.</p> <p><u>EXAMINER CUE:</u></p> <p>All meters are "as seen". Inform candidate that another operator will transfer VBXS-3A to the inverter.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>TERMINATION CRITERIA:</u></p> <p>VBDP-3 powered from VBIT-1A.</p>	
<p style="text-align: center;">END OF TASK</p>	

TIME STOP:_____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Primary Plant Operator.

Electricians have completed maintenance on VBIT-1A.

VBIT-1A is energized with a CVT core temperature of 93° C.

INITIATING CUES:

The CRS has directed you to transfer VBDP-3 and VBDP-8 back to their normal power source (VBIT-1A) per OP-703, Plant Distribution System, Section 4.6.1.