

**JPM TITLE:** Manually Makeup to the VCT

**JPM NUMBER:** PBN JPM P004.027b.COT

**REV.** 7

**TASK NUMBER(S) / TASK TITLE(S):** PBN P004.027.COT / Manually Blend to the VCT / RWST

**K/A NUMBERS:** 004 A4.12

**K/A VALUE:** 3.8 / 3.3

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐

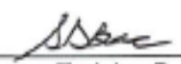
Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by:	Mike Angle 	5/20/2014 
	Instructor/Developer	Date
Reviewed by:	Mike Vana 	7/10/14
	Instructor (Instructional Review)	Date
Validated by:		8/7/2014
	SME (Technical Review)	Date
Approved by:	Randall Amundson / R.C. And 	8/7/14
	Training Supervision	Date
Approved by:	Steve Bone 	8/7/14
	Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- You are the Unit 1 Operator at the Controls.
- Leakage at the charging pump seals has resulted in the need to manually blend to the VCT to maintain normal VCT level.
- The CVCS system is in its normal at-power alignment with a single letdown orifice in service.
- Unit 1 RCS boron concentration is 948 ppm.
- The on-service boric acid storage tank, T-6A, concentration is 3.75%.
- Unit 1 Letdown Gas Stripper is on-line.

**INITIATING CUES (IF APPLICABLE):**

- OS1 directs you to raise VCT level approximately 15% at the current RCS boron concentration per OP 5B, Blender Operation / Dilution / Boration, Attachment G, Manual Blend to the RCS.
- **NOTE: The blend may be left in the CVCS piping since frequent blends are currently required.**

### JPM PERFORMANCE INFORMATION

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical N</b>	4.1 DETERMINE the desired blender output concentration.
<b>Standard:</b>	The examinee determines the existing acid and water flow setpoints for the present boron concentration by referencing: <ul style="list-style-type: none"> <li>○ Operating experience, or</li> <li>○ Using the Blender Data Manual</li> </ul>
<b>Evaluator Note:</b>	The student should reference Table 4 of the Blender Data Manual to determine if the boron concentration is set correctly.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 2 Critical Y</b>	4.2 SET HC-111, RMUW Flow Controller, to desired FLOWRATE.
<b>Standard:</b>	The examinee determines that controller HC-111 is set at 50 gpm and resets to 40 gpm.
<b>Evaluator Note:</b>	If the examinee leaves the RMUW controller set at 50 gpm, then this step becomes NOT critical and step 3 becomes critical.
<b>Evaluator Cue:</b>	If the incorrect controller setting for 1HC-111, RMUW Flow controller, is reported to OS1, then acknowledge the report and direct the examinee to set the controller to the correct setting and continue making up to the VCT.
<b>Performance:</b>	<b>SATISFACTORY ____ UNSATISFACTORY ____</b>
<b>Comments:</b>	_____

<b>Performance Step: 3 Critical N</b>	4.3 SET HC-110, Boric Acid Flow Hand Controller, to desired FLOWRATE.
<b>Standard:</b>	The examinee determines that no adjustment of controller 1HC-110 is necessary.
<b>Evaluator Note:</b>	The dial should remain unchanged if the RMUW controller is adjusted to 40 gpm in the previous step, (then this step is NOT critical). This step becomes <b>CRITICAL</b> if the RMUW controller is left at 50 gpm. Then the boric acid controller should be set at approximately 8.5 gpm.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 4 Critical N</b>	4.4 ENSURE the following valve control switch positions: <ul style="list-style-type: none"> <li>• CV-111, RMW to Z-1 BA Blender Flow Control, in AUTO</li> <li>• CV-110A, BA TO Z-1 BA Blender Inlet FCV, in AUTO</li> <li>• CV-110B, Z-1 BA Blender Outlet FCV in AUTO <u>or if</u> VCT BYPASSED, <b><u>THEN</u></b> OPEN (circle one).</li> <li>• CV-110C, T-4 VCT Boric Acid Inlet Flow Control in AUTO <u>or if</u> VCT BYPASSED, <b><u>THEN</u></b> OPEN (circle one).</li> </ul>
<b>Standard:</b>	The examinee determines: <ul style="list-style-type: none"> <li>• 1CV-111, RMW to Z-1 BA Blender Flow Control is in AUTO</li> <li>• 1CV-110A, BA TO Z-1 BA Blender Inlet FCV is in AUTO</li> <li>• 1CV-110B, Z-1 BA Blender Outlet FCV is in AUTO</li> <li>• 1CV-110C, T-4 VCT Boric Acid Inlet Flow Control is in AUTO</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 5 Critical Y</b>	4.5 PLACE the Reactor Makeup Mode Selector Switch to BLEND.
<b>Standard:</b>	The examinee places the Reactor Makeup Mode Selector Switch to the BLEND position.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 6 Critical Y</b>	4.6 PLACE the Reactor Makeup Control Switch to START.
<b>Standard:</b>	The examinee places the Reactor Makeup Control Switch to the START position and ensures the RED light is LIT.
<b>Evaluator Note:</b>	Verification of the RED light is NOT critical.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 7 Critical N</b>	4.7 <b><u>WHEN</u></b> required to maintain VCT pressure and level, <b><u>THEN</u></b> <b>PLACE</b> CV-112A, VCT Level Control Divert, to DIVERT.
<b>Standard:</b>	The examinee acknowledges the guidance of this step and returns to it as it is needed to control VCT pressure and level, and moves on with the procedure.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 8 Critical N</b>	4.8 While CONTINUING with this procedure, CHECK system for proper response <b>AND MONITOR</b> the following parameters: <ul style="list-style-type: none"> <li>• VCT level / pressure</li> <li>• RCP seal leakoff flow</li> <li>• Rx power / Count Rate</li> <li>• RCS temperature</li> </ul>
<b>Standard:</b>	The examinee monitors the listed parameters.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

**NOTE: AFTER THE BLEND IS STARTED AND IS STABLE, THEN INSERT TRIGGER 1 TO CAUSE THE RMUW CONTROLLER TO FAIL. DO NOT INSERT THE MALFUNCTION UNTIL THE BLEND IS STARTED AND STABLE.**

<b>Performance Step: 9 Critical Y</b>	The examinee responds to the RMUW deviation alarm or increased dilution rate and takes action to secure makeup to the VCT or takes manual control of 1HC-111 and adjusts RMW flow to ~40 gpm.
<b>Standard:</b>	The examinee secures makeup to the VCT or takes manual control of 1HC-111 and adjusts RMW flow to ~40 gpm prior to VCT level rise of $\geq 15\%$ .
<b>Evaluator Note:</b>	ARB 1C04 1C 3-8, Reactor Makeup Water Flow Deviation, allows either option to respond. The RMW deviation alarm may NOT actuate if makeup is promptly secured.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

**Terminating Cues:** This completes the JPM.

**Stop Time:** \_\_\_\_\_

# JOB PERFORMANCE MEASURE

**JPM TITLE:** Raise Pressurizer Level in Manual

**JPM NUMBER:** PBN JPM P002.009.COT

**REV.** 0

**TASK NUMBER(S) / TASK TITLE(S):** PBN P002.009.COT / Fill and Vent the RCS

**K/A NUMBERS:** 002.A1.02

**K/A VALUE:** 3.6/3.9

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

<b>Developed by:</b>	Andrew Zommers Instructor/Developer	Date
<b>Reviewed by:</b>	Jeff Hinze Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugniet SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson Training Supervision	Date
<b>Approved by:</b>	Tom Larson Training Program Owner	Date



I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- You are the Balance of Plant Operator.
- Unit 1 is coming out of an outage filling and venting the RCS per OP 4A, Filling and Venting Reactor Coolant System.
- The RCS is depressurized with RCS temperature being maintained by RHR at 122°F.
- Pressurizer Level is 58% Cold Cal, and needs to be raised for the next shift.
- Purification flow is approximately 42 gpm.

**INITIATING CUES (IF APPLICABLE):**

- OS1 directs you to raise Pressurizer level to 60% Cold Cal with 1P-2A Charging Pump from the VCT using OP 4A, Filling and Venting Reactor Coolant System starting with Step 5.10.15.

## JPM PERFORMANCE INFORMATION

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical <u>N</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps: a. SHUT CV-135, LP Letdown Line Backpressure CV, to secure Letdown flow.
<b>Standard:</b>	Examinee shuts 1CV-135 by ensuring controller is in Manual and Shut.
<b>Evaluator Note:</b>	<b>The following may actuate when CV-135 is shut:</b> <ul style="list-style-type: none"> <li>• PPCS Priority Alarm – Letdown Line Flow</li> <li>• Annunciator: 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal <math>\Delta P</math> Low</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 2</b> <b>Critical <u>Y</u></b>	5.10.15 <b>IF</b> necessary to raise Pressurizer level <b>OR</b> reduce VCT level, <b>THEN COMPLETE</b> the following steps: b. <b>PERFORM one</b> of the following (N/A option NOT used): <ul style="list-style-type: none"> <li>OPEN CV-112C, T-4 VCT Outlet To Chg Pump Suct MOV</li> </ul>
<b>Standard:</b>	Examinee opens 1CV-112C.
<b>Evaluator Note:</b>	<b>The following may clear when 1CV-112C opens:</b> <ul style="list-style-type: none"> <li>Annunciator: 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal <math>\Delta P</math> Low</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 3</b> <b>Critical <u>Y</u></b>	5.10.15 <b>IF</b> necessary to raise Pressurizer level <b>OR</b> reduce VCT level, <b>THEN COMPLETE</b> the following steps: c. <b>START</b> a Charging Pump to raise Pressurizer level (VCT level will also lower if CV-112C is OPEN)
<b>Standard:</b>	Examinee should start 1P-2A Charging pump per turnover.
<b>Evaluator Note:</b>	<b>PPCS VCT Pressure Low Alarm may be received.</b>
<b>Evaluator Cue:</b>	<b>If asked, PAB AO reports and pre-start checks of 1P-2A Charging Pump are satisfactory.</b>  <b>If asked, PAB AO reports back any post-start checks of 1P-2A Charging Pump are satisfactory.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 4</b> <b>Critical <u>Y</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps:  d. <b><u>WHEN</u></b> desired level is attained, <b><u>THEN</u></b> <b>STOP</b> Charging Pump.
<b>Standard:</b>	Examinee stops 1P-2A Charging Pump.
<b>Evaluator Note:</b>	<b>The following may alarm when the charging pump is secured:</b> • Annunciator: 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal $\Delta$ P Low
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 5</b> <b>Critical <u>N</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps:  e. <b><u>IF</u></b> CV-112C is OPEN, <b><u>THEN</u></b> <b>OPEN</b> CV-112B (Mark N/A if CV-112C is SHUT)
<b>Standard:</b>	Examinee opens 1CV-112B.
<b>Evaluator Note:</b>	<b>The following may clear when CV-112B is opened:</b> • Annunciator: 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal $\Delta$ P Low
<b>Evaluator Note:</b>	<b>1CV-112B is opened to satisfy an interlock which allows closing of 1CV-112C.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 6</b> <b>Critical <u>N</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps: f. <b>ENSURE</b> SHUT CV-112C, T-4 VCT Outlet To Chg Pump Suct MOV.
<b>Standard:</b>	Examinee shuts 1CV-112C.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 7</b> <b>Critical <u>N</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps: g. <b>SHUT</b> CV-112B, T-13 RWST To Chg Pump Suction MOV.
<b>Standard:</b>	Examinee shuts 1CV-112B.
<b>Evaluator Note:</b>	<b>The following may alarm when CV-112B is closed:</b> • <b>Annunciator: 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal ΔP Low</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 8</b> <b>Critical <u>N</u></b>	5.10.15 <b><u>IF</u></b> necessary to raise Pressurizer level <b><u>OR</u></b> reduce VCT level, <b><u>THEN</u></b> <b>COMPLETE</b> the following steps: h. <b>ADJUST</b> CV-135, LP Letdown Line Backpress CV, to attain desired purification flow rate.
<b>Standard:</b>	Examinee should stabilize pressurizer level and establish about 42 gpm purification flow.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

**Terminating Cues:**     **THIS COMPLETES THE JPM**

**Stop Time:** \_\_\_\_\_

**JPM TITLE:** Respond to a Loss of Reactor Coolant to a Shutdown Unit

**JPM NUMBER:** PBN JPM P000.046.COT **REV.** 7

**TASK NUMBER(S) / TASK TITLE(S):** PBN P000.046.COT / Respond to a loss of coolant accident in a shutdown unit.

<b>K/A NUMBERS:</b>	009 EA1.01 009 EA1.04	<b>K/A VALUE:</b>	4.4 / 4.3 3.7 / 3.5
	009 EA1.08 009 EA1.16		4.0 / 4.1 4.2 / 4.2
	009 EA2.01 009 EA2.39		4.2 / 4.8 4.3 / 4.7

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

<b>Developed by:</b>	Andrew Zommers	
	Instructor/Developer	Date
<b>Reviewed by:</b>	Jeff Hinze	
	Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugniet	
	SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson	
	Training Supervision	Date
<b>Approved by:</b>	Tom Larson	
	Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- Unit 1 is in the process of cooling down from hot standby to cold shutdown.
- OP-3C Unit 1, Hot Standby to Cold Shutdown Unit 1 in progress; completed through Step 5.21, ready to place RHR in operation.
- RCS temperature is approximately 340 °F.
- RCS pressure is approximately 300 psig.
- Pressurizer level suddenly begins to lower.

**INITIATING CUES (IF APPLICABLE):**

- The OS1 directs you to respond to the loss of pressurizer level in accordance with SEP-2 Unit 1, Shutdown LOCA Analysis to raise pressurizer level.



## JPM PERFORMANCE INFORMATION

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

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**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical N</b>	SEP-2 Unit 1 Shutdown LOCA Analysis 1. Check both SI Accumulators - ISOLATED
<b>Standard:</b>	The Examinee checks both SI accumulators isolated by checking the accumulator MOVs, 1SI-841A and 1SI-841B deenergized and the SI Spray Ready Status Lights for 1SI-841A and 1SI-841B lit.
<b>Evaluator Note:</b>	<b>Only provide the Examinee with SEP-2, then provide the next reference when requested (SEP-2.1, SEP-2.2 or SEP-2.3)</b>
<b>Evaluator Note:</b>	<b>If asked an extra operator will ACKNOWLEDGE PPCS alarms</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	

<b>Performance Step: 2</b> <b>Critical Y</b>	SEP-2 Unit 1 Shutdown LOCA Analysis 2. Check One Train of RHR Aligned For Decay Heat Removal
<b>Standard:</b>	<ul style="list-style-type: none"> <li>The Examinee checks that RHR is not aligned for decay heat removal by checking the status of 1P-10A&amp;B RHR pumps suction header MOVs, 1RH-700 and 1RH-701 and the RHR return to RC MOV, 1RH-720 and</li> <li>Goes to <u>SEP-2.1 Unit 1, Shutdown LOCA With RHR Aligned For Low Head Injection.</u></li> </ul>
<b>Evaluator Note:</b>	<ul style="list-style-type: none"> <li>SEP-2.2 and SEP-2.3 are available is an incorrect transition is made.</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 3</b> <b>Critical N</b>	SEP-2.1, Shutdown LOCA with RHR Aligned for Low Head Injection 1. Isolate RCS Letdown: a. Shut letdown orifice outlet valves <ul style="list-style-type: none"> <li>1CV-200A</li> <li>1CV-200B</li> <li>1CV-200C</li> </ul>
<b>Standard:</b>	The Examinee places the control switches for the letdown orifice outlet valves, 1CV-200A, 1CV-200B and 1CV-220C to the close position and verifies they go shut.
<b>Evaluator Note:</b>	The orifice outlet valves may already be shut due to low pressurizer level and interlock with 1RC-427.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 4</b> <b>Critical N</b>	1. Isolate RCS Letdown: b. Shut RCS loop B cold leg to CVCS letdown isolation <ul style="list-style-type: none"> <li>• 1RC-427</li> </ul>
<b>Standard:</b>	The Examinee places the control switch for the RCS loop B cold leg to CVCS letdown isolation, 1RC-427 to the close position and verifies it goes shut.
<b>Evaluator Note:</b>	1RC-427, RCS loop B cold leg to CVCS letdown isolation may already be shut due to low pressurizer level.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 5</b> <b>Critical Y</b>	2. Establish Design Charging Flow Rate Using RWST Suction: a. Open RWST charging pump suction <ul style="list-style-type: none"> <li>• 1CV-112B</li> </ul>
<b>Standard:</b>	The Examinee places the control switch for the RWST charging pump suction, 1CV-112B to the open position and verifies it goes open.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 6</b> <b>Critical Y</b>	2. Establish Design Charging Flow Rate Using RWST Suction: b. Shut VCT outlet valve <ul style="list-style-type: none"> <li>• 1CV-112C</li> </ul>
<b>Standard:</b>	The Examinee places the control switch for the VCT outlet valve, 1CV-112C to the close position and verifies it shut.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 7</b> <b>Critical Y</b>	2. Establish Design Charging Flow Rate Using RWST Suction: c. Establish 76 gpm charging flow
<b>Standard:</b>	The Examinee adjusts running charging pump(s) speed and 1HC-142 valve position to establish 76 gpm charging flow.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 8</b> <b>Critical N</b>	3. Check Leak Rate – GREATER THAN CHARGING FLOW: <ul style="list-style-type: none"> <li>○ PZR LEVEL TRENDING LOWER  <u>OR</u></li> <li>○ PZR level less than [32%] 13% <ul style="list-style-type: none"> <li>• 1LI-433</li> </ul> </li> <li><u>OR</u></li> <li>○ RCS subcooling based on core exit thermocouples less than [74°F] 35°F</li> </ul>
<b>Standard:</b>	The Examinee checks pressurizer level trending lower or less than [32%] 10% on 1LI-433 or RCS subcooling less than [74°F] 35°F.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 9</b> <b>Critical Y</b>	4. Establish Maximum Charging Flow: a. Fully open charging flow control valve <ul style="list-style-type: none"> <li>• 1HC-142</li> </ul>
<b>Standard:</b>	The Examinee fully opens charging flow control valve, 1HC-142.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 10</b> <b>Critical Y</b>	4. Establish Maximum Charging Flow: b. Start additional charging pumps <ul style="list-style-type: none"> <li>• 1P-2A</li> <li>• 1P-2B</li> <li>• 1P-2C</li> </ul>
<b>Standard:</b>	The Examine starts additional available charging pumps, 1P-2A, 1P-2B and 1P-2C by placing the control switch(es) to the Start position.
<b>Evaluator Note:</b>	<b>The student may choose to establish maximum charging flow using just 'A' and 'C' charging pumps, or all three charging pumps.</b>
<b>Evaluator Cue:</b>	<b>If asked, Charging Pump 1P-2B can be run.</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	

<b>Performance Step: 11</b> <b>Critical Y</b>	4. Establish Maximum Charging Flow: c. Limit charging flow to less than 140 gpm by adjusting charging pump speed as necessary
<b>Standard:</b>	The Examinee adjusts running charging pump(s) speed to limit charging flow to less than 140 gpm.
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	

<b>Performance Step: 12</b> <b>Critical N</b>	5. Initiate Containment Isolation
<b>Standard:</b>	The Examinee depresses both containment isolation pushbuttons and acknowledges the annunciator Unit 1 Containment Isolation (C01B 2-5).
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 13</b> <b>Critical Y</b>	6. Stop RCPs <ul style="list-style-type: none"> <li>• 1P-1A</li> <li>• 1P-1B</li> </ul>
<b>Standard:</b>	The Examinee places the control switches for reactor coolant pumps, 1P-1A and 1P-1B to the stop position and verifies they are secured.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 14</b> <b>Critical N</b>	7. Initiate the following actions a. Evacuate Containment
<b>Standard:</b>	The Examinee performs containment evacuation.
<b>Evaluator Note:</b>	Examinee to sound plant evacuation alarm and announce that personnel to leave unit 1 containment.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 15</b> <b>Critical N</b>	7. Initiate the following actions b. Notify DCS and implement Emergency Plan
<b>Standard:</b>	The Examinee directs the OS1/SM to notify the DCS and implement the Emergency Plan.
<b>Evaluator Cue:</b>	I will notify the DCS and implement emergency plan.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 16</b> <b>Critical N</b>	8. Check Low Temperature Overpressure Protection In Service
<b>Standard:</b>	The Examinee checks Low Temperature Overpressure Protection In Service by: <ul style="list-style-type: none"> <li>• Checking Key #3(s) installed and in the on position,</li> <li>• The 1RC-431C Low Temp Overpress Enabled (1PT-493) light lit and</li> <li>• The 1RC-430 Low Temp Overpress Enabled (1PT-420) light lit.</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 17</b> <b>Critical N</b>	9. Establish Flow From One SI Pump: a. Open both RWST outlet to SI pump valves <ul style="list-style-type: none"> <li>• 1SI-825A</li> <li>• 1SI-825B</li> </ul>
<b>Standard:</b>	The Examinee verifies 1SI-825A and 1SI-825B RWST outlet to SI pump valves are open.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 18</b> <b>Critical Y</b>	9. Establish Flow From One SI Pump: b. Open both train "B" reactor vessel injection valves <ul style="list-style-type: none"> <li>• 1SI-878A</li> <li>• 1SI-878C</li> </ul>
<b>Standard:</b>	The Examinee places the control switches for the train "B" reactor vessel injection valves, 1SI-878A and 1SI-878C to the open position and verifies they open.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 19</b> <b>Critical Y</b>	9. Establish Flow From One SI Pump: c. Start SI pump B <ul style="list-style-type: none"> <li>• 1P-15B</li> </ul>
<b>Standard:</b>	The Examinee places the control switch for the SI pump "B," 1P-15B to the start position and verifies pump starts and has proper discharge pressure and flow.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 20</b> <b>Critical N</b>	9. Establish Flow From One SI Pump: d. Throttle train B SI pump discharge header as necessary to maintain subcooling greater than [74°F] 35°F <ul style="list-style-type: none"> <li>• 1SI-866B</li> </ul>
<b>Standard:</b>	The Examinee throttles train B SI pump discharge header, 1SI-866B as necessary to maintain subcooling greater than [74°F] 35°F.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	



<b>Performance Step: 21</b> <b>Critical N</b>	10. Check If Low Head SI Flow Is Required: a. RCS subcooling based on core exit thermocouples less than [74°F] 35°F
<b>Standard:</b>	<ul style="list-style-type: none"> <li>The Examinee checks subcooling greater than [74°F] 35°F and</li> <li>Goes to <u>Step 12</u>.</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 22</b> <b>Critical N</b>	12. Verify Containment Sump Recirculation Not Required: a. Check RWST level – GREATER THAN OR EQUAL TO 60%
<b>Standard:</b>	The Examinee checks RWST level greater than 60%.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 23</b> <b>Critical N</b>	13. Verify Adequate Injection Flow: a. Check reactor vessel level narrow range – GREATER THAN 20 FT
<b>Standard:</b>	The Examinee checks reactor vessel level narrow range on 1C20 greater than 20 feet.
<b>Evaluator Note:</b>	This is a continuous action step.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 24</b> <b>Critical N</b>	13. Verify Adequate Injection Flow: b. Check core exit thermocouples STABLE OR TRENDING LOWER
<b>Standard:</b>	The Examinee checks core exit thermocouples at 1C20 stable or trending lower.
<b>Evaluator Note:</b>	This is a continuous action step.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

**Terminating Cues:** The evolution is complete.

**Stop Time:** \_\_\_\_\_

**JPM TITLE:** RAISE STEAM GENERATOR WATER LEVEL USING AUXILIARY FEEDWATER

**JPM NUMBER:** PBN JPM P061.007A.COT **REV.** 1

**TASK NUMBER(S) / TASK TITLE(S):** PBN P061.007.COT / RAISE STEAM GENERATOR WATER LEVEL USING AUXILIARY FEEDWATER

**K/A NUMBERS:** 061.A2.05 **K/A VALUE:** 3.1/3.4

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☐ RO ☐ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐  
Simulator: ☒ Other: ☐  
Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

<b>Developed by:</b>	Jeffrey Hinze	
	Instructor/Developer	Date
<b>Reviewed by:</b>	Andrew Zommers	
	Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugniet	
	SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson	
	Training Supervision	Date
<b>Approved by:</b>	Tom Larson	
	Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR  
RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- P-38A SSG Feed Pump is OOS for maintenance.
- Unit 1 is in Mode 5, Cold Shutdown.
- Chemistry requests that Steam Generator 'A' level be raised to support performing a S/G bleed and feed.
- A flow rate of 150 to 200 gpm is desired when raising level.
- Starting duty limitations for 1P-53, Motor Driven Auxiliary Feedwater Pump, are met.
- An AO is standing by locally in the AFW Pump Room to monitor equipment.
- The 4<sup>th</sup> License will monitor pump bearing temperatures on 1TR-2000B.

**INITIATING CUES (IF APPLICABLE):**

- OS1 directs you to raise Unit 1 Steam Generator 'A' level to 90-95% NR in accordance with 1-SOP-AF-001, Auxiliary Feedwater System Operation – Motor Driven, Section 5.3.
- All applicable Initial Conditions in Section 4.0 are met.

## JPM PERFORMANCE INFORMATION

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical <u>N</u></b>	Unit 1 in Mode 5, 6 or DEFUELED
<b>Standard:</b>	The Examinee signs off step per information given in turnover.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 2</b> <b>Critical <u>N</u></b>	Align the SG to receive water: a. Ensure vent path available for Steam Generator(s) to be filled. b. UPDATE CL 1E, Containment Closure Checklist Unit 1.
<b>Standard:</b>	The Examinee aligns vent path and verifies CL 1E updated.
<b>Evaluator Cue:</b>	<b>If asked, the OS directs examinee to use 1MS-2016, A S/G Atmospheric for a vent path.</b>  <b>If asked, the OS informs examinee CL 1E will be updated by the 4<sup>th</sup> license for the Unit 1 a S/G Atmospheric.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 3</b> <b>Critical <u>Y</u></b>	<b>START</b> 1P-53, Motor-Driven Aux Feed Pump (1C03). • <b>RECORD</b> start time.
<b>Standard:</b>	The Examinee places the control switch for 1P-53 to the Start position and records time.
<b>Evaluator Note:</b>	<b>Time recording is not critical for this step.</b>
<b>Evaluator Cue:</b>	If asked, the AO reports normal pre-start checks for 1P-53. If asked the AO reports normal post-start of 1P-53.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 4</b> <b>Critical <u>N</u></b>	<b>CHECK</b> AFP recirc valves are OPEN. • 1AF-4073A, 1P-53 AFP Recirculation Isol • 1AF-4073B, 1P-53 AFP Recirculation Isol
<b>Standard:</b>	Examinee checks recirculation isolations OPEN.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 5</b> <b>Critical <u>Y</u></b>	<b>SELECT and PLACE</b> required flow indicator controller(s) to MANUAL: (N/A if not selected) <ul style="list-style-type: none"> <li>• 1AF-4074A, 1P-53 AFP to HX-1A Flow Control</li> <li>• 1AF-4074B, 1P-53 AFP to HX-1B Flow Control</li> </ul>
<b>Standard:</b>	The Examinee places the controller 1AF-4074A to MANUAL and N/A's 1AF-4074B.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 6</b> <b>Critical <u>N</u></b>	<b>SELECT and ADJUST</b> AFW flow to obtain desired fill rate to selected Steam Generators: (N/A if not selected) <ul style="list-style-type: none"> <li>• 1AF-4074A, 1P-53 AFP to HX-1A Flow Control</li> <li>• 1AF-4074B, 1P-53 AFP to HX-1B Flow Control</li> </ul>
<b>Standard:</b>	The Examinee adjusts controller 1AF-4074A to obtain 150-200 GPM feed flow and N/A's 1AF-4074B.
<b>Evaluator Note:</b>	<b>Ensure TRIGGER 11 inserted after AFW flow was raised to greater than 150 gpm. This will cause annunciator C01 A 4-9, Aux Feed Pump Suction Pressure Low and 1C03 1D 1-8, 1P-53 Low Suction Pressure Trip to actuate</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 7</b> <b>Critical <u>N</u></b>	At 1C03 <b>MONITOR</b> 1P-53, Unit 1 Aux Feedwater Motor-driven Pump, for proper operation: <ul style="list-style-type: none"> <li>• 1FI-4073, 1P-53 AFP Discharge Flow Indicator.</li> <li>• 1F-4074A, 1P-53 AFP to HX-1A Flow (PPCS).</li> <li>• 1PI-4071, 1P-53 Discharge Pressure</li> <li>• 1PI-4069, 1P-53 Suction Pressure</li> <li>• 1TR-2000B, Point 29, 1P-53 Inboard Pump Bearing. <b>(see Cue)</b></li> <li>• 1TR-2000B, Point 30, 1P-53 Outboard Pump Bearing. <b>(see Cue)</b></li> </ul>
<b>Standard:</b>	The Examinee will monitor 1P-53 parameters trying to adjust flow to establish a flow rate of 150-200 gpm as specified in the Initiating Cue.
<b>Evaluator Cue:</b>	<b>Inform Examinee that the 4<sup>th</sup> License will monitor bearing temperatures on 1TR-2000B (recorder is on a back panel) AND check PPCS Data.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 8</b> <b>Critical <u>N</u></b>	DISPATCH AO to locally MONITOR 1P-53, AFW Motor-driven Pump for proper operation.
<b>Standard:</b>	The Examinee informs AO to monitor pump locally.
<b>Evaluator Cue:</b>	<b>All indications are normal (noise, packing leakage, oil levels) and step is SAT per AO.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____



<b>Performance Step: 9 Critical <u>N</u></b>	At 1C03 <b>MONITOR</b> 1P-53, Unit 1 Aux Feedwater Motor-driven Pump, for proper operation:
<b>Standard:</b>	The Examinee acknowledges and references ARP C01 A 4-9, Aux Feed Pump Suction Pressure Low
<b>Evaluator Note:</b>	<b>If the examinee references ARP 1C03 1D 1-8 first, go to Step 11</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 10 Critical <u>N</u></b>	ARP C01 A 4-9 Aux Feed Pump Suction Pressure Low 3.1 Check Condensate Storage Tank Level 3.2 Determine which Aux Feedwater Pump caused the alarm 3.3 Check Technical Specification requirements, Section 3.7.6
<b>Standard:</b>	The Examinee 1 Checks CST level satisfactory 2 Determines 1P-53 is the cause of the alarm 3 Informs OS1 to check Technical Specification requirements, Section 3.7.6
<b>Evaluator Cue:</b>	<b>If informed to check tech specs, acknowledge.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 11</b> <b>Critical <u>N</u></b>	At 1C03 <b>MONITOR</b> 1P-53, Unit 1 Aux Feedwater Motor-driven Pump, for proper operation:
<b>Standard:</b>	The Examinee acknowledges and references ARP 1C03 1D 1-8, 1P-53 Low Suction Pressure Trip
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	<hr/>

<b>Performance Step: 12</b> <b>Critical <u>Y</u></b>	ARP 1C03 1D 1-8, 1P-53 Low Suction Pressure Trip 3.1 Ensure 1P-53 is <b>NOT</b> running
<b>Standard:</b>	The Examinee stops 1P-53
<b>Evaluator Cue:</b>	<b>If asked for a prompt from OS1 to secure 1P-53, instruct the Examinee to follow the directions contained in the ARP.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	<hr/>

<b>Performance Step: 13</b> <b>Critical <u>N</u></b>	Inform the OS1 of present plant conditions.
<b>Standard:</b>	The Examinee informs the OS1 that: <ul style="list-style-type: none"> <li>1P-53 MDAFP experienced a low suction pressure condition and was secured.</li> </ul>
<b>Evaluator Cue:</b>	<b>OS1 acknowledges your report.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

**Terminating Cues:** The JPM is complete.

**Stop Time:** \_\_\_\_\_

# JOB PERFORMANCE MEASURE

**JPM TITLE:** Align Containment Spray Pump for Containment Sump Recirculation with Suction Supplied by the RHR Pump

**JPM NUMBER:** PBN JPM P000.055a.COT **REV.** 1

**TASK NUMBER(S) / TASK TITLE(S):** PBN P000.055.COT / Transfer to Sump Recirculation

**K/A NUMBERS:** 026 K4.01  
026 A4.01 **K/A VALUE:** 4.2 / 4.3  
4.5 / 4.3

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐  
Simulator: ☒ Other: ☐  
Lab: ☐

Time for Completion: 20 Minutes Time Critical: Yes

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

Developed by:	Mike Angle <i>[Signature]</i> Instructor/Developer	5/20/2014 8/7/2014 Date
Reviewed by:	<i>[Signature]</i> Instructor (Instructional Review)	07-02-2014 Date
Validated by:	<i>[Signature]</i> <i>[Signature]</i> SME (Technical Review)	07-02-2014 Date
Approved by:	Randall Amundson / R.C. Amundson Training Supervision	8/7/14 Date
Approved by:	Steve Bone / <i>[Signature]</i> Training Program Owner	8-7-14 Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- You are the Balance of Plant Operator.
- A large break LOCA has occurred on Unit 1.
- EOP actions up to step 33, Align Containment Spray for Recirculation, of EOP-1.3, Transfer to Containment Sump Recirculation - Low Head Injection, are complete.
- BOTH trains of RHR are AVAILABLE for sump recirculation with Train B operating on recirc.
- Containment Spray Pumps have just been placed in PULL OUT per EOP-1.3 foldout page criteria.

**INITIATING CUES (IF APPLICABLE):**

- OS1 directs you to align Train A of Containment Spray for Sump Recirculation per EOP-1.3 Attachment B, Containment Spray Lineup for Sump Recirculation - Two Trains of RHR.

**NOTE: THIS JPM IS TIME CRITICAL.**

### JPM PERFORMANCE INFORMATION

**Start Time:** \_\_\_\_\_ *Evaluator! - Ensure JPM Start Time is documented.*

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

**EVALUATOR NOTE:** *This JPM is Time Critical.  
Ensure the JPM Start Time AND the Containment Spray Pump Start Time is documented.*

<b>Performance Step: 1</b> <b>Critical N</b>	B1 Check if Containment Spray should be Aligned for Recirculation: a. RWST level - LESS THAN 17% b. One RHR train - AVAILABLE FOR CONTAINMENT SPRAY RECIRCULATION <ul style="list-style-type: none"> <li>RHR pump - ONE RUNNING ON RECIRCULATION</li> <li>RHR pump - ONE <u>NOT</u> RUNNING AND AVAILABLE</li> </ul>
<b>Standard:</b>	The examinee verifies: <ul style="list-style-type: none"> <li>RWST level is less than 17%</li> <li>'A' RHR train is available for Containment Spray Recirculation</li> </ul>
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 2 Critical Y</b>	<p>B2 Verify Containment Spray has been Stopped:</p> <ul style="list-style-type: none"> <li>a. <b>Ensure containment spray signal - RESET</b></li> <li>b. <b>Ensure both containment spray pumps - IN PULL OUT</b> <ul style="list-style-type: none"> <li>• 1P-14A</li> <li>• 1P-14B</li> </ul> </li> <li>c. <b>Ensure both containment spray pump RWST suction MOVs - SHUT</b> <ul style="list-style-type: none"> <li>• 1SI-870A</li> <li>• 1SI-870B</li> </ul> </li> <li>d. <b>Ensure both spray additive eductor suction valves - SHUT</b> <ul style="list-style-type: none"> <li>• 1SI-836A</li> <li>• 1SI-836B</li> </ul> </li> </ul>
<b>Standard:</b>	<p>The examinee:</p> <ul style="list-style-type: none"> <li>a. Ensures the Containment Spray signal is RESET</li> <li>b. Verifies BOTH Unit 1 Containment Spray Pumps are in PULL OUT</li> <li>c. Shuts both 1SI-870A and 1SI-870B MOVs. <b>(1SI-870A is CRITICAL)</b></li> <li>d. Ensures both 1SI-836A and 1SI-836B, spray eductor valves are shut</li> </ul>
<b>Evaluator Note:</b>	Steps B2 a, b, and d are NOT critical.
<b>Performance:</b>	<b>SATISFACTORY ____ UNSATISFACTORY ____</b>
<b>Comments:</b>	_____

<b>Performance Step: 3 Critical Y</b>	<p>B3 Determine Train of Containment Spray to Place on Recirculation:</p> <ul style="list-style-type: none"> <li>a. Check containment spray train - SAME TRAIN AVAILABLE AS AVAILABLE RHR PUMP TRAIN</li> <li>b. Ensure containment spray discharge valves for selected train aligned as follows: <ul style="list-style-type: none"> <li>○ <b>Train A</b> <ul style="list-style-type: none"> <li>• <b>1SI-860A - SHUT</b></li> <li>• <b>1SI-860B - OPEN</b></li> </ul> </li> <li>○ Train B <ul style="list-style-type: none"> <li>• 1SI-860C - SHUT</li> <li>• 1SI-860D - OPEN</li> </ul> </li> </ul> </li> </ul>
<b>Standard:</b>	<p>The examinee:</p> <ul style="list-style-type: none"> <li>a. Verifies Train A of containment spray is AVAILABLE</li> <li>b. Aligns Train A spray discharge MOVs (selected Train): <ul style="list-style-type: none"> <li>• 1SI-860A - SHUT <b>(CRITICAL)</b></li> <li>• 1SI-860B - OPEN</li> </ul> </li> </ul>
<b>Evaluator Cue:</b>	<b>If asked, “A” is preferred per the NOTE.</b>
<b>Evaluator Note:</b>	Step B3 a. is NOT critical.
<b>Performance:</b>	<b>SATISFACTORY ____ UNSATISFACTORY ____</b>
<b>Comments:</b>	_____



<b>Performance Step: 4 Critical N</b>	B4 Ensure Following Pumps for Selected Train are Stopped and Place in PULL OUT: a. SI Pump b. RHR Pump
<b>Standard:</b>	The examinee verifies 'A' Train ECCS pumps in PULL OUT. a. 1P-15A - PULL OUT b. 1P-10A - PULL OUT
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 5 Critical Y</b>	B5 Open Containment Spray Pump RHR Suction MOV for selected Train: a. <b>1SI-871A, Train A</b> b. 1SI-871B, Train B
<b>Standard:</b>	The examinee OPENS 1SI-871A, Containment Spray Pump suction from RHR
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 6 Critical N</b>	B6 Shut RHR Heat Exchanger Outlet to SI Pump Suction Valve for Selected Train: a. <b>1SI-857A, Train A</b> b. 1SI-857B, Train B
<b>Standard:</b>	The examinee verifies 1SI-857A, RHR HX Outlet to SI Pump Suction MOV is SHUT.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 7</b> <b>Critical Y</b>	<p>B7 Establish Containment Spray on Recirculation:</p> <ol style="list-style-type: none"> <li>a. <b>Momentarily place selected train RV Injection MOV to the SHUT position: (amber light ON)</b> <ul style="list-style-type: none"> <li>• 1SI-852A, Train A</li> <li>• 1SI-852B, Train B</li> </ul> </li> <li>b. <b>Start RHR pump for selected Train:</b> <ul style="list-style-type: none"> <li>• 1P-10A, Train A</li> <li>• 1P-10B, Train B</li> </ul> </li> <li>c. <b>Start containment spray pump for Selected Train:</b> <ul style="list-style-type: none"> <li>• 1P-14A, Train A</li> <li>• 1P-14B, Train B</li> </ul> </li> </ol>
<b>Standard:</b>	<p>The examinee:</p> <ol style="list-style-type: none"> <li>a. Sets 1SI-852A to its pre-throttled position (amber light ON) - <b>CRITICAL</b></li> <li>b. Starts 1P-10A, RHR Pump - <b>CRITICAL</b></li> <li>c. Starts 1P-14A, Containment Spray Pump - <b>CRITICAL</b></li> </ol>
<b>Evaluator Note:</b>	<p><b>Spray Pump Start Time: _____.</b>  <b>Evaluator! - Record the time the Spray Pump is started.</b>          The maximum allowed time from JPM Start to the Spray Pump Start is 20 min.          _____ - _____ = _____ <i>(must be &lt;20 min.)</i>  <b>(1P-14A Start Time) - (JPM Start Time) = Total Elapsed Time</b>  <i>Reference OM 4.3.8, Attachment B-5</i></p>
<b>Performance:</b>	<p><b>SATISFACTORY ____ UNSATISFACTORY ____</b></p>
<b>Comments:</b>	<p>_____</p>

<b>Performance Step: 8 Critical N</b>	B8 Momentarily place opposite train RV Injection MOV to the SHUT position: (amber light ON) a. 1SI-852A, Train A <b>b. 1SI-852B, Train B</b>
<b>Standard:</b>	The examinee attempts to set 1SI-852B to its pre-determined throttle position (amber light ON) by momentarily taking the switch to CLOSE then release.
<b>Evaluator Note:</b>	A conditional trigger should go ACTIVE when the examinee takes the 1SI-852B Control Switch to CLOSE that causes control power to be lost to 1SI-852B. All valve position indications will be lost. The examinee should implement the RNO actions.
<b>Evaluator Cue:</b>	If the examinee asks for a local report on 1SI-852B breaker status, provide the cue that "Local report is: 1B52-421F, 1SI-852B supply breaker has a burnt smell, otherwise appears normal."
<b>Performance:</b>	<b>SATISFACTORY ____ UNSATISFACTORY ____</b>
<b>Comments:</b>	_____

<b>Performance Step: 9 Critical Y</b>	B8 RNO: Throttle opposite train RHR heat exchanger outlet flow control valve to establish maximum RHR pump flow less than 1550 gpm: <ul style="list-style-type: none"> <li>○ Train A <ul style="list-style-type: none"> <li>• Valve - 1RH-624</li> <li>• Flow - 1FI-626 + 1FI-962</li> </ul> </li> <li>○ <b>Train B</b> <ul style="list-style-type: none"> <li>• <b>Valve - 1RH-625</b></li> <li>• <b>Flow - 1FI-928 + 1FI-963</b></li> </ul> </li> </ul>
<b>Standard:</b>	The examinee throttles 1RH-625, RHR HX Outlet Flow Control Valve to establish maximum RHR flow less than 1550 gpm.
<b>Performance:</b>	<b>SATISFACTORY ____ UNSATISFACTORY ____</b>
<b>Comments:</b>	_____

<b>Performance Step: 10 Critical N</b>	B9 Record the time Containment Spray is placed on Recirculation. Time: _____

<b>Standard:</b>	The examinee records the time.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 11 Critical N</b>	B10 Return To <u>Procedure And Step In Effect</u> .
<b>Standard:</b>	The examinee reports to OS1 that 'A' Train of Containment Spray is on Sump Recirculation.
<b>Evaluator Cue:</b>	OS1 acknowledges your report.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

**Terminating Cues:** JPM is complete

**Stop Time:** \_\_\_\_\_

# JOB PERFORMANCE MEASURE

**JPM TITLE:** Transfer an Instrument Bus

**JPM NUMBER:** PBN JPM P062.011.COT **REV.** 6

**TASK NUMBER(S) / TASK TITLE(S):** P062.011.COT / Transfer an instrument Bus

**K/A NUMBERS:** 062 A2.10 **K/A VALUE:** 3.0/3.3

**Justification (FOR K/A VALUES <3.0):** N/A

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐  
Simulator: ☒ Other: ☐  
Lab: ☐

Time for Completion: 15 Minutes Time Critical: NO

Alternate Path [NRC]: NO

Alternate Path [INPO]: NO

<b>Developed by:</b>	Jeffrey Hinze Instructor/Developer	Date
<b>Reviewed by:</b>	Andrew Zommers Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugniet SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson Training Supervision	Date
<b>Approved by:</b>	Tom Larson Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- Unit 1 is at 100% steady-state conditions.
- Maintenance is required on inverter 1DY-01.
- The Unit 1 Auxiliary Operator has completed the field portion of shifting 1Y-101 to DY-0A in accordance with 1-SOP-Y-001, Shifting 120V RPS/Safeguards Instrument Buses.
- No analog or trip testing for reactor protection and safeguards instrumentation is in progress.
- 1-SOP-Y-001 has been completed through Step 5.1.8.
- Control rods are in manual per 1-SOP-Y-001 Step 5.1.1.d

**INITIATING CUES (IF APPLICABLE):**

- OS1 directs you to complete the shifting of instrument bus 1Y-01 to inverter DY-0A in accordance with 1-SOP-Y-001, Shifting 120V RPS/Safeguards Instrument Buses, beginning at Step 5.1.9.

## JPM PERFORMANCE INFORMATION

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical <u>N</u></b>	Perform the following at 1TB-215, 1-43/Y-01 TRANSFER SWITCH BOX (Control Room) <b>a. ENSURE</b> the indicating light for the desired source is ON.
<b>Standard:</b>	The Examinee checks that the amber indicating light for the desired source, DY-0A is on.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 2</b> <b>Critical <u>N</u></b>	Perform the following at 1TB-215, 1-43/Y-01 TRANSFER SWITCH TERMINAL BOX (Control Room) <b>b. MONITOR</b> the phase voltage difference between the running and oncoming inverters.
<b>Standard:</b>	The Examinee monitors the phase voltage difference between the running and oncoming inverters.
<b>Evaluator Note:</b>	<b>The Examinee may depress the meter TEST pushbutton to verify the meter is functioning (moving).</b>
<b>Evaluator Cue:</b>	The meter is accurate; use of a more accurate voltmeter is not required (If asked).
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 3</b> <b>Critical <u>Y</u></b>	Perform the following at 1TB-215, 1-43/Y-01 TRANSFER SWITCH TERMINAL BOX (Control Room) <b>c. <u>WHEN</u></b> the phase voltage differential is acceptable, <b><u>THEN</u></b> <b>PLACE</b> 1-43/Y-01, 1Y-01 RED 120VAC VITAL INSTRUMENT PANEL POWER SUPPLY TRANSFER SWITCH, to either: <ul style="list-style-type: none"> <li>• 1DY-01, NORMAL INVERTER</li> </ul> <b><u>OR</u></b> <ul style="list-style-type: none"> <li>• DY-0A, ALTERNATE INVERTER</li> </ul>
<b>Standard:</b>	The Examinee places the 1-43/Y-01, 1Y-01 RED 120VAC VITAL INSTRUMENT PANEL POWER SUPPLY TRANSFER SWITCH to the DY-0A, alternate inverter position.
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____



<b>Performance Step: 4</b> <b>Critical <u>Y</u></b>	<b><u>IF</u></b> Inverter DY-0A <u>is</u> supplying 1Y-01, <b><u>THEN INSTALL</u></b> the magnetic administrative control tags on 2TB-215, 2-43/Y-01 Transfer Switch Terminal Box
<b>Standard:</b>	Installs magnetic administrative control tags on 2TB-215, 2-43/Y-01 Transfer Switch Terminal Box since DY-0A is supplying 1Y-01
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 5</b> <b>Critical <u>N</u></b>	<b><u>IF</u></b> Inverter DY-0A is NOT supplying 1Y-01, <b><u>THEN REMOVE</u></b> the magnetic administrative control tags from 2TB-215, 2-43/Y-01 Transfer Switch Terminal Box
<b>Standard:</b>	Determines step is N/A since DY-0A is supplying 1Y-01.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 6</b> <b>Critical <u>N</u></b>	<b><u>ENSURE</u></b> Instrument Bus 1Y-01 voltage is 115-125 vac on 1Y-01-VM, BUS VOLTMETER, (on 2C20).
<b>Standard:</b>	The Examinee ensures instrument bus 1Y-01 voltage is 115-125 vac on 1Y-01-VM, bus voltmeter on 2C20.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

## JOB PERFORMANCE MEASURE

<b>Performance Step: 7</b> <b>Critical <u>N</u></b>	<b>CHECK</b> control boards for normal conditions.
<b>Standard:</b>	The Examinee checks the control boards for normal conditions.
<b>Evaluator Cue:</b>	As OS1 report that C01 has performed control board checks and conditions are satisfactory.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 8</b> <b>Critical <u>N</u></b>	<p><b><u>IF</u></b> the Inverter now supplying the bus has transferred to the alternate source, (INVERTER TROUBLE ANNUNCIATOR on 2C20 is in ALARM), <b><u>THEN</u></b>:</p> <ul style="list-style-type: none"> <li>a. <b>DECLARE</b> the inverter INOPERABLE AND enter Action Condition for TS LCO 3.8.7 or 3.8.8.</li> <li>b. <b>DEPRESS</b> the INVERTER TO LOAD pushbutton on the inverter.</li> <li>c. <b>ENSURE</b> the Inverter transfers to INVERTER SUPPLYING LOAD.</li> <li>d. <b>ENSURE</b> Instrument Bus 1Y-01 voltage is 115-125 vac on 1Y-01-VM, BUS VOLTMETER, (on 2C-20).</li> <li>e. <b>CHECK</b> control boards for normal conditions.</li> <li>f. <b>DECLARE</b> the inverter OPERABLE AND exit Action Condition for TS LCO 3.8.7 or 3.8.8.</li> </ul>
<b>Standard:</b>	The Examinee checks the INVERTER TROUBLE ANNUNCIATOR on 2C20 not lit.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 9</b> <b>Critical <u>Y</u></b>	<b>PLACE</b> the Unit 1 Rod Control Selector Switch in the as found position recorded in Step 5.1.1
<b>Standard:</b>	Unit 1 rod selector switch returned to auto
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

<b>Performance Step: 10</b> <b>Critical <u>N</u></b>	Inform OS1 that you have completed the Control Room portion of shifting instrument bus 1Y01 to inverter DY-0A in accordance with 1-SOP-Y- 001, Shifting 120V RPS/Safeguards Instrument Buses
<b>Standard:</b>	The Examinee informs OS1 that he has completed the Control Room portion of shifting instrument bus 1Y01 to inverter DY-0A in accordance with 1-SOP-Y-001, Shifting 120V RPS/Safeguards Instrument Buses
<b>Evaluator Cue:</b>	Acknowledge the report.
<b>Performance:</b>	<b>SATISFACTORY</b> ____ <b>UNSATISFACTORY</b> ____
<b>Comments:</b>	_____

**Terminating Cues:** That completes this JPM.

**Stop Time:** \_\_\_\_\_

# JOB PERFORMANCE MEASURE

**JPM TITLE:** RESTORE PT-431 TO SERVICE

**JPM NUMBER:** PBN JPM P012.001c.COT

**REV.** 3

**TASK NUMBER(S) / TASK TITLE(S):** P012.001c.COT  
Place Reactor Protection Channels in the Tripped Condition

**K/A NUMBERS:** 012 A4.04

**K/A VALUE:** 3.3/3.3

**Justification (FOR K/A VALUES <3.0):**

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: No

<b>Developed by:</b>	Jeffrey Hinze	
	Instructor/Developer	Date
<b>Reviewed by:</b>	Andrew Zommers	
	Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugnet	
	SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson	
	Training Supervision	Date
<b>Approved by:</b>	Tom Larson	
	Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- 1PT-431 BLUE Pressurizer Pressure Instrument was removed from service for repairs per 0-SOP-IC-001 BLUE, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE - BLUE CHANNELS.
- You are the 4th License on shift.
- Operator at the controls will acknowledge any alarms.

**INITIATING CUES:**

- OS1 has directed you to return 1PT-431 to service per 0-SOP-IC-001 BLUE, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE - BLUE CHANNELS and establish AUTO operation of related components.

**JPM PERFORMANCE INFORMATION**

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical <u>Y</u></b>	In cabinet C-116, place the following bistable trip switches to “NORMAL” (toggle switch down) AND check expected response. <ul style="list-style-type: none"> <li>• Overtemperature Trip</li> <li>• Overtemperature Rod Stop</li> <li>• High Pressure Trip</li> <li>• Low Pressure Trip</li> <li>• SI</li> <li>• Unblock SI</li> </ul>
<b>Standard:</b>	Bistable switches for 1PT-431 placed in NORMAL.
<b>Evaluator Note:</b>	<p>Checking expected responses is NOT critical.</p> <p>Restoring each bistable is a critical step.</p>
<b>Performance:</b>	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 2</b> <b>Critical <u>N</u></b>	Place RC-430, Pressurizer PORV in the "CLOSE" position.
<b>Standard:</b>	RC-430 PORV control switch to CLOSE.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	<hr/>

<b>Performance Step: 3</b> <b>Critical <u>N</u></b>	Place RC-431C, Pressurizer PORV in the "CLOSE" position.
<b>Standard:</b>	RC-431C PORV control switch to CLOSE.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	<hr/>

<b>Performance Step: 4</b> <b>Critical <u>N</u></b>	Place HC-431K, Pressurizer pressure controller in "MANUAL".
<b>Standard:</b>	Balance HC-431K Pressurizer Pressure controller to get a bumpless transfer when placing in MANUAL.
<b>Evaluator Cue:</b>	<b>If asked, the OATC will monitor Pressurizer Pressure</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	<hr/>

<b>Performance Step: 5</b> <b>Critical <u>Y</u></b>	In cabinet C-110, place the Pressurizer Pressure Defeat Switch P/429A to "OPERATE" (429 CH I/449 CH IV).
<b>Standard:</b>	Pressurizer Pressure defeat switch selected to OPERATE.
<b>Evaluator Note:</b>	<b>If asked, inform examinee another operator will stay and monitor pressurizer pressure while examinee goes behind the boards.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 6</b> <b>Critical <u>Y</u></b>	Place HC-431K, Pressurizer pressure controller in "AUTO" unless otherwise directed by Shift Manager.
<b>Standard:</b>	HC-431K Pressurizer Pressure controller to AUTO.
<b>Evaluator Note:</b>	<b>If asked, Shift Manager directs placing HC-431K in AUTO.</b>  <b>Critical step if repositioned to MANUAL earlier in JPM.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____



<b>Performance Step: 7</b> <b>Critical <u>Y</u></b>	Place RC-431C, Pressurizer PORV in the "AUTO" unless otherwise directed by Shift Manager.
<b>Standard:</b>	RC-431C PORV in AUTO.
<b>Evaluator Note:</b>	<b>If asked, Shift Manager directs placing RC-431C in AUTO</b> <b>Critical step if repositioned to CLOSE earlier in JPM.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 8</b> <b>Critical <u>Y</u></b>	Place RC-430, Pressurizer PORV in the "AUTO" unless otherwise directed by Shift Manager.
<b>Standard:</b>	RC-430 PORV in AUTO.
<b>Evaluator Note:</b>	<b>If asked, Shift Manager directs placing RC-430 in AUTO</b> <b>Critical step if repositioned to CLOSE earlier in JPM.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 9</b> <b>Critical <u>N</u></b>	Return to scan PPCS point ID PT431, PZR P 3 BLU.
<b>Standard:</b>	1PT-431 returned to SCAN.
<b>Performance:</b>	<b>SATISFACTORY</b> <input type="checkbox"/> <b>UNSATISFACTORY</b> <input type="checkbox"/>
<b>Comments:</b>	_____

<b>Performance Step: 10</b>	Inform OS1 of plant status
<b>Critical <u>N</u></b>	
<b>Standard:</b>	Examinee reports that 1PT-431 has been returned to service per 0-SOP-IC-001 BLUE.
<b>Evaluator Cue:</b>	OS1 acknowledges report
<b>Performance:</b>	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
<b>Comments:</b>	 <hr/>

**Terminating Cues:**

**Stop Time:** \_\_\_\_\_

# JOB PERFORMANCE MEASURE

**JPM TITLE:** Respond to Circulating Water Malfunction

**JPM NUMBER:** PBN JPM P000.052.COT

**REV.** 0

**TASK NUMBER(S) / TASK TITLE(S):** PBN P000.052.COT Respond to Circulating Water System Malfunctions

**K/A NUMBERS:** 075.A2.02

**K/A VALUE:** 2.5/2.7

**Justification (FOR K/A VALUES <3.0):** JPM to be used for ILT Exam

**TASK APPLICABILITY:**

☒ RO ☒ SRO ☐ STA ☐ Non-Lic ☐ SRO CERT ☐ OTHER: \_\_\_\_\_

**APPLICABLE METHOD OF TESTING:** Simulate/Walkthrough: ☐ Perform: ☒

**EVALUATION LOCATION:** In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: NO

Alternate Path [NRC]: YES

Alternate Path [INPO]: YES

<b>Developed by:</b>	Andrew Zommers Instructor/Developer	Date
<b>Reviewed by:</b>	Jeffrey Hinze Instructor (Instructional Review)	Date
<b>Validated by:</b>	Jeff Baugniet SME (Technical Review)	Date
<b>Approved by:</b>	Randy Amundson Training Supervision	Date
<b>Approved by:</b>	Tom Larson Training Program Owner	Date

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.**

**INITIAL CONDITIONS:**

- Unit 2 is on Ice Melt per OI 38, Circulating Water System Operations
- 2CW-1 Ice Melt Valve is 100% Open
- 2CW-3 Seal Well Outlet Valve is Closed
- 1C03 1F 3-6, Condenser Waterbox Level Low is LIT and has been addressed
- Due to lowering circulating water temperatures and Forebay/Pumpbay level alarms, AOP 13A Circulating Water System Malfunction was entered by OS1

**INITIATING CUES (IF APPLICABLE):**

- OS1 Directs you to start implementing AOP 13A, starting with Step 1, while he starts making notifications.

## JPM PERFORMANCE INFORMATION

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

**NOTE:** When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

**NOTE:** Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

<b>Performance Step: 1</b> <b>Critical <u>N</u></b>	Review Cautions, Notes and Foldout Page information
<b>Standard:</b>	Examinee reviews cautions, notes and foldout page prior step 1.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 2</b> <b>Critical <u>N</u></b>	1. Circulating Water System - INTACT
<b>Standard:</b>	Verify Circ Water System Intact, no turbine hall alarms lit in Control.
<b>Evaluator Cue:</b>	<b>No reports from the field of pipe ruptures.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 3</b> <b>Critical <u>N</u></b>	2. Check Circulating Water Pumps – ONLY ONE RUNNING PER UNIT <ul style="list-style-type: none"> <li>• 1P-30A or B</li> <li>• 2P-30A or B</li> </ul>
<b>Standard:</b>	Examinee verifies only one Circulating Pump running per unit.
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 4</b> <b>Critical <u>N</u></b>	3. Check Forebay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586B</li> <li>• PPCS point 2LT-3586B</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay Level > -11.5 ft.
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 5</b> <b>Critical <u>N</u></b>	4. Check Forebay Level - GREATER THAN -13 FEET <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586B</li> <li>• PPCS point 2LT-3586B</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay Level > -13 ft.
<b>Evaluator Note:</b>	<b>SIGNAL THE SIMULATOR OPERATOR TO INSERT THE MALFUNCTION REQUIRED TO LOWER FOREBAY AND PUMP BAY LEVELS.</b>  This will cause the following annunciators to actuate C01A 4-5, Traveling Screen Differential Level High C01A 4-6, Traveling Screen Start Failure  If the Examinee attempts to address these ARBs, inform the examinee the 4 <sup>th</sup> License will address these ARBs.
<b>Performance:</b>	SATISFACTORY _____ UNSATISFACTORY _____
<b>Comments:</b>	_____

<b>Performance Step: 6</b> <b>Critical <u>N</u></b>	5. Check South Pumpbay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586A</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies South Pumpbay Level > -11.5 ft.
<b>Performance:</b>	SATISFACTORY _____ UNSATISFACTORY _____
<b>Comments:</b>	_____

<b>Performance Step: 7</b> <b>Critical <u>N</u></b>	6. Check North Pumpbay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>PPCS point 2LT-3586A</li> <li>YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies North Pumpbay Level > -11.5 ft.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 8</b> <b>Critical <u>N</u></b>	7. Check Level in Both Pumpbays - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>PPCS point 1LT-3586A</li> <li>PPCS point 2LT-3586A</li> <li>YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Both Pumpbays Level > -11.5 ft.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____



<b>Performance Step: 9</b> <b>Critical <u>N</u></b>	<p>8. Check Forebay AND BOTH Pumpbay Level's - GREATER THAN -11.5 FEET</p> <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586A</li> <li>• PPCS point 2LT-3586A</li> <li>• PPCS point 1LT-3586B</li> <li>• PPCS point 2LT-3586B</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay AND BOTH Pumpbays Level > -11.5 ft.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 10</b> <b>Critical <u>N</u></b>	9. Check at Least One Unit At Power
<b>Standard:</b>	Examinee verifies both units are at power.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 11</b> <b>Critical <u>N</u></b>	10. Stop Liquid Discharges
<b>Standard:</b>	Examinee determines no discharges need to be stopped.
<b>Evaluator Cue:</b>	<b>When asked, there are no discharges currently in progress.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 12</b> <b>Critical <u>N</u></b>	11. Check Any Unit Aligned For Ice Melt Operation
<b>Standard:</b>	Examinee determines Unit 2 aligned for ice melt operations.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 13</b> <b>Critical <u>N</u></b>	12. Check Circulating Water Inlet Temperature – Greater Than 38°F • YR-5832
<b>Standard:</b>	Examinee determines temperature is below 38°F and transitions to RNO.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 14</b> <b>Critical <u>N</u></b>	12. RNO Raise intake crib temperature • Fully open ice melt valve – CW-1 • Throttle seal well outlet valve to establish intake temperature greater than 38°F – CW-3
<b>Standard:</b>	Examinee notes CW-1 is fully open and CW-3 is fully closed.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 15</b> <b>Critical <u>N</u></b>	Foldout Page monitored to determine Forebay or Pump Bay levels less than -11.5 feet
<b>Standard:</b>	Examinee determines Forebay and/or Pump Bay level < -11.5 feet and returns back to Step 1
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 16</b> <b>Critical <u>N</u></b>	1. Circulating Water System – INTACT
<b>Standard:</b>	Verify Circ Water System Intact, no turbine hall sump alarms in Control.
<b>Evaluator Cue:</b>	<b>No reports from the field of pipe ruptures.</b>
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	

<b>Performance Step: 17</b> <b>Critical <u>N</u></b>	2. Check Circulating Water Pumps – ONLY ONE RUNNING PER UNIT <ul style="list-style-type: none"> <li>• 1P-30A or B</li> <li>• 2P-30A or B</li> </ul>
<b>Standard:</b>	Examinee verifies only one Circulating Pump running per unit
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 18</b> <b>Critical <u>N</u></b>	3. Check Forebay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586B</li> <li>• PPCS point 2LT-3586B</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay Level > -11.5 ft.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 19</b> <b>Critical <u>N</u></b>	4. Check Forebay Level - GREATER THAN -13 FEET <ul style="list-style-type: none"> <li>• PPCS point 1LT-3586B</li> <li>• PPCS point 2LT-3586B</li> <li>• YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay Level > -13 ft
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

<b>Performance Step: 20</b> <b>Critical <u>N</u></b>	5. Check South Pumpbay Level – GREATER THAN -11.5 FEET <ul style="list-style-type: none"> <li>PPCS point 1LT-3586A</li> <li>YR-5832</li> </ul>
<b>Standard:</b>	Examinee verifies Forebay Level is less than -11.5 ft and goes to the RNO
<b>Evaluator Note:</b>	<b>Only RNO steps requiring actions are contained in the following steps.</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 21</b> <b>Critical <u>N</u></b>	Step 5 RNO Perform the following: <ul style="list-style-type: none"> <li>a. Enter TRM TLCO 3.7.7 action condition B for both units.</li> <li>b. Enter TS LCO 3.6.6 action condition C for both units.</li> </ul>
<b>Standard:</b>	The Examinee inform the OS of the need to enter TRM TLCO 3.7.7 action condition B for both units and, TS LCO 3.6.6 action condition C for both units.
<b>Evaluator Cue:</b>	<b>If directed, acknowledge the need to enter TRM TLCO 3.7.7 action condition B for both units and, TS LCO 3.6.6 action condition C for both units.</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 22</b> <b>Critical <u>Y</u></b>	Step 5 RNO Perform the following: e. Trip Unit 1 reactor
<b>Standard:</b>	Examinee trips Unit 1 reactor
<b>Evaluator Cue:</b>	<b>If asked, the Examinee is directed to carry out the RNO Actions.</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 23</b> <b>Critical <u>Y</u></b>	Step 5 RNO f. Stabilize plant using EOP's while continuing with this procedure
<b>Standard:</b>	Examinee performs immediate actions of EOP 0 for Unit 1. <ul style="list-style-type: none"> <li>• Reactor Tripped - yes</li> <li>• Turbine Tripped - yes</li> <li>• Safeguards Busses Energized – yes from offsite</li> <li>• Check if SI is required – not required</li> </ul>
<b>Evaluator Cue:</b>	<b>Cue examinee after completion of immediate actions, that they have been verified so continue with AOP-13A actions.</b>
<b>Performance:</b>	<b>SATISFACTORY _____ UNSATISFACTORY _____</b>
<b>Comments:</b>	_____

<b>Performance Step: 23</b> <b>Critical <u>Y</u></b>	Step 5 RNO g. Shut tripped unit MSIVs <ul style="list-style-type: none"> <li>• MS-2018</li> <li>• MS-2017</li> </ul>
<b>Standard:</b>	Examinee shuts MSIVs after immediate actions completed.
<b>Performance:</b>	<b>SATISFACTORY</b> _____ <b>UNSATISFACTORY</b> _____
<b>Comments:</b>	_____

**Terminating Cues:**      **This Completes the JPM**

**Stop Time:** \_\_\_\_\_