



## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **LOCAL OPERATION OF BORON CONCENTRATION CONTROL – UNIT 2**

#### **NRC P-1**

Developed/Revised by: Larry Rich 4/01/08  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

**Task:** Perform local blend to the VCT in accordance with 2-ONP-02.01 Boron Concentration Control.

**Alternate Path JPM?** No

**Facility JPM #:** N/A

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is completed when the VCT is blended to the normal band.

**Evaluation Location:**

Simulator	In Plant	Lab	Other
	X		

**Performance Level:**

Perform	Simulate	Discuss
	X	

**References:**

- 2-ONP-02.01 Boron Concentration Control

**Validation Time:** 20 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 2-ONP-02.01 Boron Concentration Control

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- Standard in plant PPE

**Radiological Protection and RWP Requirements:**

- General entry RWP requirements

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Locally operate the Boron Concentration Control system to blend to the VCT in accordance with Appendix A of 2-ONP-02.01 Boron Concentration Control.
- The performance level to be used for this JPM is **SIMULATE**.
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

Unit 2 Control Room is not able to verify proper Boric Acid and Primary water flow on FR-2210Y and FR-2210X to blend to the VCT. The crew has implemented 2-ONP-02.01 Boron Concentration Control.

**INITIATING CUES:**

The US directs you to locally blend to the VCT using Appendix A from 2-ONP-02.01 Boron Concentration Control. The blend ratio is 10:1.

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

Appendix A of 2-ONP-02.01 Boron Concentration Control	
<p><u>STEP 1 (1)</u>      Establish communication with the Control Room.</p>  <p><u>STANDARD:</u>      <b><u>ESTABLISH</u></b> Communications with Unit 2 Control Room using Radio at the Boric Acid station.</p> <p style="text-align: center;"><b>EXAMINERS CUE: Unit 2 Control Room acknowledges communications</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (3)</u>      Start 2A or 2B Boric Acid Pump:</p>  <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> Control Room has started 2A or 2B Boric Acid Pump</p> <p style="text-align: center;"><b>EXAMINERS CUE: Control Room has started 2A Boric Acid Pump</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 3: (4)</u>    ENSURE V2514 is CLOSED:</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> Control Room has verified V2514 is CLOSED.</p> <p style="padding-left: 40px;"><b>EXAMINERS CUE: Control Room has ensured V2514 is closed.</b></p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>
<p><u>STEP 4: (5)</u>    ENSURE FCV-2210Y is CLOSED</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> Control Room FCV-2210Y is CLOSED</p> <p style="padding-left: 40px;"><b>EXAMINERS CUE: Control Room has ensured FCV-2210Y is closed.</b></p> <p><u>COMMENTS:</u></p>	<p>____ SAT</p> <p>____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <ul style="list-style-type: none"> <li>V2647 provides a direct Boric Acid flow path to the Charging pump suction at 20 gpm when full open.</li> <li>With V2647 open, the Boric Acid flow rate can NOT be monitored</li> <li>V2180 provides a direct Primary Water flow path to the Charging pump suction</li> </ul> </div> <p><b>EXAMINERS CUE: Control Room calls to OPEN V2647 EMERG Boration from BAM Pumps Dish Isol ¼ turn OPEN.</b></p> <p><u>STEP 5: (6)</u>      DIRECT the Operator at the Boric Acid station to throttle V2647, EMERG ) Boration From BAM Pumps Disch Isol, OPEN ¼ turn.</p> <p><u>STANDARD:</u>      <b><u>OPENS</u></b> V2647 ¼ turn and communicates to Control Room valve is ¼ turn open.</p> <p><b>EXAMINERS CUE: V2647 is turned Counter Clockwise ¼ turn</b> <b>EXAMINERS CUE: Acknowledges as Control Room V2647 is ¼ turn open.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b>EXAMINERS CUE: Control Room calls to OPEN V2180 PMW to Charging Pumps Suct Manual Isol 1 (one) turn open.</b></p> <p><u>STEP 6: (7)</u>      DIRECT the Operator at the Boric Acid station to throttle V2180, PMW to Charging Pumps Suct Manual Isol, OPEN to the calculated blend ration. V2180 is located in the 2A Charging Pump Room.</p> <p><u>STANDARD:</u>      <b><u>OPENS</u></b> V2180, PMW to Charging Pumps Suct Manual Isol, 1 (one) turn open and communicates to Control Room valve is 1 (one) turn open.</p> <p><b>EXAMINERS CUE: V2180 is turned Counter Clockwise 1 (one) turn open.</b> <b>EXAMINERS CUE: Acknowledges as Control Room V2180 is 1 (one) turn open.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p style="text-align: center;"><b>EXAMINERS CUE: Reactor Makeup water flow indication FRC-2210X has malfunctioned. You are to CLOSE V2180 and REOPEN V2180 ¼ turn.</b></p> <p><u>STEP 7 (9)</u>     <u>IF</u> the Reactor Makeup water flow indication malfunctions, <u>Then</u> DIRECT the operator to OPEN V2180 ¼ turn.</p> <p><u>STANDARD:</u>     <b><u>CLOSES</u></b> V2180 and  <b><u>REOPENS</u></b> V2180 to ¼ turn open and communicates to control room V2180 is ¼ turn open.</p> <p><b>EXAMINERS CUE: V2180 is closed</b>  <b>EXAMINERS CUE: V2180 is OPEN ¼ turn</b></p> <p><b>EXAMINERS CUE: Acknowledges as control room V2180 is ¼ turn open</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8: (10)</u>     MONITOR for any abnormal change in Tave.</p> <p><b>EXAMINERS CUE: Control room states Tave is constant. JPM is complete</b></p> <p><u>STANDARD:</u>     <b><u>COMMUNICATES</u></b> with control room to ensure Tave is not changing.</p> <p><u>COMMENTS:</u></p>	

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

**JOB PERFORMANCE MEASURE**  
**SIMULATOR SETUP SHEET**

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

**INITIAL CONDITIONS:**

Unit 2 Control Room is not able to verify proper Boric Acid and Primary water flow on FR-2210Y and FR-2210X to blend to the VCT. The crew has implemented 2-ONP-02.01 Boron Concentration Control.

**INITIATING CUES:**

The US directs you to locally blend to the VCT using Appendix A from 2-ONP-02.01 Boron Concentration Control. The blend ratio is 10:1





Reminder to the TPE Evaluator  
Refer to the OJT/TPE Procedure and  
follow the instructions.

## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **ALIGN UNIT 2 CST TO SUPPLY 1C AFW PUMP**

**Bank JPM 0821062/Rev 17**

**Unit 1 and 2 CSTs, 1C AFW PP  
NRC P-2**

Developed/Revised by: Ron Lauver 9/25/2006  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

**Task:** Align Unit 2 CST to Supply the 1C AFW Pump.

**Alternate Path JPM?** No

**Facility JPM #:** 0821062

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

**Duty Area(s):** NA

**Task Information:** NA

**Task Standard:**

This JPM is complete when the candidate has reported to the Unit 1 US that the Unit 2 CST has been lined up to supply the 1C AFW Pump.

**Evaluation Location:**

**Performance Level:**

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
	X				X	

**References:**

- 1-ONP-09.02, "Auxiliary Feedwater," Appendix D, SUPPLYING UNIT 1 AFW PUMPS FROM THE UNIT 2 C.S.T.
- Watch Stander Key Ring for Locked Valves

**Validation Time:** 20 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 1-ONP-09.02, "Auxiliary Feedwater," Appendix D, SUPPLYING UNIT 1 AFW PUMPS FROM THE UNIT 2 C.S.T.

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is:       Align Unit 2 CST to Supply the 1C AFW Pump.
- The performance level to be used for this JPM is Simulate
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

Unit 1 is experiencing a Total Loss of Feedwater event. Unit 1 CST is unavailable, and Unit 2 CST level is 43 feet.

**INITIATING CUES:**

You are the Unit 1 NPO. The Unit 1 US has directed you to line up the 1C AFW Pump to take a suction from the Unit 2 CST IAW 1-ONP-09.02, "Auxiliary Feedwater," Appendix D.

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

<b>1-ONP-09.02, "Auxiliary Feedwater,"</b> <b>Appendix D, SUPPLYING UNIT 1 AFW PUMPS FROM THE UNIT 2 C.S.T.</b>	
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <ul style="list-style-type: none"> <li>During the performance of this Appendix, close communications with the Unit 2 Control Room must be maintained to ensure administrative requirements and safety issues are considered in regards to both units. In the event the Unit 1 AFW Pump suction pressure decreases to 3 psig during the performance of this appendix, the AFW Pump discharge valves must be throttled to maintain suction pressure.</li> <li>Performance of this Appendix will require Unit 1 to enter action statement for Tech. Spec. 3.7.1.2 and 3.7.1.3. Unit 2 will be in action statement for Tech. Spec. 3.7.1.3 and possibly 3.7.1.2 depending on valve selection in Step 1B</li> </ul> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><b><u>NOTE</u></b></p> <ul style="list-style-type: none"> <li>In the event Unit 2 CST is utilized to supply condensate to Unit 1, a minimum of 182,000 19'6" gallons must be maintained in the Unit 2 CST unless Unit 2 is in Mode 4,5, or 6. This is to ensure that Unit 2 has the capability to cool the RCS to less than 350 degrees.</li> <li>The following valve lineups shall be performed with the pumps off.</li> </ul> </div> <p><b><u>STEP 1 (1A)</u></b>     NOTIFY Unit 2 Control Room.</p> <p><b><u>STANDARD:</u></b>     <b><u>NOTIFY</u></b> Unit 2 Control Room that Unit 2 CST will be <b><u>ALIGNED</u></b> to supply the 1C AFW Pump.</p> <p style="text-align: center;">* <b>EXAMINER'S CUE:</b>    Unit 2 Control Room <b>ACKNOWLEDGES</b></p> <p><b><u>COMMENTS:</u></b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b><u>STEP 2 (1.B.1)</u></b>    At the Unit 2 CST, establish flow from the Unit 2 CST to Unit 1 AFW Pumps by one of the following:</p> <p style="margin-left: 40px;">1.   <u>If</u> the Unit 2 CST level is greater than 40 feet, <u>Then</u> LOCK OPEN V12803, CST Inlet to / from Unit 1 Isol.</p> <p><b><u>STANDARD:</u></b>     <b><u>UNLOCK</u></b> and <b><u>POSITION</u></b> V12803 to <b><u>OPEN</u></b> and then <b><u>RELOCK</u></b>.</p> <p style="text-align: center;">* <b>EXAMINER'S CUE:</b>    V12803 is OPEN and LOCKED.</p> <p style="text-align: center;"><b>EVALUATOR'S NOTE:</b> Initiating Cue gives Unit 2 CST level as 43 Feet. Valve does not have to be re-locked to meet the Critical Step.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

\*Cues are to be used only if JPM performance is being simulated in the plant.

<p><u>STEP 3 (1.C)</u>     Lock Open V12805, CST Crosstie to Unit 1 Isol.</p> <p><u>STANDARD:</u>     <b><u>UNLOCK</u></b> and <b><u>POSITION</u></b> V12805 to <b><u>OPEN</u></b> and then <b><u>RELOCK</u></b>.</p> <p><b>* EXAMINER'S CUE:</b>    V12805 is <b>OPEN</b> and <b>LOCKED</b>.</p> <p><b>EVALUATOR'S NOTE:</b> Valve does not have to be re-locked to meet the Critical Step.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
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JPM 0821062/Rev 17  
Unit 1 and 2 CSTs, 1C AFW PP  
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**JOB PERFORMANCE MEASURE  
PERFORMANCE CHECKLIST**

<p><u>STEP 4: (1.E.1)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">1. Lock closed V12506, Unit 1 CST to 1C AFW Pump at the Unit 1 CST.</p> <p><b>STANDARD:</b>    <b><u>UNLOCK</u></b> and <b><u>POSITION</u></b> V12506 to <b><u>CLOSE</u></b> and then <b><u>RELOCK</u></b>.</p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   V12506 is <b>CLOSED</b> and <b>LOCKED</b>.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Valve does not have to be re-locked to meet the Critical Step.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5: (1.E.2)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">2. Lock open V12175, Unit 2 CST to 1C AFW Pump at the Unit 1 CST.</p> <p><b>STANDARD:</b>    <b><u>UNLOCK</u></b> and <b><u>POSITION</u></b> V12175 to <b><u>OPEN</u></b> and then <b><u>RELOCK</u></b>.</p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   V12175 is <b>OPEN</b> and <b>LOCKED</b>.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Valve does not have to be re-locked to meet the Critical Step.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (1.E.3)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">3. Open the PI-12-18C, 1C AFW Pump Suct Press, instrument isolation valve.</p> <p><b>STANDARD:</b>    <b><u>POSITION</u></b> PI-12-18C instrument isolation to <b><u>OPEN</u></b>.</p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   PI-12-18C instrument isolation valve is <b>OPEN</b>.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

\*Cues are to be used only if JPM performance is being simulated in the plant.

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 7: (1.E.4)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">4. Verify greater than 3 psig suction pressure on PI-12-18C, 1C AFW Pump Suction Pressure.</p> <p><u>STANDARD:</u>    <b><u>VERIFY GREATER THAN</u></b> 3 psig on PI-12-18C.</p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   PI-12-18C INDICATES 15 psig.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8: (1.E.5.a)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">5. PERFORM the following:</p> <p style="padding-left: 80px;">a. OPERATE 1C Auxiliary Feedwater Pump as necessary.</p> <p><u>STANDARD:</u>    <b><u>OPERATE</u></b> 1C Auxiliary Feedwater Pump as necessary.</p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   Contact control room.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9: (1.E.5.b)</u> To supply 1C AFW pump, perform the following:</p> <p style="padding-left: 40px;">6. PERFORM the following:</p> <p style="padding-left: 80px;">b. CLOSE V08399, 1C AFW Pump Recirc. Isol.</p> <p><u>STANDARD:</u>    <b><u>POSITION</u></b> V08399, 1C AFW Pump Recirc. Isol. To <b><u>CLOSE</u></b></p> <p style="padding-left: 40px;">* <b>EXAMINER'S CUE:</b>   V08399, 1C AFW Pump Recirc. Isol. is closed</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

\*Cues are to be used only if JPM performance is being simulated in the plant.

# **JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST**

<p><u>STEP 10: (done)</u>    NOTIFY Unit 1 US that the task is COMPLETE</p>   <p><u>STANDARD:</u>    <b><u>NOTIFY</u></b> ) Unit 1 US that 1C AFW Pump is <b><u>LINED UP</u></b> to take a <b><u>SUCTION</u></b> on the Unit 2 CST IAW 1-ONP-09.02, Appendix D</p> <p>      * EXAMINER'S CUE:    Unit 1 US ACKNOWLEDGES.</p> <p>      * EXAMINER'S NOTE: If the applicant continues onward, then inform him                                           "This JPM is Complete."</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p>   <p>_____ UNSAT</p>
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STOP TIME: \_\_\_\_\_

\*Cues are to be used only if JPM performance is being simulated in the plant.



**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

Unit 1 is experiencing a Total Loss of Feedwater event. Unit 1 CST is unavailable, and Unit 2 CST level is 43 feet.

**INITIATING CUES:**

You are the Unit 1 NPO. The Unit 1 US has directed you to line up the 1C AFW Pump to take a suction from the Unit 2 CST IAW 1-ONP-09.02, "Auxiliary Feedwater," Appendix D.



Reminder to the TPE Evaluator  
Refer to the OJT/TPE Procedure and  
follow the instructions.

## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **DISCONNECT 1B INSTRUMENT INVERTER FROM SERVICE FOR PREVENTIVE MAINTENANCE - UNIT 1**

**Bank JPM 0821067/Rev 16  
1B Battery Charger Room  
NRC P-3**

Developed/Revised by: \_\_\_\_\_ Date \_\_\_\_\_

Training Management Approval: \_\_\_\_\_ Date \_\_\_\_\_

## JOB PERFORMANCE MEASURE

**Task:** Disconnect the 1B 120V Instrument Inverter from service on Unit 1.

**Alternate Path JPM?** No

**Facility JPM #:** 0821067

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

**Duty Area(s):** NA

**Task Information:** NA

**Task Standard:**

This JPM is complete when the Control Room has been notified that the 1B Instrument Inverter has been transferred to the Maintenance Bypass Bus and the 1B Instrument Inverter is out of service.

**Evaluation Location:**

**Performance Level:**

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
	X				X	

**References:**

OP 1-0970020, "Operation of the 120V Instrument AC System (Class 1E)"

**Validation Time:** 10 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- OP 1-0970020, "Operation of the 120V Instrument AC System (Class 1E)"

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Disconnect the 1B 120V Instrument Inverter from service.
- The performance level to be used for this JPM is Simulate
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

Unit 1 is at 100% power and stable with each instrument bus aligned to receive power from its respective inverter. The 1B Instrument Inverter is to be removed from service for preventive maintenance.

**INITIATING CUES:**

You are the SNPO. The US has directed you to remove 1B 120V Instrument Inverter from service by placing it on the Maintenance Bypass Bus in accordance with OP 1-0970020, "Operation of the 120V Instrument AC System (Class 1E)."

# JOB PERFORMANCE MEASURE

## PERFORMANCE CHECKLIST

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

<b>OP 1-0970020, "Operation of the 120V Instrument AC System (Class 1E),"</b> <b>Step 8.6 Removing the 1B Inverter From Service</b>	
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <ul style="list-style-type: none"> <li>Incorrect execution of this section can result in the actuation of Safeguards equipment and a Reactor trip. If any discrepancies are noted during the execution of this section, notify the Control Room immediately.</li> <li>Prior to closing the applicable bypass breaker, verify that the affected maintenance bypass bus is not currently in use.</li> </ul> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;"><b><u>NOTE</u></b></p> <p>Re-energize the Instrument Bus from its associated inverter within 24 hours or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.</p> </div> <p><b><u>STEP 1:(1)</u></b>      Close the following maintenance bypass bus breaker on the maintenance bypass bus for ALTERNATE feed.</p> <ul style="list-style-type: none"> <li>Inverter 1B:            Maintenance Bypass Bus 1B    CKT 13</li> </ul> <p><b><u>STANDARD:</u></b>    <b><u>POSITION</u></b> Maintenance Bypass Bus 1B CKT 13 Breaker to <b>ON</b>.</p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>    <b>CKT 13 Breaker is ON</b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b><u>STEP 2:(2)</u></b>      Verify the following maintenance bypass bus power available light in Transfer panel is on.</p> <p style="padding-left: 40px;">Transfer Panel 1B</p> <ul style="list-style-type: none"> <li>L/1010-2    Maint. Bypass Bus 1B Feed to Instr. Bus 1MB</li> </ul> <p><b><u>STANDARD:</u></b>    <b><u>VERIFY</u></b> light L/1010-2 is <b>ON</b> at Transfer Panel 1B.</p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>    <b>Light L/1010-2 is ON</b></p> <p><b><u>COMMENTS:</u></b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

# JOB PERFORMANCE MEASURE

## PERFORMANCE CHECKLIST

<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> <b><u>CAUTION</u></b>          The "IN SYNC light <u>shall</u> be verified to be on prior to removing the instrument inverter from service. If the light is not on, stop. Do not continue. Notify E/M Department.       </div> <p><b><u>STEP 3: (3)</u></b>      Verify the following sync signal breaker on the maintenance bypass bus is closed.</p> <ul style="list-style-type: none"> <li>• Inverter 1B:              Maintenance Bypass Bus 1B      CKT 3</li> </ul> <p><b><u>STANDARD:</u></b>      <b><u>VERIFY</u></b> Inverter 1B Maintenance Bypass Bus 1B CKT 3 Breaker is <b>CLOSED</b>.</p> <p style="text-align: center;"><b>EXAMINER'S CUE:      CKT 3 Breaker is ON.</b></p> <p><b><u>COMMENTS:</u></b></p>	_____ SAT  _____ UNSAT
<p><b><u>STEP 4: (3A)</u></b>      Verify the "IN SYNC" light is on (on the applicable inverter).</p> <p><b><u>STANDARD:</u></b>      <b><u>VERIFY</u></b> IN SYNC light is "<b>ON</b>" on Inverter 1B</p> <p style="text-align: center;"><b>EXAMINER'S CUE:      IN SYNC light on Inverter 1B is ON</b></p> <p><b><u>COMMENTS:</u></b></p>	_____ SAT  _____ UNSAT
<p><b><u>STEP 5: (4)</u></b>      Place the following Transfer switch in the Maintenance Bypass Bus position.</p> <ul style="list-style-type: none"> <li>• Transfer Panel 1B Transfer switch SS-1010-1 1MB Maintenance Bypass Bus 1B</li> </ul> <p><b><u>STANDARD:</u></b>      <b><u>POSITION</u></b> Transfer switch SS-1010-1 to <b>MAINTENANCE BYPASS BUS 1B</b></p> <p style="text-align: center;"><b>EXAMINER'S CUE:      Transfer switch SS-1010-1 is in MAINTENANCE BYPASS BUS 1B POSITION</b></p> <p><b><u>COMMENTS:</u></b></p>	<b>CRITICAL STEP</b>  _____ SAT  _____ UNSAT

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 6: (5)</u>      Notify the Control Room the 1B instrument bus is being powered from the Maintenance Bypass Bus.</p> <p><u>STANDARD:</u>      <b><u>NOTIFY</u></b> Control Room that 1B Instrument Bus is now being powered from the Maintenance Bypass Bus.</p> <p style="text-align: center;"><b>EXAMINER'S CUE:      CONTROL ROOM ACKNOWLEDGES</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7(6)</u>      Open the inverter breakers on the front of the 1B inverter in the following order:</p> <p style="margin-left: 40px;">A. 1MB-CB-6 (Inverter System Output) B. 1MB-CB-4 (Inverter Alternate Source) C. 1MB-CB-2 (Inverter Output) D. 1MB-CB-1 (DC Input)</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> Breakers 1MB-CB-6, 1MB-CB-4, 1MB-CB-2, and 1MB-CB-1 on Inverter 1B to <b>OFF</b> in that order</p> <p style="text-align: center;"><b>EXAMINER'S CUE:      As Student positions these Breakers, cue that the respective breaker is OFF</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8 (7)</u>      Open the 1B inverter supply breaker on the 125V DC bus.</p> <p style="margin-left: 40px;">• Inverter 1B: DC Bus 1B 1-60224</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> DC Bus 1B Breaker 1-60224 to <b>OFF</b></p> <p style="text-align: center;"><b>EXAMINER'S CUE:      Breaker 1-60224 is OFF</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 9: (8)</u>      Open the 1B sync signal breaker on the maintenance bypass bus.</p> <p style="margin-left: 40px;">•    Inverter 1B:            Maintenance Bypass Bus 1B    CKT 3</p> <p><u>STANDARD:</u>    <b><u>POSITION</u></b> Maintenance Bypass Bus 1B CKT 3 Breaker to <b>OFF</b></p> <p style="margin-left: 40px;"><b>EXAMINER'S CUE:    CKT 3 breaker is OFF</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u>    Notify the Control Room the 1B inverter is out of service.</p> <p><u>STANDARD:</u>    <b><u>NOTIFY</u></b> the Control Room that Inverter 1B has been <b>REMOVED</b> from service</p> <p style="margin-left: 40px;"><b>EXAMINER'S CUE:    CONTROL ROOM ACKNOWLEDGES</b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center; margin-top: 20px;"><b>END OF TASK</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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



**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

Unit 1 is at 100% power and stable with each instrument bus aligned to receive power from its respective inverter. The 1B Instrument Inverter is to be removed from service for preventive maintenance.

**INITIATING CUES:**

You are the SNPO. The US has directed you to remove 1B 120V Instrument Inverter from service by placing it on the Maintenance Bypass Bus in accordance with OP 1-0970020, "Operation of the 120V Instrument AC System (Class 1E)."

## JOB PERFORMANCE MEASURE

**Task:** Start the 2C AFW pump and feed the 2A SG.

**Alternate Path JPM?** Yes

**Facility JPM #:** N/A

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is completed when the 2C AFW pump electrical overspeed trip is reset and the 2C AFW pump is feeding the 2A SG.

**Evaluation Location:**

Simulator	In Plant	Lab	Other
X			

**Performance Level:**

Perform	Simulate	Discuss
X		

**References:**

- 2-ONP-09.02 AUXILIARY FEEDWATER
- 2-NOP-09.02 AUXILIARY FEEDWATER

**Validation Time:** 20 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 2-ONP-09.02 AUXILIARY FEEDWATER.
- 2-NOP-09.02 AUXILIARY FEEDWATER

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Start the 2C AFW Pump and feed the 2A SG.
- The performance level to be used for this JPM is **PERFORM**.
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

The Unit is in Mode 3 NOP/NOT. The 2A AFW tripped. The 2C AFW pump is ready to be started to feed the 2A SG.

**INITIATING CUES:**

The US directs you to start the 2C AFW using 2-NOP-09.02 Auxiliary Feedwater step 6.4.5 and feed the 2A SG.

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

2-NOP-09.02 Auxiliary Feedwater	
<p><u>STEP 1: (6.4.5)</u> START the 2C Auxiliary Feedwater Pump</p> <p><u>STANDARD:</u>    <b><u>OPEN</u></b> MV-08-12, B MS to 2C AFW Pump Isol.  <span style="margin-left: 150px;"><b>AND/OR</b></span>  <b><u>OPEN</u></b> MV-08-13, A MS to 2C AFW Pump Isol.</p> <p style="text-align: center;"><b>EXAMINERS NOTE: 2C AFW will trip on electrical overspeed</b></p> <p><u>COMMENTS:</u></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (6.4.6)</u> ENSURE turbine speed is stable between 3700 and 3800 rpm <u>and</u> the governor is not hunting / oscillating.</p> <p><u>STANDARD:</u>    <b><u>RECOGNIZE</u></b> 2C AFW pump has tripped on electrical overspeed.</p> <p><b>EXAMINERS NOTE: Candidate should recognize electrical overspeed by:  MV-08-3 in closed position AND annunciator G-46 resetting.</b></p> <p><b>EXAMINERS CUE: If Candidate asks US permission to feed the 2A SG with the 2B AFW via crosstie valves, state you want him to use AFW ONP and attempt to use 2C AFW pump to feed the 2A SG.</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 3: (2.A)</u> IMPLEMENT 2-ONP-09.02 Appendix A Step 2 and reset the 2C AFW pump electrical overspeed by:</p> <p><u>STANDARD:</u>    <b><u>CLOSE</u></b> MV-08-12 SG 2B Stem to AFW Pp 2C.</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4: (2.B)</u> RESET 2C AFW Pp electrical overspeed</p> <p><u>STANDARD:</u>    <b><u>CLOSE</u></b> MV-08-13 SG 2A Stem to AFW Pp 2C.</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5: (2.C.1)</u> PERFORM the following to reset and open MV-08-3, 2C Pump on RTGB-202</p> <p><u>STANDARD:</u>    <b><u>PLACE</u></b> MV-08-3 2C Pump Key 78, key switch to CLOSE.</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 6 (2.C.2)</u> PERFORM the following to reset and open MV-08-3, 2C Pump on RTGB-202</p> <p><u>STANDARD:</u>    <b><u>RETURN</u></b> MV-08-3 Brk2C Pump Key 78, key switch to OPEN</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7: (2.C.3)</u> PERFORM the following to reset and open MV-08-3, 2C Pump on RTGB-202</p> <p><u>STANDARD:</u>    <b><u>VERIFY</u></b> MV-08-3 Throttle / Trip Valve for AFW Pump 2C OPEN.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8: (2.D)</u>    <b>VERIFY</b> the pump has stopped rotating.</p> <p><u>STANDARD:</u>    <b><u>CONTACT</u></b> the NOP to determine if pump has stopped rotating.</p> <p><b>EXAMINERS CUE: Inform the Candidate the Pump has stopped rotating.</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 9: (2.E)</u>      PERFORM ONE of the following to drain oil from the underside of the governor main speed piston</p> <p><u>STANDARD:</u>      1. <b>WAIT</b> 3 minutes after the pump stops rotating</p> <p style="text-align: center;"><b>OR</b></p> <p>2. a. <b>PLACE</b> manual control knob on the side of the turbine governor FULLY COUNTER CLOCKWISE</p> <p>2. b. <b>RETURN</b> manual control knob on turbine governor FULL CLOCKWISE</p> <p><b>EXAMINERS CUE: It has been three minutes since pump has stopped rotating</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10: (2.F)</u> ENSURE MV-09-11, Pump 2C to S/G 2A is CLOSED</p> <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> MV-09-11, Pump 2C to S/G 2A is CLOSED.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11: (2.G)</u> ENSURE MV-09-12, Pump 2C to S/G 2B is CLOSED</p> <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> MV-09-12, Pump 2C to S/G 2B is CLOSED</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 12: (2.H)</u> IF BOTH Steam Generators are intact and NOT faulted, <u>THEN</u> OPEN the following SIMULTANEOUSLY</p> <p><u>STANDARD:</u>     <b>1. <u>OPEN</u></b> MV-08-13, SG 2A Steam to AFW Pp 2C                              <b>2. <u>OPEN</u></b> MV-08-12, SG 2B Steam to AFW Pp 2C</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13: (2.J)</u> IF flow is to be restored to the 2A S/G <u>THEN</u> ENSURE OPEN SE-09-4 2C Pump Disch to 2A S/G Vlv Key 85</p> <p><u>STANDARD:</u>     <b><u>OPEN</u></b> SE-09-4 2C Pump Disch to 2A S/G Vlv Key 85</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <p>Excessive Feedwater to a Steam Generator following a Total Loss of Feedwater can result in water hammer and thermal shock. Following a Total Loss of Feedwater, initial Feedwater flow should be controlled as follows:</p> <ul style="list-style-type: none"> <li>If using Auxiliary Feedwater, 150 gpm for 5 minutes OR until SG level has risen</li> <li>If using Main Feedwater OR Condensate, 'As low as possible' for the first 5 minutes OR until SG level has risen.</li> </ul> </div> <p><u>STEP 14: (2.L)</u> To restore flow to the 2A S/G <u>THROTTLE</u> MV-09-11, Pump 2C to S/G to desired flowrate.</p> <p><u>STANDARD:</u>     <b><u>THROTTLE</u></b> MV-09-11, Pump 2C to S/G to 150 gpm.</p> <p style="text-align: center;"><b>EXAMINERS CUE: Terminate JPM when candidate has established flow to the 2A SG from the 2C AFW pump.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

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



**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

The Unit is in Mode 3 NOP/NOT. The 2A AFW tripped. The 2C AFW pump is ready to be started to feed the 2A SG.

**INITIATING CUES:**

The US directs you to start the 2C AFW using 2-NOP-09.02 Auxiliary Feedwater step 6.4.5 and feed the 2A SG.

**JOB PERFORMANCE MEASURE**  
**SIMULATOR SETUP SHEET**

1. IC #6 File S-5 Afw.Isn Mode 3 NOP/NOT
2. Scenario triggers electrical overspeed of the 2C AFW pump 30 seconds after start
3. Ensure 2C steam admission valves are closed and 2C AFW pump is NOT running
4. Place 2A AFW pump to stop and close associated valves



## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **RESPOND TO LOSS OF RCP CONTROLLED BLEEDOFF AND FAILED RCP SEALS ON THE 2B1 RCP**

#### **NRC S-2**

Developed/Revised by: Larry Rich 4/01/08  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

**Task:** Respond to loss of RCP controlled bleedoff and failed RCP seals on the 2B1 RCP

**Alternate Path JPM?** Yes

**Facility JPM #:** N/A

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is complete when RCP Bleedoff flow has been established to the QT, the Reactor has been tripped and the 2B1 RCP has been stopped.

**Evaluation Location:**

Simulator	In Plant	Lab	Other
X			

**Performance Level:**

Perform	Simulate	Discuss
X		

**References:**

- 2-0120034 Reactor Coolant Pump

**Validation Time:** 10 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 2-0120034 Reactor Coolant Pump

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Re-establish RCP bleedoff flow.
- The performance level to be used for this JPM is **PERFORM**.
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

The Unit is at 100%. RCP controlled bleedoff flow has been lost.

**INITIATING CUES:**

The US directs you to investigate the loss of RCP controlled bleedoff, in accordance with 2-0120034 Reactor Coolant Pump.

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 3 (6.3.5.1)</u>      IF normal Controlled Bleedoff can NOT be VERIFIED, <u>Then</u> open V2507 RCP Bleedoff Relief Stop Vlv.</p> <p><u>STANDARD:</u>    <b><u>OPEN</u></b> V2507 RCP Bleedoff Relief Stop Vlv.</p> <p style="text-align: center;"><b>EXAMINERS NOTE:</b> Upon opening V2507, three seals fail on 2B1 RCP</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p style="text-align: center;">_____ SAT</p> <p style="text-align: center;">_____ UNSAT</p>
<p><u>STEP 4: (6.3.9.A)</u>      IF three seals have failed <u>Then</u> TRIP the Reactor</p> <p style="text-align: center;">TRIP the Reactor</p> <p><u>STANDARD:</u>    <b><u>TRIP</u></b> the Reactor</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p style="text-align: center;">_____ SAT</p> <p style="text-align: center;">_____ UNSAT</p>
<p><u>STEP 5: (6.3.9.B)</u>      IF three seals have failed <u>Then:</u> TRIP the Turbine</p> <p><u>STANDARD:</u>    <b><u>TRIP</u></b> the Turbine</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">_____ SAT</p> <p style="text-align: center;">_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 6: (6.3.9.C) Done</u> STOP the affected RCP(s)</p> <p><u>STANDARD:</u>    <b><u>STOP</u></b> the 2B1 RCP</p> <p>                  <b>EXAMINERS CUE:</b> The JPM is complete when the 2B1 RCP has been stopped.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
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**STOP TIME:** \_\_\_\_\_

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

The Unit is at 100%. RCP controlled bleedoff flow has been lost.

**INITIATING CUES:**

The US directs you to investigate the loss of RCP controlled bleedoff, in accordance with 2-0120034 Reactor Coolant Pump.



**JOB PERFORMANCE MEASURE**  
**SIMULATOR SETUP SHEET**

1. Trigger S-3 RCP.Isn

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

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

<b>2-0120034 Reactor Coolant Pump</b>	
<p><u>STEP 1: (6.3.5.A)</u>      IF Controlled Bleedoff flow is Lost or Low, <u>Then</u> ENSURE: V2505 RCP Bleedoff Cntmt Isol. Is open.</p> <p><u>STANDARD:</u>      <b><u>OPEN</u></b> V2505 RCP Bleedoff Cntmt Isol.</p> <p style="text-align: center; padding-top: 20px;"><b>EXAMINERS NOTE: V2505 will not open</b></p> <p><u>COMMENTS:</u></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (6.3.5.B)</u>      IF Controlled Bleedoff flow is Lost or Low, <u>Then</u> ENSURE: V2524 RCP Bleedoff Cntmt Isol. Is open.</p> <p><u>STANDARD:</u>      <b><u>OPEN</u></b> V2524 RCP Bleedoff Cntmt Isol.</p> <p style="text-align: center; padding-top: 20px;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**



**St. Lucie Nuclear Plant**

**Operations Training**

**JOB PERFORMANCE MEASURE**

**ALIGN THE ECCS FOR SIMULTANEOUS HOT  
AND COLD LEG INJECTION - UNIT 2**

**NRC S-3**

Developed/Revised by: Larry Rich 4/01/08  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

**Task:** 07003110, ALIGN SAFETY INJECTION FOR HOT AND COLD LEG INJECTION

**Alternate Path JPM?** Yes

**Facility JPM #:** 0821158 (Modified for NRC exam)

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is complete when the US is informed that 2B Hot and Cold leg injection is aligned.

**Evaluation Location:**

**Performance Level:**

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
X				X		

**References:**

- 2-EOP-99, Appendix O, "Simultaneous Hot and Cold Leg Injection"

**Validation Time:** 15 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- None

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Align the 2B HPSI to Provide Hot and Cold Leg Injection – Unit 2
- The performance level to be used for this JPM is **Perform**
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

A loss of coolant accident has occurred and has been diagnosed in Unit 2. It is four and a half (4.5) hours post-trip, and Shutdown Cooling can **NOT** be established. 2A and 2B HPSI pumps are running.

**INITIATING CUES:**

You are the RCO. The US has directed you to complete Section 2, Simultaneous Hot and Cold Leg Injection IAW 2-EOP-99, Appendix O, for B side ONLY.

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

<b>Section 2: Aligning 2B HPSI for Hot Leg Injection:</b>		
<u>STEP 1 (1)</u>	OPEN V3551, To Hot Leg 2B Valve.	<b>CRITICAL STEP</b>
<u>STANDARD:</u>	<b><u>POSITION</u></b> V3551 control switch to <b><u>OPEN</u></b> .	_____ SAT
	<b>EXAMINER'S CUE:</b>	_____ UNSAT
<u>COMMENTS:</u>		
<u>STEP 2 (2)</u>	OPEN V3523, To Hot Leg 2B Valve.	<b>FAULTED STEP</b>
<u>STANDARD:</u>	<b><u>POSITION</u></b> V3523 control switch to <b><u>OPEN</u></b> .	_____ SAT
	<b>EXAMINERS NOTE:</b> V3523 will not open <b>EXAMINER'S CUE:</b> When Candidate recognizes V3523 will not open, inform him as US to align the A side for Hot and Cold Leg Injection <b>EXAMINERS NOTE:</b> Although not procedurally driven, Candidate should go back and close V3551, to Hot Leg 2B Valve	_____ UNSAT
<u>COMMENTS:</u>		
<b>Section 1: Aligning 2A HPSI for Hot Leg Injection</b>		
<u>STEP 3: (1)</u>	OPEN V3550, To Hot Leg 2A Valve.	<b>CRITICAL STEP</b>
<u>STANDARD:</u>	<b><u>POSITION</u></b> V3550 control switch to <b><u>OPEN</u></b> .	_____ SAT
	<b>EXAMINER'S CUE:</b>	_____ UNSAT
<u>COMMENTS:</u>		

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 4: (2)</u>      OPEN V3540, To Hot Leg Valve.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> V3540 control switch to <b><u>OPEN</u></b></p> <p><b>EXAMINER'S CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5: (3)</u>      CLOSE V3656, Pump 2A Discharge Valve.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> V3656 control switch to <b><u>CLOSE</u></b></p> <p><b>EXAMINER'S CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (4)</u>      VERIFY flow to the 2A Hot Leg is greater than or equal to 250 gpm on ANY of the following instruments:</p> <ul style="list-style-type: none"> <li>•          FI-3315 HPSI to Hot Leg</li> <li>•          FR-3317 HPSI to Hot leg 2A Flow</li> </ul> <p><u>STANDARD:</u>      <b><u>OBSERVE</u></b> FI-3315 or FR-3317</p> <p><b>EXAMINER'S CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

# JOB PERFORMANCE MEASURE

## PERFORMANCE CHECKLIST

<p><b><u>STEP 7: (5)</u></b>    <b><u>IF ONE</u></b> HPSI Pump is running, <b><u>THEN</u></b> ENSURE flow to the Cold Legs is greater than or equal to 250 gpm by the <b>TOTAL</b> of all <b>FOUR</b> of the following instruments:</p> <ul style="list-style-type: none"> <li>•        FI-3321 HPSI Loop 2A1 Flow</li> <li>•        FI-3311 HPSI Loop 2A2 Flow</li> <li>•        FI-3331 HPSI Loop 2B1 Flow</li> <li>•        FI-3341 HPSI Loop 2B2 Flow</li> </ul> <p><b><u>STANDARD:</u></b>    <b><u>DETERMINE</u></b> that two HPSI Pumps are running and this step is N/A</p> <p style="text-align: center;"><b>EXAMINER'S CUE:</b></p> <p><b><u>COMMENTS:</u></b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b><u>STEP 8: (6)</u></b>    <b><u>IF TWO</u></b> HPSI Pump is running, <b><u>THEN</u></b> ENSURE flow to the Cold Legs is greater than or equal to 440 gpm by the <b>TOTAL</b> of all <b>FOUR</b> of the following instruments:</p> <ul style="list-style-type: none"> <li>•        FI-3321 HPSI Loop 2A1 Flow</li> <li>•        FI-3311 HPSI Loop 2A2 Flow</li> <li>•        FI-3331 HPSI Loop 2B1 Flow</li> <li>•        FI-3341 HPSI Loop 2B2 Flow</li> </ul> <p style="text-align: center;"><b>OR</b></p> <ul style="list-style-type: none"> <li>•        FR-3313 / 3323 HPSI Loop 2A2 &amp; 2A1 Flow</li> <li>•        FR-3333 / 3343 HPSI Loop 2B2 &amp; 2B1 Flow</li> </ul> <p><b><u>STANDARD:</u></b>    <b><u>OBSERVE</u></b> Flow instruments listed above</p> <p><b>EXAMINER'S CUE:</b></p> <p><b>COMMENTS:</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>



**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<b><u>STEP Done:</u></b> Notify the US that the 2A HPSI train is Aligned for simultaneous Hot and Cold Leg injection.	
<b>STANDARD:</b> <b><u>NOTIFY</u></b> the US that simultaneous Hot and Cold Leg injection is <b><u>ALIGNED</u></b> to the 2A HPSI train.	_____ SAT
<b>EXAMINER'S CUE:</b> US ACKNOWLEDGES.	_____ UNSAT
<b>COMMENTS:</b>	
<b>END OF TASK</b>	

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

**JOB PERFORMANCE MEASURE**  
**SIMULATOR JPM SETUP**

1. **RESTORE** File XR021.Dat.
2. **V3523** is failed closed in IC set.
3. **UNFREEZE** the Simulator when the student is ready.

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

A loss of coolant accident has occurred and has been diagnosed in Unit 2. It is four and a half (4.5) hours post-trip, and Shutdown Cooling can NOT be established. 2A and 2B HPSI pumps are running.

**INITIATING CUES:**

You are the RCO. The US has directed you to complete Section 2 Simultaneous Hot and Cold Leg Injection IAW 2-EOP-99, Appendix O, for B side ONLY.



Reminder to the TPE Evaluator  
Refer to the OJT/TPE Procedure and  
follow the instructions.

## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **ESTABLISH ALTERNATE CHARGING FLOWPATH TO RCS THROUGH 'A' HPSI HEADER - UNIT 2**

**Bank JPM 0821115/R11  
Simulator  
NRC S-4**

Developed/Revised by: J.W. Weeks 4/25/07  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

Task: 05002180, Respond to a Loss of Charging  
07002130, ALIGN ALTERNATE CHARGING FLOW PATH  
07002610, VERIFY BORATION FLOW PATH  
07002650, EMERGENCY BORATE THE RCS

**Alternate Path JPM?** No

**Facility JPM #:** 0821115

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is complete when the US is notified that emergency boration has been established through the 'A' High Pressure Safety Injection Header.

**Evaluation Location:**

**Performance Level:**

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
<u>X</u>	<u>X</u>	<u>      </u>	<u>      </u>	<u>X</u>	<u>X</u>	<u>      </u>

**References:**

2-EOP-99, Appendix T, "Alternate Charging Flow Path to RCS Through 'A' HPSI Header"

**Validation Time:** 10 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

2-EOP-99, Appendix T, "Alternate Charging Flow Path to RCS Through 'A' HPSI Header"

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

## **JOB PERFORMANCE MEASURE**

### **INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

#### **SPECIFIC DIRECTIONS:**

- The task you are to perform is:  
  
Establish Alternate Charging Flow Path through 'A' HPSI Header - Unit 2
- The performance level to be used for this JPM is **Perform**, or **Simulate**.  
(Circle the performance level being used for this implementation of the JPM)
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

#### **SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

#### **INITIAL CONDITIONS:**

Unit 2 was tripped from 100% power due to a problem with the Feedwater Regulating System. Subsequent to the trip it was discovered that two CEAs had stuck out and emergency boration was begun. The SNPO reported a pipe break in the charging header between V2429 and V2523, and the emergency boration line-up was secured. With the loss of the Reactivity Control safety function, it was decided to enter 2-EOP-15.

#### **INITIATING CUES:**

You are the Desk RCO. The US has directed you to emergency borate using 'A' HPSI header and the 2A Charging Pump per 2-EOP-99, Appendix T, "Alternate Charging Flow Path to RCS Through 'A' HPSI Header."

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

2-EOP-99, Appendix T, "Alternate Charging Flow Path to RCS Through 'A' HPSI Header."	
<p><u>STEP 1: (1)</u>      ENSURE letdown is ISOLATED.</p> <p><u>STANDARD:</u>    <b><u>Verify</u></b> all letdown Isolation Valves <b>CLOSED</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    All letdown isolation valves closed, Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (2)</u>      PLACE ALL Charging Pump in STOP.</p> <p><u>STANDARD:</u>    <b><u>VERIFY ALL</u></b> Charging Pump control switches to <b>STOP</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    ALL charging Pumps are in STOP, Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3: (3)</u>      PLACE 2A HPSI Pump in STOP.</p> <p><u>STANDARD:</u>    <b><u>POSITION</u></b> 2A HPSI Pump switch in <b>STOP</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    2A HPSI pump switch in STOP, Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4: (4)</u>      CLOSE V3656, HPSI Pump 2A Discharge Valve.</p> <p><u>STANDARD:</u>    <b><u>OBTAIN</u></b> key #67, <b><u>POSITION</u></b> V3656 to <b>CLOSED</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    V3656 indicates Green light ON, Red light OFF Q-33 Alarms.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 5: (5.A)</u>    Locally OPEN V2340, Charging Pump Discharge to 'A' HPSI Header Isolation. (located in 2C Charging Pump Room).</p> <p><u>STANDARD:</u>    <b><u>DIRECT</u></b> SNPO to <b>OPEN</b> V2340.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    The SNPO Reports V2340 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (5.B)</u>    If desired to use <b>ANY combination of Charging Pump</b>, <u>Then</u> locally LOCK CLOSED V2429, Charging Pump Discharge Isolation.</p> <p><u>STANDARD:</u>    <b><u>DIRECT</u></b> THE SNPO to locally <b>LOCK CLOSED</b> V2429.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    The SNPO REPORTS that V2429 is LOCK CLOSED.</p> <p style="padding-left: 40px;"><b>EXAMINER'S NOTE:</b>    Break is downstream of V2429 per the cue therefore V2429 is to be closed. Located in pipe penetration room at Penetration Number 27.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7: (5.D)</u>    Locally OPEN V3519, Charging Pump to 'A' HPSI Hdr Isol (Located in "A" HPSI pump room).</p> <p><u>STANDARD:</u>    <b><u>DIRECT</u></b> THE SNPO to locally <b>OPEN</b> V3519.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    The SNPO REPORTS that V3519 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**



# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

<p><b>STEP 8: (6)</b>      ENSURE Charging Pump(s) have a suction flowpath from <b>ONE</b> of the following sources:</p> <p style="text-align: center;">Boric Acid Makeup Tank Refueling Water Tank Volume Control Tank</p> <p><b>STANDARD:</b>      <b>Verify</b> Charging Pump Suction Flowpath.</p> <p><b>*EXAMINER'S CUE:</b>      <b>Charging Pump Suction is from the Boric Acid Makeup Tank.</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b>STEP 9: (7)</b>      ENSURE Charging Pump(s) have a discharge flowpath by OPENING at least <b>ONE</b> 'A' HPSI Header Loop Isolation Valve:</p> <p style="text-align: center;">HCV-3617 2A2 Cold Leg HCV-3627 2A1 Cold Leg HCV-3637 2B1 Cold Leg HCV-3647 2B2 Cold Leg</p> <p><b>STANDARD:</b>      <b>POSITION</b> Any one of the four valves to <b>OPEN</b>.</p> <p><b>*EXAMINER'S CUE:</b>      <b>As any one of the four Valves is OPENED, indicate the Green light is OFF, Red light is ON.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b>STEP 10: (8)</b>      START Charging Pump(s) <b>AS NECESSARY</b>.</p> <p><b>STANDARD:</b>      <b>POSITION</b> the 2A Charging Pump to <b>START</b>.</p> <p><b>*EXAMINER'S CUE:</b>      <b>2A Charging Pump indicates Green light OFF and Red light ON. Recirc Valve Indicates BOTH lights ON. After 3 minutes Recirc Indicates Green light ON and Red light OFF.</b></p> <p><b>EXAMINER'S CUE:</b>      <b>As Recirc Valve closes, depending on which SI Header Valve is opened, R-46, 47, 56 or 57 Alarms and Loop Pressure PIA-3329, 3319, 3339 or 3349 Indicates ~1980 psig.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

\*Cues are to be used only if JPM performance is being simulated in the plant.

**JOB PERFORMANCE MEASURE  
PERFORMANCE CHECKLIST**

<p><u>STEP 11: (9)</u>    VERIFY flow to the RCS by <b>ANY</b> of the following:</p> <p style="margin-left: 40px;">Pressurizer level rising</p> <p style="margin-left: 40px;">Indicated flow on applicable HPSI Loop Flow Indicator</p> <p><u>STANDARD:</u>    <b>OBSERVE</b> Pressurizer Level and HPSI flow for <b>PROPER</b> indication.</p> <p style="margin-left: 40px;"><b>*EXAMINER'S CUE:</b>    Pressurizer Level is slowly <b>RISING</b> and applicable HPSI Loop Flow Indicates 44 gpm.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u>    NOTIFY the US that emergency boration and charging flow has been established through the 'A' High Pressure Safety Injection Header using the 2A Charging Pump.</p> <p><u>STANDARD:</u>    <b>NOTIFY</b> the US that emergency boration and charging flow has been <b>ESTABLISHED</b> through the 'A' High Pressure Safety Injection Header using the 2A Charging Pump.</p> <p style="margin-left: 40px;"><b>EXAMINER'S CUE:</b>    <b>US ACKNOWLEDGES</b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center; margin-top: 20px;"><b>END OF TASK</b></p>	

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

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

## **JOB PERFORMANCE MEASURE**

### **SIMULATOR JPM SETUP**

1. **RESTORE** IC-1. **UNFREEZE** the Simulator.
2. **SELECT** the Lesson File Folder for JPM.
3. **OPEN** the Lesson File for 0821115 and **EXECUTE** the Lesson.
4. **TRIGGER STEP 1.**
5. After Letdown isolates on high temperature, **CLOSE** all three Letdown valves and **PLACE** all Charging pumps in **STOP**.
6. Line up Emergency Boration by performing the following steps:
  - **START** 2A or 2B BA Pump.
  - **CLOSE** V2650, Tank 2A Recirc. Valve.
  - **CLOSE** V2651, Tank 2B Recirc Valve.
  - **OPEN** V2514, Emergency Borate.
7. The Simulator will automatically **FREEZE** after about 5 minutes. All SPTAs are performed by the scenario.
8. **STORE** a temporary IC set if more than one student is to take the JPM. **Note:** The lesson will have to be stopped and then re-executed each time the temporary IC set is restored.
9. **UNFREEZE** the simulator when the student is ready.
10. **TRIGGER STEP** 'Open V2340' when directed to do so by the student.
11. **TRIGGER STEP** 'Close V2429' when directed to do so by the student.
12. **TRIGGER STEP** 'Open V3519' when directed to do so by the student.

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

Unit 2 was tripped from 100% power due to a problem with the Feedwater Regulating System. Subsequent to the trip it was discovered that two CEAs had stuck out and emergency boration was begun. The SNPO reported a pipe break in the charging header between V2429 and V2523, and the emergency boration line-up was secured. With the loss of the Reactivity Control safety function, it was decided to enter 2-EOP-15.

**INITIATING CUES:**

You are the Desk RCO. The US has directed you to emergency borate using 'A' HPSI header and the 2A Charging Pump per 2-EOP-99, Appendix T, "Alternate Charging Flow Path to RCS Through 'A' HPSI Header."



Reminder to the TPE Evaluator  
Refer to the OJT/TPE Procedure and  
follow the instructions.

## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **RESPOND TO HIGH RADIATION ALARM ON SPENT FUEL MONITORS - UNIT 2**

**Bank JPM 0821117A/R07  
Simulator  
NRC S-5**

Developed/Revised by: J.W. Weeks 4/26/07  
Date

Training Management Approval: \_\_\_\_\_  
Date

## JOB PERFORMANCE MEASURE

**Task:** 07025090, ALIGN SFP VENTILATION TRAINS  
07067430, RESPOND TO FUEL HANDLING ACCIDENT

**Alternate Path JPM?** Yes

**Facility JPM #:** 0821117A

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is complete when the US has been notified that the Fuel Handling Building ventilation line-up has been verified including contingency actions in accordance with 2-ONP-26.02.

**Evaluation Location:**

Simulator	In Plant	Lab	Other
X	X		

**Performance Level:**

Perform	Simulate	Discuss
X	X	

**References:**

2-ONP-26.02, Area Radiation Monitors

**Validation Time:** 10 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 2-ONP-26.02, "Area Radiation Monitors"

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Respond to high radiation alarm on Spent Fuel Monitors – Unit 2
- The performance level to be used for this JPM is **Perform**, or **Simulate**.  
(Circle the performance level being used for this implementation of the JPM)
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMS:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

Unit 2 is at 100% power. Refueling preparations are being made in the Fuel Handling Building with spent fuel movement in the spent fuel pool. Spent Fuel Pool Radiation Monitors, GAG007, GAG009, GAG011, and GAG012 are in High Alarm and GAG008 and GAG010 are in Alert Alarm. 2-ONP-26.02 is being implemented. The alarms have been verified valid. The fuel movement has been suspended and the FHB has been evacuated.

**INITIATING CUES:**

You are the Desk RCO. The US has directed you to verify proper Fuel Handling Building ventilation line-up in accordance with 2-ONP-26.02, "Area Radiation Monitors," step 4.2.2.D.

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

VERIFY the following fans are OFF:	
<p><u>STEP 1: (4.2.2.D.1)</u>      HVS-6, Fuel Pool Supply Fan.</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> HVS-6 is <b>OFF</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVS-6 indicates Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (4.2.2.D.1)</u>      HVS-7, Fuel Handling Bldg Supply Fan.</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> HVS-7 is <b>OFF</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVS-7 indicates Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3: (4.2.2.D.1)</u>      HVE-15, Fuel Handling Bldg Exhaust Fan.</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> HVE-15 is <b>OFF</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVE-15 indicates Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4: (4.2.2.D.1)</u>      HVE-16A, Fuel Pool Exhaust Fan.</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> HVE-16A is <b>OFF</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVE-16A indicates Green light ON, Red light OFF.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**



# **JOB PERFORMANCE MEASURE** **PERFORMANCE CHECKLIST**

<p><u>STEP 5: (4.2.2.D.1)</u>     HVE-16B, Fuel Pool Exhaust Fan.</p> <p><u>STANDARD:</u>     <b><u>ENSURE</u></b> HVE-16B is <b>OFF</b>.</p> <p>      <b>*EXAMINER'S CUE:</b>   HVE-16B indicates Green lights ON, Red lights OFF</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (4.2.2.D.1)</u>     HVE-17, Fuel Bldg Swgr Area Exhaust Fan (local indication only).</p> <p><u>STANDARD:</u>     <b><u>DIRECT</u></b> the SNPO to locally <b>STOP</b> HVE-17.</p> <p>      <b>*EXAMINER'S CUE:</b>   SNPO reports that HVE-17 is <b>STOPPED</b>.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7: (4.2.2.D.2)</u>     VERIFY the following FHB dampers are CLOSED:</p> <ul style="list-style-type: none"> <li>• D-33, Fuel Hdlg Bldg Inlet Damper</li> <li>• D-35, Fuel Hdlg Bldg Outlet Damper</li> <li>• D-29, Fuel Pool Inlet Damper</li> <li>• D-31, Fuel Pool Outlet Damper</li> <li>• D-34, Fuel Hdlg Bldg Inlet Damper</li> <li>• D-36, Fuel Hdlg Bldg Outlet Damper</li> <li>• D-30, Fuel Pool Inlet Damper</li> <li>• D-32, Fuel Pool Outlet Damper</li> </ul> <p><u>STANDARD:</u>     <b><u>VERIFY</u></b> Dampers D-29 through D-36 are <b>CLOSED</b>.</p> <p>      <b>*EXAMINER'S CUE:</b>   Dampers D-29 through D-36 indicate Green light ON, Red light OFF as each damper is verified.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

VERIFY the following components are aligned as indicated:	
<p><u>STEP 8: (4.2.2.D.3)</u>    FCV-25-30, Fuel Handling Emerg Vent Vlv, is OPEN.</p> <p><u>STANDARD:</u>    <b><u>OBSERVE</u></b> FCV-25-30 <b>CLOSED</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-30 indicates Green light ON, Red Light OFF.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Faulted Step FCV-25-30 failed to auto OPEN.</p> <p><u>COMMENTS:</u></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b>CONTINGENCY ACTION:</b></p> <p><u>STEP 9: (4.2.2.D.3)</u>    PERFORM the following on the HVCB:</p> <p style="padding-left: 40px;">OPEN FCV-25-30 at the HVAC panel.</p> <p><u>STANDARD:</u>    <b><u>POSITION</u></b> FCV-25-30 control switch to <b>OPEN</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-30 indicates Green light OFF, Red Light ON. X-4 Alarms as delta-P lowers.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10: (4.2.2.D.3)</u>    FCV-25-32, SBVS Isolation Valve, is CLOSED.</p> <p><u>STANDARD:</u>    <b><u>OBSERVE</u></b> FCV-25-32 <b>OPEN</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-32 indicates Green light OFF, Red Light ON.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Faulted Step FCV-25-32 failed to auto CLOSE.</p> <p><u>COMMENTS:</u></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE  
PERFORMANCE CHECKLIST**

<p><b>CONTINGENCY ACTION:</b>  <u>STEP 11: (4.2.2.D.3)</u>    PERFORM the following on the HVCB:</p> <p style="padding-left: 40px;">CLOSE FCV-25-32 at the HVAC panel.</p> <p><b>STANDARD:</b>    <b><u>POSITION</u></b> FCV-25-32 control switch to <b>CLOSE</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-32 indicates Green light ON, Red Light OFF.  V-20 Alarms.</p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12: (4.2.2.D.3)</u>    HVE-6A, SBVS Exhaust Fan, is ON.</p> <p><b>STANDARD:</b>    <b><u>ENSURE</u></b> HVE-6A is <b>ON</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVE-6A indicates Green light OFF, Red light ON.</p> <p><b>COMMENTS:</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13: (4.2.2.D.3)</u>    FCV-25-31, Fuel Handling Emerg Vent Vlv., is OPEN.</p> <p><b>STANDARD:</b>    <b><u>OBSERVE</u></b> FCV-25-31 <b>CLOSED</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-31 indicates Green light ON, Red Light OFF.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Faulted Step FCV-25-31 failed to auto OPEN.</p> <p><b>COMMENTS:</b></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

<p><b>CONTINGENCY ACTION:</b>  <u>STEP 14: (4.2.2.D.3)</u>    PERFORM the following on the HVCB:</p> <p style="padding-left: 40px;">OPEN FCV-25-31 at the HVAC panel.</p> <p><b>STANDARD:</b>    <u>POSITION</u> FCV-25-31 control switch to <b>OPEN</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-31 indicates Green light OFF, Red Light ON.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 15: (4.2.2.D.3)</u>    FCV-25-33, SBVS Isolation Valve, is CLOSED.</p> <p><b>STANDARD:</b>    <u>OBSERVE</u> FCV-25-33 <b>OPEN</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-33 indicates Green light OFF, Red Light ON.</p> <p style="padding-left: 40px;"><b>EVALUATOR'S NOTE:</b> Faulted Step FCV-25-33 failed to auto CLOSE.</p> <p><u>COMMENTS:</u></p>	<p><b>FAULTED STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><b>CONTINGENCY ACTION:</b>  <u>STEP 16: (4.2.2.D.3)</u>    PERFORM the following on the HVCB:</p> <p style="padding-left: 40px;">CLOSE FCV-25-33 at the HVAC panel.</p> <p><b>STANDARD:</b>    <u>POSITION</u> FCV-25-33 control switch to <b>CLOSE</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    FCV-25-33 indicates Green light ON, Red Light OFF.  V-21 Alarms.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

# **JOB PERFORMANCE MEASURE** **PERFORMANCE CHECKLIST**

<p><u>STEP 17: (4.2.2.D.3)</u>    HVE-6B, SBVS Exhaust Fan, is ON.</p> <p><u>STANDARD:</u>    <b><u>ENSURE</u></b> HVE-6B is <b>ON</b>.</p> <p style="padding-left: 40px;"><b>*EXAMINER'S CUE:</b>    HVE-6B indicates Green light OFF, Red light ON.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u>    NOTIFY the US that the Fuel Handling Building ventilation line-up has been verified in accordance with 2-ONP-26.02 and FCV-25-30 and FCV-25-31 had to be manually opened, FCV-25-32 and FCV-25-33 had to be manually closed.</p> <p><u>STANDARD:</u>    <b><u>NOTIFY</u></b> the US that the Fuel Handling Building ventilation line-up has been <b>VERIFIED</b> and FCV-25-30 and FCV-25-31 had to be manually <b>OPENED</b> and FCV-25-32 and FCV-25-33 had to be manually <b>CLOSED</b>.</p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>    <b>US ACKNOWLEDGES.</b></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

## **JOB PERFORMANCE MEASURE**

### **SIMULATOR JPM SETUP**

1. **RESTORE** IC-1.
2. **UNFREEZE** the Simulator.
3. **SELECT** the JPM Lesson File Folder.
4. **OPEN** and **EXECUTE** the lesson for 0821117A. **ACKNOWLEDGE** the PC-11 alarm.
5. **FREEZE** the Simulator.
6. **STORE** a Temporary IC set if more than one student will be performing the JPM. **UNFREEZE** the Simulator for a few seconds and then **FREEZE** the Simulator. **ACKNOWLEDGE** the PC-11 alarm.  
**Note:** The lesson will have to be stopped and then re-executed each time the temporary IC set is restored.
7. **UNFREEZE** the Simulator when the student is ready to begin.

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

Unit 2 is at 100% power. Refueling preparations are being made in the Fuel Handling Building with spent fuel movement in the spent fuel pool. Spent Fuel Pool Radiation Monitors, GAG007, GAG009, GAG011, and GAG012 are in High Alarm and GAG008 and GAG010 are in Alert Alarm. 2-ONP-26.02 is being implemented. The alarms have been verified valid. The fuel movement has been suspended and the FHB has been evacuated.

**INITIATING CUES:**

You are the Desk RCO. The US has directed you to verify proper Fuel Handling Building ventilation line-up in accordance with 2-ONP-26.02, "Area Radiation Monitors," step 4.2.2.D.



Reminder to the TPE Evaluator  
Refer to the OJT/TPE Procedure and  
follow the instructions.

**St. Lucie Nuclear Plant**  
**Operations Training**  
**JOB PERFORMANCE MEASURE**  
**Bank JPM 0821021/Rev 12**  
**PLACE LTOP IN SERVICE - UNIT 1**  
**Unit 1 Control Room**  
**NRC C-6**

Developed/Revised by: J. D. Carpenter \_\_\_\_\_  
Date

Training Management Approval: \_\_\_\_\_  
Date



## JOB PERFORMANCE MEASURE

**Task:** Place Low Temperature Overpressure Protection in Service on Unit 1.

**Alternate Path JPM?** No

**Facility JPM #:** 0821021

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is complete when LTOP has been placed in service.

**Evaluation Location:**

Simulator	In Plant	Lab	Other
	X		

**Performance Level:**

Perform	Simulate	Discuss
	X	

**References:**

- 1-GOP-305, "Reactor Plant Cooldown – Hot Standby to Cold Shutdown"

**Validation Time:** 10 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 1-GOP-305, "Reactor Plant Cooldown – Hot Standby to Cold Shutdown"

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

The task you are to perform is: Place Low Temperature Overpressure Protection in Service on Unit 1.

- The performance level to be used for this JPM is Simulate
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

Unit 1 experienced a LOCA from a full power condition. 1-EOP-3 is being implemented. RCS temperature is 290°F and Pressurizer pressure is 500 psia. Annunciator H-15, PORV LOW RANGE CONDITION SELECT LOW, is in alarm.

**INITIATING CUES:**

You are the Desk RCO. The US has directed you to place LTOP in service in accordance with 1-GOP-305, "Reactor Plant Cooldown – Hot Standby to Cold Shutdown."

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

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

<b>1-GOP-305, Step 6.34</b> <b><u>When</u> RCS temperature is less than 304°F, but greater than 281°F,</b> <b><u>Then</u> place LTOP in service as follows:</b>	
<p><u>STEP 1: (6.34.1)</u>      Verify Annunciator H-15, PORV Low Range Condition Select Low, is in alarm.</p> <p><u>STANDARD:</u>    <b><u>VERIFY</u></b> Annunciator H-15 is in <b>ALARM</b> (per Initial Condition)</p> <p style="text-align: center;"><b>EXAMINER'S CUE:    Annunciator H-15 is in ALARM</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (6.34.2)</u>      Verify Annunciator H-21, Przr Relief Valve Anticipatory Alarm, is NOT in alarm.</p> <p><u>STANDARD:</u>    <b><u>VERIFY</u></b> Annunciator H-21 is <b>NOT</b> in <b>ALARM</b></p> <p style="text-align: center;"><b>EXAMINER'S CUE:    Annunciator H-21 is CLEAR</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3: (6.34.3.A)</u>      Perform the following for V1402, PORV:</p> <p style="padding-left: 40px;">A. CLOSE V1403, PORV Block Vlv.</p> <p><u>STANDARD:</u>    <b><u>POSITION</u></b> V1403 to <b>CLOSED</b></p> <p style="text-align: center;"><b>EXAMINER'S CUE:    V1403 indicates Green light ON, Red light OFF</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE  
PERFORMANCE CHECKLIST**

<p><u>STEP 4: (6.34.3.B)</u>      Perform the following for V1402, PORV:</p> <p style="padding-left: 40px;">B. PLACE the selector switch for PORV V1402 in the LOW RANGE position.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> HS-1402 mode selector switch to <b>LOW RANGE</b></p> <p><b>EXAMINER'S CUE:</b>      HS-1402 mode switch is in LOW RANGE</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5: (6.34.3.C)</u>      Perform the following for V1402, PORV:</p> <p style="padding-left: 40px;">C. Verify PORV V1402 did NOT open.</p> <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> that PORV V1402 remains <b>CLOSED</b></p> <p><b>EXAMINER'S CUE:</b>      V1402 indicates Green light ON, Red light OFF</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (6.34.3.D)</u>      Perform the following for V1402, PORV:</p> <p style="padding-left: 40px;">D. OPEN V1403, PORV Block Vlv.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> V1403 to <b>OPEN</b></p> <p><b>EXAMINER'S CUE:</b>      V1403 indicates Green light OFF, Red light ON</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7: (6.34.4.A)</u>      Perform the following for V1404, PORV:</p> <p style="padding-left: 40px;">A. CLOSE V1405, PORV Block Vlv.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> V1405 to <b>CLOSED</b></p> <p><b>EXAMINER'S CUE:</b>      V1405 indicates Green light ON, Red light OFF</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

# JOB PERFORMANCE MEASURE PERFORMANCE CHECKLIST

<p><u>STEP 8: (6.34.4.B)</u>      Perform the following for V1404, PORV:</p> <p style="padding-left: 40px;">B. PLACE the selector switch for PORV V1404 in the LOW RANGE position.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> HS-1404 mode selector switch to <b>LOW RANGE</b></p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>      <b>HS-1404 mode switch is in LOW RANGE</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9: (6.34.4.C)</u>      Perform the following for V1404, PORV:</p> <p style="padding-left: 40px;">C. Verify PORV V1404 did NOT open.</p> <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> that PORV V1404 remains <b>CLOSED</b></p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>      <b>V1404 indicates Green light ON, Red light OFF</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10: (6.34.4.D)</u>      Perform the following for V1404, PORV:</p> <p style="padding-left: 40px;">D. OPEN V1405, PORV Block Vlv.</p> <p><u>STANDARD:</u>      <b><u>POSITION</u></b> V1405 to <b>OPEN</b></p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>      <b>V1405 indicates Green light OFF, Red light ON H-15 Clears</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 11: (6.34.5)</u>      Perform testing of PORVs V1402 and V1403 in accordance with Data Sheet 24, Valve Testing Procedures, of OP-1-0010125A, Surveillance Data Sheets.</p> <p><u>STANDARD:</u>    <b><u>DETERMINE</u></b> PORV testing will be <b>PERFORMED</b> later</p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>    PORV testing will be <b>PERFORMED</b> later</p> <p><u>COMMENTS:</u></p>   	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u>    NOTIFY the US that LTOP has been placed in service.</p> <p><u>STANDARD:</u>    <b><u>NOTIFY</u></b> the US that LTOP has been placed <b>IN SERVICE</b>.</p> <p style="padding-left: 40px;"><b>EXAMINER'S CUE:</b>    <b>US ACKNOWLEDGES</b></p> <p><u>COMMENTS:</u></p>   <p style="text-align: center;"><b>END OF TASK</b></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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

**\*Cues are to be used only if JPM performance is being simulated in the plant.**

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

Unit 1 experienced a LOCA from a full power condition. 1-EOP-3 is being implemented. RCS temperature is 290°F and Pressurizer pressure is 500 psia. Annunciator H-15, PORV LOW RANGE CONDITION SELECT LOW, is in alarm.

**INITIATING CUES:**

You are the Desk RCO. The US has directed you to place LTOP in service in accordance with 1-GOP-305, "Reactor Plant Cooldown – Hot Standby to Cold Shutdown."



## **St. Lucie Nuclear Plant**

### **Operations Training**

#### **JOB PERFORMANCE MEASURE**

#### **ALIGN 2C CCW PUMP TO SUPPLY THE 'B' CCW HEADER – UNIT 2**

#### **NRC S-7**

Developed/Revised by: Larry Rich 4/01/08  
Date

Training Management Approval: \_\_\_\_\_  
Date



## JOB PERFORMANCE MEASURE

**Task:** Align the 2C CCW pump to the 'B' CCW header in accordance with 2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.

**Alternate Path JPM?** No

**Facility JPM #:** N/A

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

**Duty Area(s):** N/A

**Task Information:** N/A

**Task Standard:**

This JPM is completed when the 2C CCW pump is operating on the 'B' CCW header and the 2AB 4.16 KV bus is aligned to the 'B' side.

**Evaluation Location:**

**Performance Level:**

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
X				X		

**References:**

- 2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.
- 2-NOP-52.02 ALIGNMENT OF 2AB BUSES AND COMPONENTS

**Validation Time:** 15 minutes

**Time Critical:** No

**Tools/Equipment/Procedures Needed:**

- 2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.
- 2-NOP-52.02 ALIGNMENT OF 2AB BUSES AND COMPONENTS

**Specific Safety Rules, Personal Protective Equipment and Hazards associated with the task.**

- None

**Radiological Protection and RWP Requirements:**

- None

**JOB PERFORMANCE MEASURE**  
**INITIAL CONDITIONS AND SPECIFIC DIRECTIONS**

**SPECIFIC DIRECTIONS:**

- The task you are to perform is: Start the 2C CCW pump on the 'B' side and align the 2AB 4.16KV bus to the 'B' side.
- The performance level to be used for this JPM is **SIMULATE**.
- This is not a time critical JPM.
- During the performance of the task, I will tell you which steps to simulate or discuss.
- I will provide you with the appropriate cues for steps that are simulated or discussed.
- You may use any approved reference materials normally available in the execution of this task, including logs.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**SPECIFIC DIRECTIONS FOR SIMULATOR JPMs:**

- All simulator JPM steps, including communications, shall be performed for this JPM.
- You are to operate any plant equipment that is necessary for the completion of this JPM.
- The simulator will provide the cues as you perform this JPM.
- Indicate to me that you have finished the assigned task by returning the Candidate Cue Sheet that I provided to you.

**INITIAL CONDITIONS:**

The Unit is at 100% power. The 2B CCW pump has tripped and cannot be started. The 2C CCW pump is available to be aligned and started on the 2B CCW header.

**INITIATING CUES:**

The US directs you to align and start the 2C CCW on the 2B header in accordance with 2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

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

<b>2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.</b>	
<p><u>STEP 1: (6.2.3.B.1)</u> ENSURE Closed MV-14-1 2C CCW Pump Discharge to A Header.</p> <p><u>STANDARD:</u>    <b><u>CLOSE</u></b> MV-14-1 2C CCW Pump Discharge to A Header.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (6.2.3.B.1)</u> ENSURE Closed MV-14-3 2C CCW Pump Suction from A Header:</p> <p><u>STANDARD:</u>    <b><u>CLOSE</u></b> MV-14-3 2C CCW Pump Suction from A Header</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 3: (6.2.3.B.2)</u> ENSURE open MV-14-2 2C CCW Pump Discharge to B Header:</p> <p><u>STANDARD:</u>    <b><u>OPEN</u></b> MV-14-2 2C CCW Pump Discharge to B Header.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4: (6.2.3.B.2)</u> ENSURE open MV-14-4 2C CCW Pump Suction from B Header</p> <p><u>STANDARD:</u>    <b><u>OPEN</u></b> MV-14-4 2C CCW Pump Suction from B Header</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5: (6.2.3.B.3)</u> IF SDC cooling is in service and CCW is completely lost to an SDC Heat Exchanger, Then SDC flow must be terminated to the affected heat exchanger prior to restoring CCW flow. REFER to ONOP 2-0440030 Shutdown Cooling Of-Normal.</p> <p><u>STANDARD:</u>    <b><u>DETERMINE</u></b> SDC not in service, step N/A</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 5: (6.2.3.B.4)</u> REALIGN the 2AB 4.16KV Bus to the B Side per 2-NOP-52.02 PRIOR to starting the 2C CCW Pump on the 2B CCW Header</p> <p style="text-align: center; margin-left: 150px;"><i>Step 6.1.7.A</i></p> <p><u>STANDARD:</u>     <b><u>VERIFY</u></b> Brk. 1-20501, 4.16KV Bus 1AB SBO X-Tie is OPEN</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ <b>SAT</b></p> <p>_____ <b>UNSAT</b></p>
<p><u>STEP 6: (6.2.3.B.4)</u> REALIGN the 2AB 4.16KV Bus to the B Side per 2-NOP-52.02 PRIOR to starting the 2C CCW Pump on the 2B CCW Header</p> <p style="text-align: center; margin-left: 150px;"><i>6.1.7.B</i></p> <p><u>STANDARD:</u>     <b><u>VERIFY</u></b> Brk. 2-20501, 4.16KV Bus 2AB SBO X-Tie is open.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ <b>SAT</b></p> <p>_____ <b>UNSAT</b></p>
<p><u>STEP 7 (6.2.3.B.4)</u> REALIGN the 2AB 4.16KV Bus to the B Side per 2-NOP-52.02 PRIOR to starting the 2C CCW Pump on the 2B CCW Header</p> <p style="text-align: center; margin-left: 150px;"><i>6.1.7.C</i></p> <p><u>STANDARD:</u>     <b><u>OPEN</u></b> Brk 2-20505 2AB – 2A3 Tie</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ <b>SAT</b></p> <p>_____ <b>UNSAT</b></p>

**JOB PERFORMANCE MEASURE**  
**PERFORMANCE CHECKLIST**

<p><u>STEP 6: (6.2.3.B.4)</u>      REALIGN the 2AB 4.16KV Bus to the B Side per 2-NOP-52.02 PRIOR to starting the 2C CCW Pump on the 2B CCW Header</p> <p style="text-align: center; margin-left: 300px;">6.1.7 D</p> <p><u>STANDARD:</u>    <b><u>OPEN</u></b> Brk. 2-20208, 4.16KV Bus 2A3 – 2AB Tie</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7(6.2.3.B.4)</u>      REALIGN the 2AB 4.16KV Bus to the B Side per 2-NOP-52.02 PRIOR to starting the 2C CCW Pump on the 2B CCW Header</p> <p style="text-align: center; margin-left: 300px;">E</p> <p><u>STANDARD:</u>    <b><u>CLOSE</u></b> Brk 2-20409 2B3 – 2AB Tie</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (6.2.3.B.5)</u>      Start the 2C CCW pump</p> <p style="text-align: center; margin-left: 300px;">6.1.7. F?</p> <p><u>STANDARD:</u>    <b><u>START</u></b> 2C CCW pump</p> <p style="text-align: center;"><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

# **JOB PERFORMANCE MEASURE** **PERFORMANCE CHECKLIST**

<p><u>STEP 7 (6.2.3.B.6)</u>      VERIFY the pressures and flows return to normal</p> <p><u>STANDARD:</u>      <b><u>VERIFY</u></b> the annunciators associated with CCW flows and pressures are clear and indications return to normal.</p> <p><b>EXAMINERS CUE:</b></p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8: (6.2.3.B.7)</u>      Place the 2B CCW pump control switch in the PULL TO LOCK position</p> <p><u>STANDARD:</u>      <b><u>PLACES</u></b> control switch in PULL TO LOCK.</p> <p><b>EXAMINERS CUE: Inform the Candidate JPM is complete if Candidate continues with remainder of AB electrical lineup.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>_____ SAT</p> <p>_____ UNSAT</p>

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

**JOB PERFORMANCE MEASURE**  
**CANDIDATE CUE SHEET**

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

**INITIAL CONDITIONS:**

The Unit is at 100% power. The 2B CCW pump has tripped and cannot be started. The 2C CCW pump is available to be aligned and started on the 2B CCW header.

**INITIATING CUES:**

The US directs you to align and start the 2C CCW on the 2B header in accordance with 2-0310030 COMPONENT COOLING WATER OFF-NORMAL OPERATION.



**JOB PERFORMANCE MEASURE**  
**SIMULATOR SETUP SHEET**

1. IC #1
2. Ensure AB 4.16KV bus aligned to A side
3. Ensure 2C CCW pump aligned to A side
4. Stop (do not place in pull to lock) 2B CCW pump