



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

**VERIFY MSIS - UNIT 2
NRC S-1**

JOB PERFORMANCE MEASURE
INITIAL CONDITIONS AND SPECIFIC DIRECTIONS

Task: Verify MSIS on Unit 2.

Faulted JPM? Yes

Facility JPM #: 0821016A

K/A Rating(s): 039-A4.01 Ability to manually operate and/or monitor in the control room: Main steam supply valves 2.9 / 2.8

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the candidate has verified proper MSIS alignment and notified the US of task completion and contingencies taken to manually close HCV-09-2B.

Evaluation Location:

Simulator	In Plant	Lab	Other
X	X		

Performance Level:

Perform	Simulate	Discuss
X	X	

References:

- 2-EOP-99, Table 5, Main Steam Isolation Signal

Validation Time: 3 minutes

Time Critical: No

Tools/Equipment/Procedures Needed:

- 2-EOP-99, Table 5, Main Steam Isolation Signal

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: Verify MSIS on 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:

A Loss of Coolant Accident (LOCA) inside containment is in progress on Unit 2. 2-EOP-3 is being implemented. The conditions for MSIS actuation are present but MSIS did not actuate.

INITIATING CUES:

You are the Desk RCO. The Unit Supervisor has directed you to manually actuate MSIS and verify the appropriate response has occurred IAW Table 5 of EOP-99.

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

START TIME: _____

Actuate MSIS manually and verify per 2- EOP-99, Table 5, Main Steam Isolation Signal		
<p><u>STEP 1:</u> Manually actuate both trains of MSIS.</p> <p><u>STANDARD:</u> Depress and hold the “A” train MSIS “Think” Pushbutton then place train “A” MSIS actuation switch to the “MSIS ON” position. Depress and hold the “B” train MSIS “Think” Pushbutton then place train “B” MSIS actuation switch to the “MSIS ON” position.</p> <p>EXAMINER’S CUE: MSIS Red actuation lights are ON for BOTH MSIS trains “A” and “B”. MSIS Green actuation lights are OFF for BOTH MSIS trains “A” and “B”.</p> <p>EXAMINER’S NOTE: MSIS actuation steps can be performed in any order.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>	
<p><u>STEP 2(1):</u> ENSURE Main Steam Hdr A/B Isolation Valves CLOSED IAW 2- EOP-99, Table 5, Main Steam Isolation Signal.</p> <ul style="list-style-type: none"> ▪ HCV-08-1A ▪ HCV-08-1B <p><u>STANDARD:</u> ENSURE HCV-08-1A and -1B are CLOSED. OBSERVE HCV-08-1B is OPEN.</p> <p>EXAMINER’S CUE: HCV-08-1A shows Green light ON, Red light OFF HCV-08-1B shows Green light OFF, Red light ON</p> <p>EXAMINER’S NOTE: Faulted step – HCV-08-1B failed to auto close</p> <p><u>COMMENTS:</u></p>	<p>FAULTED STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>	
<p><u>STEP 3(1):</u> ENSURE Main Steam Hdr A/B Isolation Valves CLOSED IAW 2- EOP-99, Table 5, Main Steam Isolation Signal. .</p> <p><u>STANDARD:</u> POSITION HCV-08-1B control switch to CLOSE.</p> <p>EXAMINER’S CUE: HCV-08-1B shows Green light ON, Red light OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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(2):</u> ENSURE Header A/B Bypass Valves CLOSED IAW 2- EOP-99, Table 5, Main Steam Isolation Signal..</p> <ul style="list-style-type: none"> ▪ MV-08-1A ▪ MV-08-1B <p><u>STANDARD:</u> ENSURE MV-08-1A and -1B are CLOSED.</p> <p>EXAMINER'S CUE: MV-08-1A and -1B show Green lights ON, Red lights OFF</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5(3):</u> ENSURE Feedwater Hdr A/B Isol Valves CLOSED IAW 2- EOP-99, Table 5, Main Steam Isolation Signal. .</p> <ul style="list-style-type: none"> ▪ HCV-09-1A ▪ HCV-09-1B ▪ HCV-09-2A ▪ HCV-09-2B <p><u>STANDARD:</u> ENSURE HCV-09-1A, -1B, -2A and -2B are CLOSED. OBSERVE HCV-09-2B is OPEN.</p> <p>EXAMINER'S CUE: HCV-09-1A, -1B and -2A show Green lights ON, Red lights OFF</p> <p>HCV-09-2B shows Green light OFF, Red light ON</p> <p>EXAMINER'S NOTE: Faulted step – HCV-09-2B failed to auto close</p> <p><u>COMMENTS:</u></p>	<p>FAULTED STEP</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 6(3):</u> ENSURE Feedwater Hdr A/B Isol Valves CLOSED in accordance with 2-EOP-99, Table 5, Main Steam Isolation Signal..</p> <p><u>STANDARD:</u> POSITION HCV-09-2B control switch to CLOSED.</p> <p>EXAMINER'S CUE: HCV-09-2B shows Green light ON, Red light OFF, P-36 and P-56 Alarm</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u> NOTIFY US of task completion and of contingencies taken.</p> <p><u>STANDARD:</u> NOTIFY US that MSIS has been VERIFIED IAW 2-EOP-99, Table 5 and that HCV-08-1B and HCV-09-2B had to be manually CLOSED.</p> <p>EXAMINER'S CUE: US ACKNOWLEDGES</p> <p><u>COMMENTS:</u></p> <p align="center">END OF TASK</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-91.
2. **OPEN** and **EXECUTE** the lesson NRC JPM S-1
3. **UNFREEZE** the Simulator. The Simulator will automatically freeze when the setup is complete.
4. Make a **STORE POINT** if more than one student will be taking the JPM.
5. The lesson does **NOT** need to be stopped and re-executed after the IC is restored for subsequent students.
6. **UNFREEZE** the Simulator when the student is ready. The audible alarms will be reinstated. Acknowledge but do not reset non-JPM related alarms to prevent nuisance alarms.

JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

A Loss of Coolant Accident (LOCA) inside containment is in progress on Unit 2. 2-EOP-3 is being implemented. The conditions for MSIS actuation are present but MSIS did not actuate.

INITIATING CUES:

You are the Desk RCO. The Unit Supervisor has directed you to manually actuate MSIS and verify the appropriate response has occurred IAW Table 5 of EOP-99.

JOB PERFORMANCE MEASURE



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

**Respond to Abnormal Pressure Control - PCV-
1100E Fails Open – Unit 2**

**NRC
S-2**

JOB PERFORMANCE MEASURE

Task: Respond to Abnormal Pressure Control - PCV-1100E Fails Open – Unit 2

Alternate Path JPM? Yes

Facility JPM #:

K/A: A2.02 Ability to (a) predict the impacts of a spray valve failure on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of a spray valve failure

K/A Rating(s): 3.9 / 3.9

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the reactor is tripped and the 2B2 RCP is secured.

Evaluation Location:

Simulator X In Plant _____ Lab _____ Other _____

Performance Level:

Perform X Simulate _____ Discuss _____

References:

- 2-AOP-01.10, Pressurizer Pressure and Level
- 2-NOP-99.07, Operations Hard Cards, Attachment 4.

Validation Time: 5 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: respond to plant conditions – 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:

Unit 2 is operating at 100% power after an up power from 50%.

INITIATING CUES:

The Unit Supervisor has directed you to remove the Pressurizer from recirculation IAW 2-NOP-99.07, Operations Hard Cards, Attachment 4.

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

START TIME: _____

<p><u>STEP 1</u> 1.2 Removing the Pressurizer from Recirculation:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">NOTE:</p> <ul style="list-style-type: none"> • Normally, the required number of Backup Bank heaters in service is dependent upon: <ul style="list-style-type: none"> A. The magnitude of thermal losses from the system, including leakage to the Quench Tank. B. The number of heater elements out of service. • The normal configuration is to have enough Backup Bank heaters in service to keep the Proportional Bank heaters at approximately 50% output. • This section is performed on RTGB-203 </div> <p style="margin-left: 40px;">1. REMOVE Backup heaters from service one at a time by returning the control switches to AUTO.</p> <p><u>STANDARD:</u> Places the control switch from 'ON' to 'AUTO' and observes red light off and green light on while monitoring Pressurizer pressure</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2</u> 1.2 Removing the Pressurizer from Recirculation:</p> <p style="margin-left: 40px;">2. IF desired to maintain normal operating pressure, THEN ADJUST the AUTO setpoint on the selected Pressurizer Pressure Control Channel on one of the following controllers:</p> <ul style="list-style-type: none"> • PIC-1100X Pressurizer Pressure • PIC-1100Y Pressurizer Pressure <p><u>STANDARD:</u> On PIC-1100X, adjust setpoint UPWARD as necessary to maintain pressure at 2250 psia. as Backup heaters are removed from service.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 3</u> 1.2 Removing the Pressurizer from Recirculation:</p> <p>3. VERIFY Main Spray flow has stopped AND Proportional Heater banks at approximately 50% output by observing the following:</p> <p style="padding-left: 40px;">A. OBSERVE the output on HIC-1100, PZR Pressure spray CNTL VLV.</p> <p style="padding-left: 40px;">B. OBSERVE the valve position on the following Pressurizer Spray Valves:</p> <ul style="list-style-type: none"> • PCV - 1100E, Spray Valve 2B2 • PCV - 1100F, Spray Valve 2B1 <p><u>STANDARD:</u> Monitors Pressurizer pressure and spray valves. Observes PCV-1100E not responding closed and pressure lowering.</p> <p>EXAMINERS NOTE: At this point the Applicant may elect to turn back on the Backup heaters that were removed. This action will not result in pressure continuing to lower. The Applicant may elect to manually trip the plant OR enter 2-AOP-01.10, Pressurizer Pressure and Level, Section 4.0. If the Applicant tripped the plant go to step 14 of this JPM.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">_____ SAT</p> <p style="text-align: right;">_____ UNSAT</p>
<p>2-AOP-01.10, Pressurizer Pressure and Level, Section 4.0</p> <p>Section 4.1, Immediate Operator Actions</p>	
<p><u>STEP 4 (4.1.1)</u> If at Normal Operating Pressure, THEN VERIFY PIC-1100X(Y), Pressurizer Pressure, stable</p> <p><u>STANDARD:</u> Looks at PIC-1100X(Y) and determines that pressurizer pressure is lowering</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">_____ SAT</p> <p style="text-align: right;">_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 5: (4.1.1.1 RNO)</u> If Pressurizer pressure less than 2300 psia AND PORV leakage is indicated or PORV has failed OPEN THEN PLACE affected PORV in OVERRIDE and CLOSE associated block valve:</p> <p><u>STANDARD:</u> Notes that PORV is NOT OPEN as indicted by tell pipe temperatures normal, QT temperature and pressure are not rising and no lights are on acoustic monitor. No action required.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (4.1.2)</u> Verify selected Pressurizer pressure control channel PIC-1100X(Y), PRESSURE, NORMAL.</p> <p><u>STANDARD:</u> Notes pressure controller is operating normally. No action required.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7: (4.1.3)</u> VERIFY selected RRS channel Pressurizer level set point NORMAL as indicated on LR-1110, PRESSURIZER LEVEL</p> <p><u>STANDARD:</u> Notes that level setpoint is normal. No action required.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8: (4.1.4)</u> Verify Selected Pressurizer level control channel LIC-1110X(Y), LEVEL, NORMAL.</p> <p><u>STANDARD:</u> Notes that level control channel is normal. No action required.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

Section 4.2 Subsequent Operator Actions	
<p style="text-align: center;">NOTE:</p> <ul style="list-style-type: none"> • Attachment 2, Automatic Response to Pressurizer Deviations, contains a listing of automatic actions associated with Pressurizer pressures. • Attachment 3, Automatic responses to Pressurizer Level Deviations, contains listings of automatic actions associated with Pressurizer levels. • Attachment 4, Pressurizer Level Program Graph, provides Pressurizer level program vs T-avg. 	
<p>STEP 9: (4.2.1.1) PERFORM applicable section per Table 1.</p> <p>STANDARD: Chooses Section 4.2.4, Pressurizer Spray or Auxiliary Spray Valves OPEN or leaking</p> <p>COMMENTS: If applicant has not recognized spray valve open, he may choose to go to Section 4.2.7, Pressurizer pressure or level abnormal. This will have him verify T-avg and T-ref are matched, verify level is stable, then take manual control of spray valves. When he sees that he does not have control of the spray valve, he should go to Section 4.2.4</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
Section 4.2.4, Pressurizer Spray or Auxiliary Spray Valves OPEN or Leaking	
<p>STEP 10 (Note) NOTE: Divergence of spray line temperatures between 2B1 and 2B2 spray lines may indicate a stuck open spray valve. The stuck open spray valve would have the spray line with the higher temperature approaching cold leg temperature.</p> <p>STANDARD: Acknowledges Note. No action required</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 11 (4.2.4.1)</u> IF either of the following conditions are met:</p> <ul style="list-style-type: none"> • Pressurizer pressure is less than 2275 psia • Pressurizer pressure is lowering uncontrollably <p>THEN VERIFY spray valves CLOSED:</p> <ul style="list-style-type: none"> • PCV-1100E, SPRAY VALVE 2B2, status lights • PCV-1100F, SPRAY VALVE 2B1, status lights • TIA-1103, 2B1 SPRAY LINE (Water Temperature), and TIA-1104, 2B2 SPRAY LINE (Water Temperature), indicate approximately equal temperatures. <p><u>STANDARD:</u> Identifies PCV-1100E is OPEN</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12 (4.2.4.1.1 RNO)</u></p> <p>IF PCV-1100E, SPRAY VALVE 2B2, is OPEN, THEN PLACE Pressurizer spray valve selector switch in 1100F.</p> <p><u>STANDARD:</u> Places selector switch in 1100F. Valve remains open.</p> <p><u>COMMENTS:</u></p>	<p>FAULTED STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13 (4.2.4.1.2 RNO)</u></p> <p>IF PCV-1100F, SPRAY VALVE 2B1, is OPEN, THEN PLACE Pressurizer spray valve selector switch in 1100E.</p> <p><u>STANDARD:</u> Notes 1100E is OPEN. No action required.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 14 (4.2.4.1.3.A RNO)</u></p> <p>IF spray valve is still failed OPEN AND Pressurizer pressure approaches TM/LP setpoints, THEN PERFORM the following:</p> <p style="padding-left: 40px;">A. TRIP reactor.</p> <p><u>STANDARD:</u> Applicant announces and trips the reactor.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 15 (4.2.4.1.3.B RNO)</u></p> <p style="padding-left: 40px;">B. IMPLEMENT 2-EOP-01, Standard Post Trip Actions.</p> <p><u>STANDARD:</u> Transitions to EOP-01.</p> <p style="padding-left: 80px;">EXAMINERS NOTE: Applicant may elect to stop 2B2 RCP immediately after tripping the Reactor. This is acceptable in that stopping the 2B2 RCP is the next step in this AOP.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
2-EOP-01, Standard Post Trip Actions.	
<p><u>STEP 16 (4.1.A)</u></p> <p>DETERMINE Reactivity Control acceptance criteria are met:</p> <p>A. VERIFY Reactor power is lowering.</p> <p><u>STANDARD:</u> Verifies reactor power indication is lowering on RTGB-204 and/or RPS cabinets.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP**

<p><u>STEP 17 (4.1.B)</u></p> <p>B. VERIFY Startup Rate is negative.</p> <p><u>STANDARD:</u> Verifies startup rate indication is negative on RTGB-204 and/or RPS cabinets.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 18 (4.1.C)</u></p> <p>C. VERIFY ALL CEAs are fully inserted.</p> <p><u>STANDARD:</u> Verifies rod bottom lights lit on mimic and/or ADS.</p> <p>EVALUATOR'S'S CUE: If the applicant attempts to perform step 2 of SPTAs, inform him that the BRCO will complete them.</p> <p>EVALUATOR'S Note: Applicant should transition back to 2-AOP-01.10 at this point</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>Section 4.2.4, Pressurizer Spray or Auxiliary Spray Valves OPEN or Leaking</p>	
<p><u>STEP 19: (4.2.4.1.C)</u></p> <p>C. IF PCV-1100E, SPRAY VALVE 2B2, is NOT CLOSED, THEN STOP 2B2 RCP.</p> <p><u>STANDARD:</u> Applicant STOPS the 2B2 RCP</p> <p>EXAMINERS NOTE: Applicant must stop the 2B2 RCP before SIAS actuation setpoint of 1736 psia to meet critical step.</p> <p><u>COMMENTS:</u></p> <p align="center">END OF TASK</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

1. **RESTORE** IC #01
2. **UNFREEZE** and **RUN** the simulator for a few minutes.
3. **PLACE** the Pressurizer on Recir and verify 2250 psia and stable.
4. **SELECT AND EXECUTE** S-2
5. **UNFREEZE** the Simulator when the student is ready.

**JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET**

(TO BE RETURNED TO THE EVALUATOR'S UPON COMPLETION OF THE TASK)

INITIAL CONDITIONS:

Unit 2 is operating at 100% power after an up power from 50%.

INITIATING CUES:

The Unit Supervisor has directed you to remove the Pressurizer from recirculation IAW 2-NOP-99.07, Operations Hard Cards, Attachment 4.



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

Align the 2A1 SIT to VCT for RCS makeup

Unit 2 Simulator

NRC S-3

JOB PERFORMANCE MEASURE

Task: Align the 2A1 SIT to VCT for RCS makeup

Faulted JPM? No

Facility JPM #:

K/A Rating(s): K/A: 004-A4.13 Ability to manually operate and/or monitor in the control room: VCT level control and pressure control 3.3 / 2.9

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the 2A1 SIT is aligned to the VCT and VCT level rise is indicated.

Evaluation Location:

Performance Level:

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

References:

- 2-AOP-02.01, 'Boron Concentration Control System (BCCS) Abnormal Operations'.

Validation Time: 15 minutes

Time Critical: No

Tools/Equipment/Procedures Needed:

- 2-AOP-02.01, 'Boron Concentration Control System (BCCS) Abnormal Operations'.

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 2A1 SIT to the VCT
- 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.

INITIAL CONDITIONS:

Unit 2 has experienced severe weather that destroyed the RWT and the PWT. Both BAMT's inventory has been exhausted. The Unit is in Mode 3 with RCS pressure less than 1750 psia.

INITIATING CUES:

The US has directed you to makeup to the VCT using the 2A1 SIT IAW 2-AOP-02.01, 'Boron Concentration Control System (BCCS) Abnormal Operations' Attachment 2.

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

START TIME: _____

2-AOP-02.01, 'Boron Concentration Control System (BCCS) Abnormal Operations' Attachment 2	
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • If other sources of makeup are NOT available, then one SIT at a time may be used to add makeup water to the VCT. (Section 6.1.3 Management Directive 3) • Cooldown from normal operating temperature to below 200°F may require the volume of two BAMTs and one SIT OR one BAMT and two SITs. • TS 3.5.1, Safety Injection Tanks (SIT), requires SITs to be OPERABLE in MODES 1, 2, and 3* (* pressurizer pressure 1750 psia or above). </div> <p><u>STEP 1(1)</u></p> <p>VERIFY RCS pressure is less than 1750 psia AND unit is in MODE 3 or lower. (Section 6.1.3 Management Directive 3)</p> <p><u>STANDARD:</u> Observes RCS pressure and temperature. Determines pressure less than 1750 psia. and temperature is Mode 3 conditions.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:(2)</u></p> <p>IF CIAS or SIAS signal is present, THEN RESET signals for affected valves as needed.</p> <p><u>STANDARD:</u> Determines CIAS and SIAS is NOT present.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

<p><u>STEP 3:(3)</u></p> <p>DISABLE V2501, VCT OUTLET VALVE, OPEN as follows:</p> <p>A. OPEN V2501, VCT OUTLET VALVE.</p> <p>B. OPEN Breaker 2-42118, CONTROL BREAKER FOR V2501. (480V MCC-2B6, Cubicle DF3)</p> <p><u>STANDARD:</u> Opens VCT outlet valve V2501 and notifies SNPO to open Breaker 2-42118</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 4:(4)</u></p> <p>DISABLE V2504, REFUELING WATER TO CHARGING PUMP, CLOSED as follows:</p> <p>A. CLOSE V2504, REFUELING WATER TO CHARGING PUMP.</p> <p>B. OPEN Breaker 2-42036, CONTROL BREAKER FOR V2504. (480V MCC-2B5, Cubicle JF4)</p> <p><u>STANDARD:</u> Closes V2504, Refueling Water to Charging Pumps and notifies SNPO to open breaker 2-42036.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

STEP 5:(5) ALIGN SIT to RWT/VCT line as follows:				<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	
V2621	VCT Inlet From Pri M/U Wtr & BAM Isol	RAB/27/N-RA3/W-RAC	Closed	
<u>STANDARD:</u> Notifies the SNPO to close V2621				
<u>COMMENTS:</u>				
STEP 6:(5) ALIGN SIT to RWT/VCT line as follows:				CRITICAL STEP
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT
V3597	SIT OUTLET DRAIN TO RWT ISOL	RAB/31/N-RA1/E-RAE	Closed	
<u>STANDARD:</u> Notifies the SNPO to close V3597				
<u>COMMENTS:</u>				

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

STEP 7(5) ALIGN SIT to RWT/VCT line as follows:				<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	
V3661	TEST HDR DRAIN	RTGB 206	Closed	
 <u>STANDARD:</u> Verifies V3661 is Closed				
 <u>COMMENTS:</u>				
STEP 8(5) ALIGN SIT to RWT/VCT line as follows:				CRITICAL STEP
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT
V3463	SIT OUTLET DRAIN TO RWT ISOL	RAB/25/ N-RA1/W-RAE	OPEN	
 <u>STANDARD:</u> Notifies SNPO to open V3463				
 <u>COMMENTS:</u>				

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

STEP 9(5) ALIGN SIT to RWT/VCT line as follows:				CRITICAL STEP _____ SAT _____ UNSAT
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	
V3201	SIT OUTLET DRAIN TO VCT ISOL	RAB/31/ N-RA1/W-RAE	OPEN	
STANDARD: Notifies SNPO to Open V3201				
COMMENTS:				

STEP 10(5) ALIGN SIT to RWT/VCT line as follows:				CRITICAL STEP _____ SAT _____ UNSAT
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	
1-SE-03-2A	TO RWT/VCT	RTGB-206	OPEN RESET	
STANDARD: Opens 1-SE-03-2A				
COMMENTS:				

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

STEP 11(5) ALIGN SIT to RWT/VCT line as follows:				CRITICAL STEP _____ SAT _____ UNSAT
COMPONENT NUMBER	COMPONENT DESCRIPTION	LOCATION	POSITION REQUIRED	
1-SE-03-2B	TO RWT/VCT	RTGB-206	OPEN RESET	
<u>STANDARD:</u> Opens 1-SE-03-2B				
<u>COMMENTS:</u>				
STEP 12(6) ADD borated water to VCT from selected SIT by opening its associated fill and drain valve as needed.				CRITICAL STEP _____ SAT _____ UNSAT
Component Number	Component Description	Required Position		
SE-03-1A/V3621	2A1 FILL/DRAIN	OPEN		
<u>STANDARD:</u> Opens SE-03-1A/V3621 and monitors VCT level to observe a rise in level.				
EXAMINERS NOTE: When VCT level has risen a couple %, notify Applicant the 2A1 SIT indicates 5% Wide Range Level.				
<u>COMMENTS:</u>				

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

STEP 13(8) WHEN selected SIT reaches 5% wide range level, THEN STOP makeup from selected SIT by closing its fill and drain valve: (Section 6.1.3 Management Directive 2)			CRITICAL STEP _____ SAT _____ UNSAT
Component Number	Component Description	Required Position	
SE-03-1A/V3621	2A1 FILL/DRAIN	CLOSED	
STANDARD: Closes SE-03-1A/V3621 COMMENTS:			
END OF TASK			

STOP TIME: _____

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

SIMULATOR SETUP SHEET

- Restore I/C-9
- Initiate Lesson S-3. Ensure modification to IC set.
- Stop BAM Pumps and close V2525
- Divert VCT to 5% level, close VCT divert valve
- Stop Charging and isolate Letdown
- Freeze simulator

**JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET**

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

INITIAL CONDITIONS:

Unit 2 has experienced severe weather that destroyed the RWT and the PWT. Both BAMT's inventory has been exhausted. The Unit is in Mode 3 with RCS pressure less than 1750 psia.

INITIATING CUES:

The US has directed you to makeup to the VCT using the 2A1 SIT IAW 2-AOP-02.01, 'Boron Concentration Control System (BCCS) Abnormal Operations' Attachment 2.



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

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

NRC S-4

Simulator

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.**
- 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, GAG008, GAG009, GAG010, GAG011, and GAG012 are in High Alarm.

2-AOP-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-AOP-26.02, "Area Radiation Monitors", section 4.2.4, step 4.

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

START TIME: _____

<p>4.2.4 Fuel Handling Building Radiation Monitor Alarm</p> <p>4. IF more than one HIGH Alarm in a train actuated, THEN ENSURE FHB ventilation transfer to SBVS as follows:</p>	
<p><u>STEP 1(4.2.4.4):</u> A. ENSURE the following fans STOPPED:</p> <ul style="list-style-type: none"> • HVS-6, Fuel Pool Supply Fan. • HVS-7, Fuel Handling Bldg Supply Fan. • HVE-15, Fuel Handling Bldg Exhaust Fan. • HVE-16A, Fuel Pool Exhaust Fan • HVE-16B, Fuel Pool Exhaust Fan • HVE-17, Fuel BLDG H&V Room Exhaust Fan (FHB/52/FH6/E-RAC) <p><u>STANDARD:</u> ENSURES Fans are OFF.</p> <p>EXAMINERS NOTE: Applicant must call SNPO to verify HVE-17 is OFF EXAMINERS NOTE: HVE-16A did not stop when high radiation signal received. As a result of HVE 16A not stopping, the supply fan HVS 6 also did not stop. (interlocked with HVE-16A) EXAMINER'S CUE: SNPO reports HVE-17 is STOPPED</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CONTINGENCY ACTION</p> <p><u>STEP 2 (4.2.4.4):</u> A.1. STOP any running fan</p> <p><u>STANDARD:</u> STOP HVE-16A. VERIFY HVS 6 stopped when HVE-16A was stopped.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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 3 (4.2.4.4):</u> B. VERIFY the following FHB dampers CLOSED:</p> <ul style="list-style-type: none"> • D-33, Fuel Hdlg Bldg Inlet Damper • D-35, Fuel Hdlg Bldg Outlet Damper • D-29, Fuel Pool Inlet Damper • D-31, Fuel Pool Outlet Damper • D-34, Fuel Hdlg Bldg Inlet Damper • D-36, Fuel Hdlg Bldg Outlet Damper • D-30, Fuel Pool Inlet Damper • D-32, Fuel Pool Outlet Damper <p><u>STANDARD:</u> VERIFY Dampers D-29 through D-36 are CLOSED by observation of Red light off, Green light on.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p align="center">_____ SAT</p> <p align="center">_____ UNSAT</p>
<p><u>STEP 4 (4.2.4.4):</u> C. VERIFY FCV-25-30, Fuel Handling Emerg Vent Vlv, OPEN.</p> <p><u>STANDARD:</u> OBSERVE FCV-25-30 OPEN.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p align="center">_____ SAT</p> <p align="center">_____ UNSAT</p>
<p><u>STEP 5 (4.2.4.4):</u> D. VERIFY FCV-25-32, SBVS Isolation Valve, is CLOSED.</p> <p><u>STANDARD:</u> OBSERVE FCV-25-32 OPEN.</p> <p>EXAMINER'S CUE:</p> <p>EVALUATOR'S NOTE: FCV-25-32 failed to auto CLOSE.</p> <p><u>COMMENTS:</u></p>	<p align="center">_____ SAT</p> <p align="center">_____ UNSAT</p>

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

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

<p>CONTINGENCY ACTION:</p> <p><u>STEP 6 (4.2.4.4):</u> D.1 CLOSE FCV-25-32, SBVS Isolation Valve.</p> <p><u>STANDARD:</u> <u>POSITION</u> FCV-25-32 control switch to CLOSE.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7 (4.2.4.4):</u> E. VERIFY HVE-6A, SBVS Exhaust Fan, is ON.</p> <p><u>STANDARD:</u> <u>ENSURE</u> HVE-6A is ON.</p> <p style="text-align: center;">EXAMINER'S NOTE: HVE-6A did not start</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>CONTINGENCY ACTION:</p> <p><u>STEP 8 (4.2.4.4):</u> E.1. START HVE-6A, SBVS Exhaust Fan</p> <p><u>STANDARD:</u> <u>STARTS</u> HVE-6A</p> <p style="text-align: center;">EXAMINER'S NOTE:</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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 9 (4.2.4.4):</u> F. VERIFY FCV-25-31, Fuel Handling Emerg Vent Vlv. OPEN</p> <p><u>STANDARD:</u> OBSERVE FCV-25-31 OPEN.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10 (4.2.4.4):</u> G. VERIFY FCV-25-33, SBVS Isolation Valve, is CLOSED.</p> <p><u>STANDARD:</u> OBSERVE FCV-25-33 OPEN.</p> <p>EXAMINER'S CUE:</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11 (4.2.4.4):</u> H. VERIFY HVE-6B, SBVS Exhaust Fan, is ON.</p> <p><u>STANDARD:</u> ENSURE HVE-6B is ON.</p> <p>EXAMINER'S CUE: Communicate to Applicant task is complete. Applicant should notify US task is complete and discrepancies found.</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 (done):</u> NOTIFY the US that the Fuel Handling Building ventilation line-up has been verified in accordance with 2-AOP-26.02, section 4.2.4, step 4. Appropriate contingency actions have been taken for failed equipment</p> <p><u>STANDARD:</u> NOTIFY the US that the Fuel Handling Building ventilation line-up has been VERIFIED.</p> <p align="center">EXAMINER'S CUE: US ACKNOWLEDGES.</p> <p><u>COMMENTS:</u></p> <p align="center">END OF TASK</p>	<p align="center">____ SAT</p> <p align="center">____ 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 S-4 SFP Rm.Lsn.
5. **FREEZE** the Simulator.
6. **STORE** a Temporary IC set if more than one student will be performing the JPM.
7. The lesson will **NOT** need to be stopped and re-executed for each student after restoring the IC.
8. **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, GAG008, GAG009, GAG010, GAG011, and GAG012 are in High Alarm.

2-AOP-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-AOP-26.02, "Area Radiation Monitors", section 4.2.4, step 4.

JOB PERFORMANCE MEASURE



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

**Perform Reactor Startup Pull CEAs to criticality -
Unit 2**

**NRC
S-5**

JOB PERFORMANCE MEASURE

Task: Perform Reactor Startup Pull CEAs to Criticality - Unit 2

Alternate Path JPM? Yes

Facility JPM #:

K/A: A2.11 Ability to (a) predict the impacts of situations requiring a reactor trip on the CRDS- and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations

K/A Rating(s): 4.4 / 4.7

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the reactor is tripped.

Evaluation Location:

Simulator	In Plant	Lab	Other
X			

Performance Level:

Perform	Simulate	Discuss
X		

References:

- 2-GOP-302, "Reactor Plant Startup – Mode 3 to Mode 2"
- 2-AOP-66.01, "Dropped or Misaligned CEA Abnormal Operations"

Validation Time: 08 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: respond to plant conditions – 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:

Unit 2 is starting up after a 10 day maintenance outage following repairs to the main generator. 2-GOP-302, "Reactor Plant Startup-Mode 3 To Mode 2 is in progress. The shutdown banks have been withdrawn and Group 3 rods have been withdrawn to 115 inches. While performing step 6.14.14 Rod withdrawal was stopped to allow I&C to evaluate an abnormal trace. The decision was to allow the oncoming crew to assume the shift during this delay.

INITIATING CUES:

I&C has completed their evaluation and the decision to continue the startup has been made. You are to complete the startup of the plant in accordance with 2-GOP-302, "Reactor Plant Startup – Mode 3 to Mode 2" continuing with step 6.14.14.

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

START TIME: _____

<p><u>STEP 1 (6.14)</u></p> <p>14. Continue to WITHDRAW Regulating Group 3 in Manual Sequential mode.</p> <p><u>STANDARD:</u></p> <ul style="list-style-type: none"> • Ensures Group Selector switch is in Group 3. • Pushes the Manual Sequential button (illuminated). • Places joystick into the "Withdraw" position. • Ensures CEAs are stepping out. • Monitors NIs and CEA position <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2: (6.14)</u></p> <p>15. When Regulating Group 3 reaches the Upper Group Stop, Then perform the following:</p> <p style="padding-left: 40px;">A. Verify that Group 4 CEAs continue to withdraw.</p> <p><u>STANDARD:</u> When Group 3 stops moving, ensures that Group 4 continues to move, then releases the joystick.</p> <p>EVALUATOR'S'S NOTE: Group 4 CEAs will continue to withdraw after joystick is released.</p> <p>EVALUATOR'S'S NOTE: Because the subsequent steps are Immediate Operator Actions from the CEA AOP, the Applicant should perform those steps without referring to the AOP.</p> <p><u>COMMENTS:</u></p>	<p>FAULTED STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

2-AOP-66.01, "Dropped or Misaligned CEA Abnormal Operations"	
<p><u>STEP 6: (4.1) Immediate Operator Action)</u></p> <p>1. PLACE CEDMCS MODE SELECT switch in OFF.</p> <p><u>STANDARD:</u> Places CEDMCS MODE SELECT switch in OFF.</p> <p align="center">EVALUATOR'S'S NOTE: CEAs continue to withdraw.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (4.1) Immediate Operator Action)</u></p> <p>2. VERIFY all CEA motion has STOPPED.</p> <p><u>STANDARD:</u> Notes CEAs continue to withdraw.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6: (4.1) Immediate Operator Action RNO)</u></p> <p>2.1 Trip reactor.</p> <p><u>STANDARD:</u> Trips the Reactor, observes one (1) CEA not fully inserted. Announces one CEA not fully inserted, I am going to Emergency Borate.</p> <p><u>COMMENTS:</u></p> <p align="center">END OF TASK</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

1. **RESTORE IC-85**
2. **INITIATE LESSON S-5**
3. **TRIGGER STEP**
4. **FREEZE SIMULATOR**

JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EVALUATOR'S UPON COMPLETION OF THE TASK)

INITIAL CONDITIONS:

Unit 2 is starting up after a 10 day maintenance outage following repairs to the main generator. 2-GOP-302, "Reactor Plant Startup-Mode 3 To Mode 2 is in progress. The shutdown banks have been withdrawn and Group 3 rods have been withdrawn to 115 inches. While performing step 6.14.14 Rod withdrawal was stopped to allow I&C to evaluate an abnormal trace. The decision was to allow the oncoming crew to assume the shift during this delay

INITIATING CUES:

I&C has completed their evaluation and the decision to continue the startup has been made. You are to complete the startup of the plant in accordance with 2-GOP-302, "Reactor Plant Startup – Mode 3 to Mode 2" continuing with step 6.14.14.

JOB PERFORMANCE MEASURE



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

Perform a Containment Mini-purge on Unit 2

**NRC
S-6**

JOB PERFORMANCE MEASURE

Task: Perform a Containment Mini-purge on Unit 2
Alternate Path JPM? No

Facility JPM #:

K/A: A4.01 Ability to manually operate and/or monitor in the control room containment purge flow rate;

K/A Rating(s): 4.0 / 4.0

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the mini-purge is in progress.

Evaluation Location:

Performance Level:

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
X				X		

References:

2-NOP-25.02, Continuous Containment / Hydrogen Purge System Operation

Validation Time: 20 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: respond to plant conditions – 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:

Unit 2 is operating at 100% power.

INITIATING CUES:

Perform a containment mini-purge per 2-NOP-25.02, Section 4.1.

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

START TIME: _____

<p><u>STEP 1 (4.1.1)</u> REVIEW Section 2.0 PRECAUTIONS AND LIMITATIONS</p> <p><u>STANDARD:</u> Reviews Section 2.0 PRECAUTIONS AND LIMITATIONS</p> <p><u>EVALUATOR'S NOTES:</u> This may be done in the pre-brief.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2 (4.1.2)</u> REVIEW Section 3.0 PREREQUISITES AND INITIAL CONDITIONS, COMPLETE.</p> <p><u>STANDARD:</u> Reviews Section 2.0 3.0 PREREQUISITES AND INITIAL CONDITIONS,</p> <p><u>EVALUATOR'S NOTES:</u> This may be done in the pre-brief.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3 (4.1.3)</u> Ensure a Gaseous Release Permit is issued and approved per 0-COP-01.06, Processing Gaseous Waste.</p> <p>RECORD Gas Release Permit Number</p> <p><u>STANDARD:</u> Writes down Gas Release Permit Number</p> <p><u>EVALUATOR'S NOTES:</u> Approved Gas Release Permit supplied at the pre-brief.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 4 (Caution)</u></p> <p>CAUTION: Containment purging should NOT be performed concurrent with a Gas Decay Tank Release unless the mini-purge release has been in progress greater than 10 hours (CONTINUOUS release).</p> <p><u>STANDARD:</u> Acknowledges Caution. No GDT release in progress.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5 (4.1.4)</u></p> <p>IF the Continuous Containment Purge (Mini-Purge) operation is a batch release, THEN ENSURE there are NO Gas Decay Tanks releases in progress.</p> <p><u>STANDARD:</u> No GDT release in progress.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6 (4.1.5)</u></p> <p>Verify the following valves CLOSED (HVCB)</p> <ul style="list-style-type: none"> • FCV-25-7, VACUUM RELIEF VALVE • FCV-25-8, VACUUM RELIEF VALVE <p><u>STANDARD:</u> Verifies that FCV-25-7 and 8 indicate closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 7 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-34, H2 PURGE DISCH to A SBVS, CLOSED</p> <p><u>STANDARD:</u> Verifies that FCV-25-34 indicates closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-29, H2 PURGE DISCH to B SBVS, CLOSED</p> <p><u>STANDARD:</u> Verifies that FCV-25-29 indicates closed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-20, CONTINUOUS CNTMT PURGE ISOL VLV, OPEN</p> <p><u>STANDARD:</u> Opens FCV-25-20.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-21, CONTINUOUS CNTMT PURGE ISOL VLV, OPEN</p> <p><u>STANDARD:</u> Opens FCV-25-21.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 11 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-9, CONTROL VALVE FILTER INLET, OPEN TO 5%</p> <p><u>STANDARD:</u> Opens FCV-25-9 to 5%.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-28, CONTROL VALVE BYPASS, CLOSED</p> <p><u>STANDARD:</u> Verifies FCV-25-28 is Closed</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13 (4.1.6)</u></p> <p>PERFORM the following Continuous Containment Purge Valve Alignment (HVCB).</p> <p>FCV-25-35, Exhaust Valve (Key 192), OPEN</p> <p><u>STANDARD:</u> Opens FCV-25-35.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 14 (Note)</u></p> <p>FCV-25-26 and FCV-25-36 will NOT OPEN until HVE-7A or &B starts and a negative differential pressure exists in Containment.</p> <p><u>STANDARD:</u> Acknowledges Note.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

<p><u>STEP 15 (4.1.7)</u></p> <p>PLACE the Control Switch for FCV-25-26, CONTINUOUS CNTMT PURGE MAKEUP VLV, in OPEN. (HVCB)</p> <p>STANDARD: Places FCV-25-26 control switch in OPEN.</p> <p>NOTE FCV-25-26 and FCV-25-36 will NOT OPEN until HVE-7A or 7B starts and a negative differential pressure exists in Containment.</p> <p>COMMENTS:</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 16 (4.1.8)</u></p> <p>PLACE the Control Switch for FCV-25-36, CONTINUOUS CNTMT PURGE MAKEUP VLV, in OPEN. (HVCB)</p> <p>STANDARD: Places FCV-25-36 control switch in OPEN.</p> <p>NOTE FCV-25-26 and FCV-25-36 will NOT OPEN until HVE-7A or 7B starts and a negative differential pressure exists in Containment.</p> <p>COMMENTS:</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 17 (Note)</u></p> <p>PDIS-25-1A/1B reset setpoint is 4.5 INWD. If containment has NOT been pressurized to at least +4.5 INWD since the last time HVE-7A/7B were run, FCV-25-26 and FCV-25-36 may open immediately upon fan start.</p> <p>STANDARD: Acknowledges Note.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 18 (Caution)</u></p> <p>CIAS will close purge containment isolation (suction) valves, which will require HVE-7A and HVE-7B to be shut down manually.</p> <p>STANDARD: Acknowledges Caution.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

**JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP**

<p><u>STEP 19 (4.1.9)</u></p> <p>START <u>one</u> purge fan. (HVCB)</p> <ul style="list-style-type: none"> • HVE-7A, CONTINUOUS CNTMT/H2 PURGE FAN • HVE-7B, CONTINUOUS CNTMT/H2 PURGE FAN <p>STANDARD: Starts one of the fans.</p> <p>COMMENTS:</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 20 (4.1.10)</u></p> <p>RECORD time STARTED</p> <p><u>STANDARD:</u> Records start time</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 19 (4.1.11)</u></p> <p>THROTTLE FCV-25-9, CONTROL VALVE FILTER INLET, to obtain the flow rate prescribed on the Release Permit as indicated on either of the following: (HVCB)</p> <ul style="list-style-type: none"> • Point 5 of UR-25-1, CONTINUOUS CNTMT / H2 PURGE FLOW/ΔP • FI-25-1-1, CONTINUOUS CNTMT PURGE FLOW <p>STANDARD: Opens FCV-25-9 to get 2550 SCFM</p> <p>COMMENTS:</p> <p align="center">END OF TASK</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

JOB PERFORMANCE MEASURE
SIMULATOR JPM SETUP

1. **RESTORE** IC-1
2. **UNFREEZE** and **RUN** the simulator for a few minutes.
3. **UNFREEZE** the Simulator when the student is ready.
4. **Handout filled in Gas Release permit to student**

JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EVALUATOR'S UPON COMPLETION OF THE TASK)

INITIAL CONDITIONS:

Unit 2 is operating at 100% power.

INITIATING CUES:

Perform a containment mini-purge per 2-NOP-25.02, Section 4.1.



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

**RESTORE CCW AND CBO TO THE RCP'S AFTER
INADVERTENT SIAS**

Unit 2 Simulator

NRC S-7

JOB PERFORMANCE MEASURE

Task: Restore CCW and CBO to the RCP's – Unit 2

Faulted JPM? Yes

Facility JPM #:

K/A Rating(s): K/A: 008-A4.01 Ability to manually operate and/or monitor in the control room:
CCW indications and controls 3.3 / 3.1

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when all four Reactor Coolant Pumps have been tripped due to loss of CCW flow.

Evaluation Location:

Simulator In Plant Lab Other
X

Performance Level:

Perform Simulate Discuss
X

References:

- 2-EOP-99, Appendix J, Restoration of CCW and CBO to the RCP's

Validation Time: 7 minutes

Time Critical: YES

Tools/Equipment/Procedures Needed:

- 2-EOP-99, Appendix J Restoration of CCW and CBO to the RCP's

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: Restoration of CCW and CBO to the RCP's
- 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.

INITIAL CONDITIONS:

Unit 2 experienced an inadvertent SIAS. SIAS has NOT been reset.

INITIATING CUES:

You are the Desk RCO. The US has directed you to restore CCW and CBO to the RCP's IAW 2-EOP-99 Appendix J 'Restoration of CCW and CBO to the RCP's'

THIS IS A TIME CRITICAL JPM

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

START TIME: _____

2-EOP-99, Appendix J 'Restoration of CCW and CBO to the RCP's'	
<p><u>STEP 1(1)</u></p> <p>ENSURE Instrument Air to Containment is available by PLACING HCV-18- 1 to CLOSE / OVERRIDE and then to OPEN.</p> <p><u>STANDARD:</u> OPENS HCV-18-1 by taking handswitch from CLOSE / OVERRIDE to OPEN</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p align="center">CAUTION</p> <p>If a VALID SIAS occurs, the CCW 'N' header shall NOT be aligned to ANY essential header. This will maintain train separation while safeguards signals are still present.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p align="center">NOTE</p> <ul style="list-style-type: none"> • HCV-14-9 (HCV-14-10) will open 5 seconds after HCV-14-8A (HCV-14-8B) starts to open. • When SIAS is present, placing the control switches in CLOSE and then OVERRIDE will open the CCW 'N' header valves, until SIAS is reset. </div> <p><u>STEP 2:(2)</u> If an INADVERTENT SIAS has occurred, Then PERFORM the following:</p> <p>A. RESTORE flow from EITHER 'A' or 'B' CCW Header to the 'N' Header by PLACING the control switches for the desired train to CLOSE and then to OVERRIDE:</p> <ul style="list-style-type: none"> · HCV-14-8A 'N' Hdr Isol Discharge · HCV-14-9 'N' Hdr Isol Suction <p align="center">OR</p> <ul style="list-style-type: none"> · HCV-14-8B 'N' Hdr Isol Discharge · HCV-14-10 'N' Hdr Isol Suction <p><u>STANDARD:</u> Open HCV-14-9 OR HCV-14-10. If HCV-14-9 opened, Open HCV-14-8A, if 14-10 opened, Open HCV-14-8B.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

<p><u>STEP 4:(2)</u> If an INADVERTENT SIAS has occurred, Then PERFORM the following:</p> <p>B. OPEN ALL of the following CCW to / from the RCP valves:</p> <p style="padding-left: 40px;">HCV-14-1, CCW To RC PUMP HCV-14-2, CCW From RC PUMP HCV-14-7, CCW To RC PUMP HCV-14-6, CCW From RC PUMP</p> <p><u>STANDARD:</u> OPENS HCV-14-1, HCV-14-2, HCV-14-7. Attempts to open HCV-14-6 and recognizes valve did not open.</p> <p><u>COMMENTS:</u></p>	<p>FAULTED STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> Trip all four RCP's due to loss of CCW flow IAW 2-AOP-01.09A1</p> <p><u>COMMENTS:</u></p> <p>EXAMINERS NOTE: Applicant may refer to 2-AOP-01.09A1 step 4.2.10 contingency action step 4.2.10 step 1.5 which states trip the Reactor and STOP all RCP's OR this action may be performed from memory.</p> <p>EXAMINERS NOTE: All four RCP's must be stopped before annunciator L-6 'RCP CCW FLOW LOW TRIP' (This annunciator comes in 10 minutes after low / lost CCW flow to the RCP's)</p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME: _____

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

SIMULATOR SETUP SHEET

- **Restore IC-4**
- **Manually Initiate SIAS both trains**
- **Execuate 'HLC 21 NRC Sim JPM S-7' scenario**
- **Freeze Simulator**

**JOB PERFORMANCE MEASURE
CANDIDATE CUE SHEET**

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

INITIAL CONDITIONS:

Unit 2 experienced an inadvertent SIAS. SIAS has NOT been reset.

INITIATING CUES:

You are the Desk RCO. The US has directed you to restore CCW and CBO to the RCP's IAW 2-EOP-99 Appendix J 'Restoration of CCW and CBO to the RCP's'

THIS IS A TIME CRITICAL JPM



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

**VENT REACTOR VESSEL HEAD
USING RCGVS - UNIT 1**

**NRC
C-1**

Unit 1 Control Room

JOB PERFORMANCE MEASURE

Task: Align RCS Gas Vents to vent the RCS to the Containment

Faulted JPM? No

Facility JPM #: 0821090

K/A Rating(s): 002 Knowledge of RCS design feature(s) and/or interlock(s) which provide for the following: K4.03 Venting the RCS 2.9 / 3.2

Duty Area(s): N/A

Task Information: N/A

Task Standard:

This JPM is complete when the candidate has successfully vented the reactor vessel head and secured from the vent lineup.

Evaluation Location:

Performance Level:

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
	X				X	

References:

- 1-AOP-01.12, "Reactor Coolant Gas Vent System Abnormal Operation."

Validation Time: 10 minutes

Time Critical: No

Tools/Equipment/Procedures Needed:

- 1-AOP-01.12, Reactor Coolant Gas Vent System Abnormal Operation.

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:

Vent the reactor vessel head using the Reactor Coolant Gas Vent System on Unit 1.
- The performance level to be used for this JPM is Perform / 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:

A LOCA has occurred on Unit 1, forming a non-condensable bubble in the reactor vessel head. Pressurizer level has been restored to 80% with Pressurizer pressure at 650 psia.

The subsequent actions of 1-AOP-01.12 have been completed up to the point of venting. Calculations show the void size is about 800 cubic feet, and the maximum vent time is 31 minutes.

INITIATING CUES:

You are the Desk RCO.

The Unit Supervisor has directed you to vent the reactor vessel head to Containment IAW 1-AOP-01.12, beginning with step 11. The Unit Supervisor has issued the appropriate keys to perform the task.

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

START TIME: _____

1-AOP-01.12, Reactor Coolant Gas Vent System Off-Normal Operation, Step 11.	
<p><u>STEP 1:</u> REFER TO Attachment 3, General Venting Guidelines, and COMMENCE venting as follows:: (CRAC Panel)</p> <p style="padding-left: 40px;">A. MONITOR Pressurizer level during venting process and VERIFY level remains equal to or greater than 20%.</p> <p><u>STANDARD:</u> MONITORS Pressurizer level.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: None, Pressurizer level is 80% per initial cue.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:</u> B. IF venting Pressurizer to Containment, THEN PERFORM the following:</p> <p><u>STANDARD:</u> Determines this step to be N/A per Initial Cue, venting reactor vessel head to containment.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3:</u> C. IF venting Pressurizer to Quench Tank, THEN PERFORM the following:</p> <p><u>STANDARD:</u> Determines this step to be N/A per Initial Cue, venting reactor vessel head to containment.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: None</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 4:</u> D. IF venting Pressurizer to accumulator, THEN PERFORM the following:</p> <p><u>STANDARD:</u> Determines this step to be N/A per Initial Cue, venting to containment.</p> <p>EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:</u> E. IF venting reactor vessel head to Containment, THEN PERFORM the following: (1) OPEN V1442, REACTOR VENT VALVE B TO HDR (Key 170) (2) OPEN V1446, HDR VENT TO CONTAINMENT (A) (Key 167)</p> <p><u>STANDARD:</u> At CRAC Panel, POSITIONS V1442 key-switch to OPEN</p> <p>EXAMINER'S CUE: V1442 shows Green light OFF, Red light ON</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:</u> E. IF venting reactor vessel head to Containment, THEN PERFORM the following: (1) OPEN V1442, REACTOR VENT VALVE B TO HDR (Key 170) (2) OPEN V1446, HDR VENT TO CONTAINMENT (A) (Key 167)</p> <p><u>STANDARD:</u> At CRAC Panel, POSITIONS V1446 key-switch to OPEN.</p> <p>EXAMINER'S CUE: V1446 shows Green light OFF, Red light ON</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7:</u> F. IF venting reactor vessel head to Quench Tank, THEN PERFORM the following:</p> <p><u>STANDARD:</u> Determines this step to be N/A per Initial Cue, venting to containment.</p> <p>EXAMINER'S CUE: None</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 8:</u> G. IF venting reactor vessel head to accumulator, THEN PERFORM the following:</p> <p><u>STANDARD:</u> Determines this step to be N/A per Initial Cue, venting to containment.</p> <p>EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:</u> 12. When <u>any</u> of the following conditions exist:</p> <ul style="list-style-type: none"> • Time period determined in Step 4.2 is met (31 minutes per cue) • Pressurizer pressure lowers by 200 psi • Pressurizer level lowers below 25% level • Reactor coolant subcooling is less than 20°F • The reactor vessel head is refilled as indicated by QSPDS reactor vessel level display <p>THEN CLOSE vent valves opened in Section 4.2 Step 11.B through Section 4.2 Step 11.G.</p> <p><u>STANDARD:</u> MONITORS above parameters and DETERMINES that QSPDS indicating a full reactor vessel head (no voids) is a termination criterion.</p> <p>EXAMINER'S CUE: Elapsed time is 27 minutes Pressurizer pressure is 530 psia, slowly lowering Pressurizer level is 40% RCS subcooling is 30°F RVLMS on QSPDS indicates all sensor levels green (digital values = 100%)</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10:</u> 12. When any of the following conditions exist:</p> <ul style="list-style-type: none"> • Time period determined in Step 4.2 is met (31 minutes per cue) • Pressurizer pressure lowers by 200 psi • Pressurizer level lowers below 25% level • Reactor coolant subcooling is less than 20°F • The reactor vessel head is refilled as indicated by QSPDS reactor vessel level display <p>THEN CLOSE vent valves opened in Section 4.2 Step 11.B through Section 4.2 Step 11.G.</p> <p><u>STANDARD:</u> At CRAC, <u>POSITION</u> V1442 keyswitches to <u>CLOSE</u>.</p> <p>EXAMINER'S CUE: V1442 shows Green lights ON, Red light OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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:</u> 12. When any of the following conditions exist:</p> <ul style="list-style-type: none"> • Time period determined in Step 4.2 is met (31 minutes per cue) • Pressurizer pressure lowers by 200 psi • Pressurizer level lowers below 25% level • Reactor coolant subcooling is less than 20°F • The reactor vessel head is refilled as indicated by QSPDS reactor vessel level display <p>THEN CLOSE vent valves opened in Section 4.2 Step 11.B through Section 4.2 Step 11.G.</p> <p><u>STANDARD:</u> At CRAC, <u>POSITION</u> V1446 keyswitches to <u>CLOSE</u>.</p> <p>EXAMINER'S CUE: V1446 shows Green lights ON, Red light OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12:</u> 13. ESTABLISH Pressurizer level.</p> <p><u>STANDARD:</u> <u>VERIFIES</u> charging is in operation to restore Pressurizer level.</p> <p>EXAMINER'S CUE: 2 charging pups are in operation. Pressurizer level is slowly rising.</p> <p>Pressurizer level has been re-established at 80%;</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 13:</u> 14. DETERMINE if a gas bubble existed in the reactor vessel head by evaluating response of the Pressurizer level trend.</p> <p><u>STANDARD:</u> <u>DETERMINE</u> that vessel was <u>COMPLETELY VENTED</u> of all voids and no further venting is required</p> <p>EXAMINER'S CUE: Pressurizer level has been re-established at 80%. NO indication of head voiding was observed when restoring Pressurizer level</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 14:</u> 15. IF a gas bubble existed AND the venting was terminated prior to the vessel being completely refilled, THEN RETURN to Section 4.2 Step 11.</p> <p><u>STANDARD:</u> DETERMINES that vessel was COMPLETELY VENTED of all voids and no further venting is required</p> <p>EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 15:</u> 16. VERIFY NO further venting is required.</p> <p><u>STANDARD:</u> DETERMINES that vessel was COMPLETELY VENTED of all voids and no further venting is required</p> <p>EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (done):</u> NOTIFY Control Room that task is complete.</p> <p><u>STANDARD:</u> NOTIFY Control Room that reactor vessel head has been vented to Containment per 1-AOP-01.12 and reactor vessel head indicates full.</p> <p>EXAMINER'S CUE: UNIT SUPERVISOR ACKNOWLEDGES</p> <p><u>COMMENTS:</u></p> <p align="center">END OF TASK</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:

A LOCA has occurred on Unit 1, forming a non-condensable bubble in the reactor vessel head. Pressurizer level has been restored to 80% with Pressurizer pressure at 650 psia.

The subsequent actions of 1-AOP-01.12 have been completed up to the point of venting. Calculations show the void size is about 800 cubic feet, and the maximum vent time is 31 minutes.

INITIATING CUES:

You are the Desk RCO.

The Unit Supervisor has directed you to vent the reactor vessel head to Containment IAW 1-AOP-01.12, beginning with step 11. The Unit Supervisor has issued the appropriate keys to perform the task.



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

RELEASE 1A WASTE MONITOR TANK CONTENTS

NRC P-1

Unit 1 RCA

JOB PERFORMANCE MEASURE

Task: 07006110, Release 1A Waste Monitor Tank Contents

Faulted JPM? No

Facility JPM #:

K/A Rating(s): 068-K4.01 Knowledge of design feature(s) and/or interlock(s) which provide for the following: Safety and environmental precautions for handling hot, acidic, and radioactive liquids 3.4 / 4.1

Duty Area(s): NA

Task Information: NA

Task Standard: This JPM is complete when 1A Waste Monitor tank has been released and the WMT Pump discharge to discharge canal is open and the placard has been placed on the LIS.

Evaluation Location:

Performance Level:

Simulator	In Plant	Lab	Other	Perform	Simulate	Discuss
	X				X	

References:

NOP-1-0510020 'Oxygenated Waste System'
1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge

Validation Time: 20 minutes

Time Critical: No

Tools/Equipment/Procedures Needed:

NOP-1-0510020, 'Oxygenated Waste System'
1-NOP-06.01, 'Controlled Liquid Release to the Circulating Water Discharge'
Personal Protective Equipment
SNPO Shift Keys
2-Way Radio
Flashlight

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

- None

Radiological Protection and RWP Requirements:

- RWP Required

JOB PERFORMANCE MEASURE
INITIAL CONDITIONS AND SPECIFIC DIRECTIONS

SPECIFIC DIRECTIONS:

- The task you are to perform is: Release 1A Waste Monitor Tank Contents
- 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 with all systems operable. The Unit 1 Unit Supervisor has directed the 1A Waste Monitor Tank to be discharged. Section 6.1 of 1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge, has been completed. Channel R-6627, Liquid Waste Monitor is in Service. Appendix E, Step 1.A of NOP 1-0510020, Oxygen Waste System, has been completed.

INITIATING CUES:

You are the Unit 1 SNPO. You have been directed by the Unit 1 Unit Supervisor to recirc. and release the contents of 1A Waste Monitor Tank using the 1A Waste Monitor Pump, in accordance with section 6.3 of 1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge. Begin with NOP-0510020, Oxygenated Waste System, Appendix E, Step 2.B

**JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST**

START TIME: _____

NOP-1-050020, Appendix E, Step 2.B	
<p><u>STEP 1:(2.B)</u> At the Liquid Waste Control Panel (RAB/19.5 el) ENSURE Control Switch for HCV-06-6 is selected to FILLING TANK B.</p> <p><u>STANDARD:</u> POSITION the Control Switch for HCV-06-6 to FILLING TANK B.</p> <p>EXAMINER'S CUE: Control Switch is in the FILLING TANK B position.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2:(2.C)</u> Ensure the following components are positioned as follows: CLOSE V06221, 1A/1B WMT Outlet Crossover Isol</p> <p><u>STANDARD:</u> VERIFY V06221 is CLOSED.</p> <p>EXAMINER'S CUE: V06221 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 3 (2.C)</u> Ensure the following components are positioned as follows: CLOSE V06222, 1A/1B WMT Recirc Crossover Isol</p> <p><u>STANDARD:</u> VERIFY V06222 is CLOSED.</p> <p>EXAMINER'S CUE: V06222 is CLOSED.</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 4:(2.C)</u> Ensure the following components are positioned as follows: CLOSE V06215, 1A Waste Monitor Pump Disch Isol</p> <p><u>STANDARD:</u> VERIFY V06215 is CLOSED.</p> <p>EXAMINER'S CUE: V06215 is CLOSED.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 5:(2.C)</u> Ensure the following components are positioned as follows: OPEN V06207, 1A Waste Monitor Tank Outlet Isol</p> <p><u>STANDARD:</u> VERIFY V06207 is OPEN.</p> <p>EXAMINER'S CUE: V06207 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 6:(2.C)</u> Ensure the following components are positioned as follows: OPEN V06208, 1A Waste Monitor Pump Suct Isol</p> <p><u>STANDARD:</u> VERIFY V06208 is OPEN.</p> <p>EXAMINER'S CUE: V06208 is OPEN.</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 7:(2.C)</u> Ensure the following components are positioned as follows: OPEN V06220, 1A Waste Monitor Pump Disch Recirc Isol</p> <p><u>STANDARD:</u> VERIFY V06220 is OPEN.</p> <p>EXAMINER'S CUE: V06220 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8:(2.D)</u> Record level in the 1A Waste Monitor Tank.</p> <p><u>STANDARD:</u> RECORD the level of the 1A Waste Monitor Tank.</p> <p>EXAMINER'S CUE: 1A Waste Monitor Tank level is 80%.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 9:(2.E)</u> Locally START the 1A Waste Monitor Pump, using the local pushbutton station located in B-141C (adjacent to the pump).</p> <p><u>STANDARD:</u> DEPRESS the local start pushbutton.</p> <p>EXAMINER'S CUE: The button has been depressed, and the pump is running.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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:(2.F)</u> If the Pump fails to start, Then refer to PRECAUTIONS/LIMITATIONS., Sec 5.6.</p> <p><u>STANDARD:</u> Determines step is N/A.</p> <p>EXAMINER'S CUE: None.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11:(2.G)</u> THROTTLE valve V06220, 1A WMT Pump Disch Recirc, to obtain a pressure reading of 20 – 25 psig on PI-06-47A</p> <p><u>STANDARD:</u> POSITION V06220 to attain 20 to 25 psig on PI-06-47A.</p> <p>EXAMINER'S CUE: V06220 is THROTTLED. 1A Waste Monitor Pump Pressure is 23 psig as indicated on PI-06-47A.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 12:(2.H)</u> If unable to obtain a reading of 20 – 25 psig on PI-06-47A, stop the 1A Waste Monitor Pump and recheck lineup.</p> <p><u>STANDARD:</u> Determine step is N/A.</p> <p>EXAMINER'S CUE: None.</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 13:(2.I)</u> Ensure level in the 1A Waste Monitor Tank is not decreasing.</p> <p><u>STANDARD:</u> OBSERVE 1A Waste Monitor Tank level.</p> <p>EXAMINER'S CUE: 1A Waste monitor Tank Level is 80% and steady.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 14:(2.J)</u> Inform Chemistry and the Control Room that the 1A Waste Monitor Tank is on recirculation with the 1A Waste Monitor Pump..</p> <p><u>STANDARD:</u> NOTIFY the Control Room & Chemistry via radio or telephone.</p> <p>EXAMINER'S CUE: Chemistry acknowledges the communication. The Control Room acknowledges the communication.</p> <p>EVALUATOR'S NOTE:</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 15:(2.K)</u> If the 1A Waste Monitor Tank is to be released, Then GO TO 1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge.</p> <p><u>STANDARD:</u> GO TO 1-NOP-06.01</p> <p>EXAMINER'S CUE: TIME COMPRESS --- Chemistry reports sample results on the 1A WMT are acceptable. The US directs the SNPO to release the 1A WMT in accordance with 1-NOP-06.01 section 6.3.1 (per initial cue)</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**

1-NOP-06.01, Section 6.3: To Discharge the 1A Waste Monitor Tank, Using the 1A Waste Monitor Pump	
<p align="center"><u>CAUTION</u></p> <p><u>STEP 16(6.3.1)</u> If the Liquid Waste Monitor is Out of Service OR the affected Waste Monitor Tank is to be drained completely The two independent valve alignments shall be performed to verify the discharge line valving.</p> <p>ENSURE appropriate section of NOP-1-0510020 Appendix E has been completed.</p> <p><u>STANDARD:</u> ENSURE appropriate section of NOP-1-0510020 Appendix E has been completed.</p> <p align="center">EXAMINER'S CUE: Appendix E has been completed.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 16:(6.3.2)</u>If the Liquid Waste Monitor is Out of Service OR the affected Waste Monitor Tank is to be drained completely The two independent valve alignments shall be performed to verify the discharge line valving.</p> <p><u>STANDARD:</u> From the initial conditions, determine step is N/A.</p> <p align="center">EXAMINER'S CUE: (If asked) The Liquid Waste Discharge Monitor is in service. Not draining the tank completely.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 17:(6.3.3)</u>OPEN V06215, 1A Waste Monitor Pump Discharge Isolation.</p> <p><u>STANDARD:</u> POSITION V06215 to OPEN</p> <p align="center">EXAMINER'S CUE: V06215 is OPEN.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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 18:(6.3.4)</u> If the Pump Discharge pressure does not return to approximately 20 – 25 psig, Then PERFORM the following.</p> <p><u>STANDARD:</u> OBSERVE PI-06-47A, 1A Waste Monitor Pump Press indicates 20 to 25 psig.</p> <p>EXAMINER’S CUE: PI-06-47A, 1A Waste Monitor Pump Press indicates 22 psig.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (6.3.5):</u> RECORD the following Liquid Release data in Section IV of the Liquid release permit.</p> <p><u>STANDARD:</u> N/A RCO step.</p> <p>EXAMINER’S CUE: RCO has recorded the required information if requested.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP (6.3.6):</u> LOCK OPEN V21462, Waste Monitor Pump Discharge to Discharge Canal Isolation.</p> <p><u>STANDARD:</u> Opens and Locks V21462</p> <p>EXAMINER’S CUE: V21462 is opened and locked.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</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>STEP (6.3.7): At the Liquid Release Control Panel, PLACE a magnetic "LIQUID RELEASE" placard beneath LIS-06-47-1A</p> <p>STANDARD: Places "LIQUID RELEASE" placard beneath LIS-06-47-1A</p> <p>EXAMINER'S CUE: "LIQUID RELEASE" placard beneath LIS-06-47-1A has been placed.</p> <p>EXAMINERS CUE: JPM is complete.</p> <p>COMMENTS:</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 at 100% power with all systems operable. The Unit 1 Unit Supervisor has directed the 1A Waste Monitor Tank to be discharged. Section 6.1 of 1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge, has been completed. Channel R-6627, Liquid Waste Monitor is in Service. Appendix E, Step 1.A of NOP 1-0510020, Oxygen Waste System, has been completed.

INITIATING CUES:

You are the Unit 1 SNPO. You have been directed by the Unit 1 Unit Supervisor to recirc. and release the contents of 1A Waste Monitor Tank using the 1A Waste Monitor Pump, in accordance with section 6.3 of 1-NOP-06.01, Controlled Liquid Release to the Circulating Water Discharge. Begin with NOP-0510020, Oxygenated Waste System, Appendix E, Step 2.B

JOB PERFORMANCE MEASURE



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

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

1B Battery Charger Room

NRC P-2

JOB PERFORMANCE MEASURE

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

Faulted JPM? No

Facility JPM #: 0821067

K/A: Knowledge of the physical connections and/or cause effect relationships between the ac distribution system and the following systems: K1.03 DC distribution

K/A Rating(s): 3.5 / 4.0

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:

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

References:

1-NOP-49.05B, "120 VAC Instrument Bus 1MB (Class 1E) Normal Operations"

Validation Time: 10 minutes

Time Critical: No

Tools/Equipment/Procedures Needed:

- 1-NOP-49.05B, "120 VAC Instrument Bus 1MB (Class 1E) Normal Operations"

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

- Normal PPE for in-plant

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 1-NOP-49.05B, "120 VAC Instrument Bus 1MB (Class 1E) Normal Operations". Consider all Concurrent Verifications complete. Step 1, Initiating an Equipment Out Of Service Log entry has been completed.

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

START TIME: _____

1-NOP-49.05B, "120 VAC Instrument Bus 1MB (Class 1E) Normal Operations" Step 4.1 Remove Instrument Inverter from Service (Shifting Loads to Maintenance Bypass Bus)	
<p><u>STEP 1 (4.1.2):</u> At Instrument Bus Transfer Panel 1B, VERIFY switch 1010-2, TRANSFER SWITCH 1MD, is positioned to INVERTER 1D.</p> <p><u>STANDARD:</u> VERIFY switch 1010-2 is positioned to INVERTER 1D.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: Switch 1010-2 is positioned to Inverter 1D.</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 2 (4.1.3):</u> At 1B Maint Bypass Bus, PLACE breaker CKT 13 (Feed to Instrument Bus 1MB) in ON.</p> <p><u>STANDARD:</u> POSITION 1B Maint Bypass Bus CKT 13 Breaker to ON.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: CKT 13 Breaker is ON</p> <p style="padding-left: 40px;">EXAMINER'S NOTE: If CKT 13 breaker is already ON, then the standard for this step is VERIFY, and it no longer a critical step.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

<p><u>STEP 3 (4.1.4):</u> At Instrument Bus Transfer Panel 1B, VERIFY 1010-2, MAINT BYPASS BUS 1B FEED, power available light is ON.</p> <p><u>STANDARD:</u> VERIFY light 1010-2 is ON at Bus Transfer Panel 1B.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: Light 1010-2 is ON</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">_____ SAT</p> <p style="text-align: right;">_____ UNSAT</p>
<p><u>STEP 4 (4.1.5):</u> At 1B Maint Bypass Bus, VERIFY breaker CKT 3 (Sync Signal to Inverter 1B) in ON.</p> <p><u>STANDARD:</u> VERIFY Inverter 1B Maint Bypass Bus 1B CKT 3 Breaker is ON.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: CKT 3 Breaker is ON.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">_____ SAT</p> <p style="text-align: right;">_____ UNSAT</p>
<p><u>STEP 5 (4.1.6):</u> At 1MB Instrument Inverter, VERIFY IN SYNC light is ON.</p> <p><u>STANDARD:</u> VERIFY IN at 1MB Instrument Inverter that the IN SYNC light is ON.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: IN SYNC light on Inverter 1MB is ON</p> <p><u>COMMENTS:</u></p>	<p style="text-align: right;">_____ SAT</p> <p style="text-align: right;">_____ UNSAT</p>

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

<p><u>STEP 6 (4.1.7):</u> IF the IN SYNC light is OFF, THEN STOP procedure and NOTIFY Electrical Maintenance.</p> <p><u>STANDARD:</u> DETERMINE step is N/A</p> <p style="padding-left: 40px;">EXAMINER'S CUE: None</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 7 (4.1.8):</u> At Instrument Bus Transfer Panel 1B, PLACE 1010-1, TRANSFER SWITCH 1MB, in MAINT BYPASS BUS 1B.</p> <p><u>STANDARD:</u> POSITION 1010-1 in MAINT BYPASS BUS 1B.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: 1010-1 is in MAINT BYPASS BUS 1B.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 8 (4.1.9):</u> NOTIFY the Control Room That Instrument Bus 1MB is being powered from Maintenance Bypass Bus 1B</p> <p><u>STANDARD:</u> NOTIFY Control Room that 1MB Instrument Bus is now being powered from the Maintenance Bypass Bus.</p> <p style="padding-left: 40px;">EXAMINER'S CUE: CONTROL ROOM ACKNOWLEDGES</p> <p><u>COMMENTS:</u></p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

<p><u>STEP 9 (4.1.10):</u> At 1MB Instrument Inverter, PLACE the following breakers in OFF:</p> <p style="margin-left: 40px;">A. 1MB-B4, BYPASS SOURCE A.C. INPUT B. 1MB-B2, INVERTER OUTPUT C. 1MB-B1, DC INPUT</p> <p><u>STANDARD:</u> <u>POSITION</u> Breakers, 1MB-B4, 1MB-B2, and 1MB-B1 on Inverter 1MB to OFF in that order</p> <p style="margin-left: 40px;">EXAMINER'S CUE: As Student positions these Breakers, cue that the respective breaker is OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 10 (4.1.11):</u> At 125V DC Bus 1B, PLACE Bkr 1-60224, INVERTER 1B in OFF.</p> <p><u>STANDARD:</u> <u>POSITION</u> DC Bus 1B Breaker 1-60224 to OFF</p> <p style="margin-left: 40px;">EXAMINER'S CUE: Breaker 1-60224 is OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>
<p><u>STEP 11 (4.1.12):</u> At 1B Maint Bypass Bus, PLACE breaker CKT 3 (Sync Signal to Inverter 1B) in OFF.</p> <p><u>STANDARD:</u> <u>POSITION</u> Maintenance Bypass Bus 1B CKT 3 Breaker to OFF</p> <p style="margin-left: 40px;">EXAMINER'S CUE: CKT 3 breaker is OFF</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>_____ SAT</p> <p>_____ UNSAT</p>

JOB PERFORMANCE MEASURE
PERFORMANCE CHECKLIST

<p><u>STEP (4.1.13 done):</u> Notify the Control Room the 1B inverter is removed from service.</p> <p><u>STANDARD:</u> <u>NOTIFY</u> the Control Room that 1MB Instrument Inverter is removed from service</p> <p style="text-align: center;">EXAMINER'S CUE: CONTROL ROOM ACKNOWLEDGES</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p style="text-align: center;">_____ SAT</p> <p style="text-align: center;">_____ 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:

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 1-NOP-49.05B, "120 VAC Instrument Bus 1MB (Class 1E) Normal Operations". Consider all Concurrent Verifications complete. Step 1, initiating an Equipment Out Of Service Log entry has been completed.



St. Lucie Nuclear Plant

Operations Training

JOB PERFORMANCE MEASURE

ALIGN UNIT 2 CST TO SUPPLY 1C AFW PUMP

**NRC
P-3**

Job Performance Measure

Task Number:

Task Title: Align AFW System in Response to Component Malfunction/Failure

Faulted JPM: Yes No

Facility JPM # N/A

K/A Ratings: 061-K4.01 Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following: Water sources and priority of use 4.1/ 4.2

Duty Areas: N/A

Task Information: N/A

Task Standard: Task is complete when the 1C AFW pump is aligned to take suction from the Unit 2 CST.

Evaluation Location

Simulator

In Plant

Perform

Simulate

Discuss

Lab

Other

Performance Level

References:

- 1-AOP-09.02, "Auxiliary Feedwater"

Validation Time: 15 Minutes

Time Critical Yes

No

Tools/Equipment/Procedures Needed:

- Standard Personal Protective Equipment
- Flashlight
- Radio
- Watch Stander Key Ring for Locked Valves
- 1-AOP-09.02, "Auxiliary Feedwater"

Specific Safety Concerns, PPE and Hazards associated with the task:

- None.

Radiological Protection and RWP Requirements:

- None

Job Performance Measure

Specific Directions:

- The Task you are to perform is: Align Unit 2 CST to Supply 1C AFW Pump
- 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.

Initial Conditions:

Unit 1 is experiencing a Total Loss of Feedwater event. Unit 1 CST is unavailable, Unit 2 CST level is 43 Feet. Unit 2 is in Mode 1.

Initiating Cues:

You are the Unit 1 NPO. The Unit 1 Unit Supervisor has directed you to line up the Unit 2 CST to supply the 1C AFW Pump IAW 1-AOP-09.02, "Auxiliary Feedwater," Attachment 5, Steps 1.A through 1.D, and 1.F.1 through 1.F.5.

Job Performance Measure

PERFORMANCE CHECKLIST

Start Time: _____

1-AOP-09.02, "Auxiliary Feedwater," Attachment 5	
<u>STEP 1.(1)</u>	A. Notify Unit 2 Control Room.
<u>Standard:</u>	NOTIFY Unit 2 Control Room that Unit 2 CST will be ALIGNED to supply the 1C AFW Pump.
<u>Examiner's Cue:</u>	Unit 2 Control Room ACKNOWLEDGES
<u>Comments:</u>	<p style="text-align: center;"><u>NOTE</u></p> <p>In the event Unit 2 CST is utilized to supply condensate to Unit 1, a minimum of 182,000 gallons (19'6") must be maintained in the Unit 2 CST unless Unit 2 is in Modes 4, 5, or 6. This is to ensure that Unit 2 has the capability to cool the RCS to less than 350 degrees.</p> <p style="text-align: center;"><u>CAUTION</u></p> <ul style="list-style-type: none"> • During the performance of this attachment, 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 attachment, the AFW Pump discharge valves must be throttled to maintain suction pressure. • Performance of this attachment 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 Attachment 5 Step 1.C.
	<p>_____ Sat</p> <p>_____ Unsat</p>

Job Performance Measure

<p><u>STEP 2.(1)</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>B. ENSURE all Unit 1 Auxiliary Feedwater pumps are OFF.</p> <p>ENSURE all Unit 1 Auxiliary Feedwater pumps are OFF by calling the Unit 1 Control Room OR physically checking the AFW pumps.</p> <p>All Unit 1 Auxiliary Feedwater pumps are OFF.</p>	<p>_____ Sat</p> <p>_____ Unsat</p>
<p><u>STEP 3(1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>C. At the Unit 2 CST, PERFORM one of the following to establish a flowpath from the Unit 2 CST to Unit 1 AFW pumps:</p> <p>1. IF the Unit 2 CST level is greater than 40 feet, THEN OPEN V12803, CST INLET TO / FROM UNIT 1 ISOL. (CST/23/N-6/E-21)</p> <p>UNLOCK and POSITION V12803 to OPEN and then RELOCK.</p> <p>V12803 is OPEN and LOCKED.</p> <p>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>Critical Step</p> <p>_____ Sat</p> <p>_____ Unsat</p>

Job Performance Measure

<p><u>STEP 3(1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>C. At the Unit 2 CST, PERFORM one of the following to establish a flowpath from the Unit 2 CST to Unit 1 AFW pumps: 2. IF the Unit 2 CST level is less than or equal to 40 feet, THEN PERFORM one of the following: • OPEN V12801, 2C AFW PUMP SUCT TO / FROM UNIT 1 ISOL. (CST/23/N-14/E-20) • OPEN V12802, 2A/2B AFW PUMP SUCT TO / FROM UNIT 1 ISOL. (CST/23/N-14/E-20)</p> <p>Determined to be NA, due to initiating cue.</p> <p>Initiating Cue gives Unit 2 CST level as 43 Feet.</p>	<p>_____ Sat</p> <p>_____ Unsat</p>
<p><u>STEP 4 (1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>D. OPEN V12805, CST CROSSTIE TO UNIT 1 ISOL. (CST/24/N-685/E-1191)</p> <p>UNLOCK and POSITION V12805 to OPEN.</p> <p>V12805 is OPEN.</p> <p>(EXAMINERS NOTE) Step 1E is for aligning 1A and 1B AFW pump. N/A for this task.</p> <p>Valve does not have to be re-locked to meet the Critical Step.</p>	<p>Critical Step</p> <p>_____ Sat</p> <p>_____ Unsat</p>

Job Performance Measure

<p><u>STEP 5(1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>F. To supply 1C AFW pump, PERFORM the following:</p> <p>(1) CLOSE V12506, CST OUTLET TO 1C AFW PUMP SUCT ISOL at the Unit 1 CST. (CST/23/N-9/E-19)</p> <p>UNLOCK and POSITION V12506 to CLOSE.</p> <p>V12506 is CLOSED.</p> <p>Valve does not have to be re-locked to meet the Critical Step.</p>	<p>Critical Step</p> <p>_____ Sat</p> <p>_____ Unsat</p>
<p><u>STEP 6(1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>F. To supply 1C AFW pump, PERFORM the following:</p> <p>(2) OPEN V12175, TO/FROM UNIT 2 FROM 1C AFW PUMP SUCT LINE ISOL, at the Unit 1 CST. (CST/21/N-13/E-24)</p> <p>UNLOCK and POSITION V12175 to OPEN.</p> <p>V12175 is OPEN.</p> <p>Valve does not have to be re-locked to meet the Critical Step.</p>	<p>Critical Step</p> <p>_____ Sat</p> <p>_____ Unsat</p>

Job Performance Measure

<p><u>STEP 7(1).</u></p> <p>(3) ENSURE PI-12-18C, 1C AFW PUMP SUCT PRESS, instrument isolation valve is OPEN. (TRSL/27/N-T3/W-TA)</p> <p><u>Standard:</u> POSITION PI-12-18C instrument isolation to OPEN.</p> <p><u>Examiner's Cue:</u> PI-12-18C instrument isolation valve is OPEN.</p> <p><u>Comments:</u></p>	<p>F. To supply 1C AFW pump, PERFORM the following:</p> <p>_____ Sat</p> <p>_____ Unsat</p>
<p><u>STEP 8(1).</u></p> <p>(4) VERIFY greater than 3 psig suction pressure on PI-12-18C, 1C AFW PUMP SUCTION PRESSURE.</p> <p><u>Standard:</u> VERIFY GREATER THAN 3 psig on PI-12-18C.</p> <p><u>Examiner's Cue:</u> PI-12-18C INDICATES 15 psig.</p> <p><u>Comments:</u></p>	<p>F. To supply 1C AFW pump, PERFORM the following:</p> <p>_____ Sat</p> <p>_____ Unsat</p>

Job Performance Measure

<p><u>STEP 9(1).</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>F. To supply 1C AFW pump, PERFORM the following: (5) IF feeding S/Gs with the 1C Auxiliary Feedwater Pump, THEN PERFORM the following: a. CLOSE V09399, 1C AFW PUMP RECIRC ISOL. (TRSL/23-N-T3/W-TA)</p> <p>POSITION V09399, 1C AFW PUMP RECIRC ISOL. to CLOSE</p> <p>The 1C AFW will be used to feed the SG's V09300, 1C AFW PUMP RECIRC ISOL. is closed</p>	<p>Critical Step</p> <p>_____ Sat</p> <p>_____ Unsat</p>
<p><u>STEP 10(1)</u></p> <p><u>Standard:</u></p> <p><u>Examiner's Cue:</u></p> <p><u>Comments:</u></p>	<p>5.b. START 1C AUXILIARY FEEDWATER PUMP</p> <p>NOTIFY Unit 1 Unit Supervisor that 1C AFW Pump is lined up to take a suction on the Unit 2 CST IAW 1-AOP-09.02, "Auxiliary Feedwater".</p> <p>Unit 1 Unit Supervisor ACKNOWLEDGES.</p> <p>If candidate continues onward, then inform him "This JPM is complete."</p>	<p>_____ Sat</p> <p>_____ Unsat</p>
<p>END OF TASK</p>		

Stop Time: _____

Job Performance Measure

CANDIDATE CUE SHEET

Initial Conditions:

Unit 1 is experiencing a Total Loss of Feedwater event. Unit 1 CST is unavailable, Unit 2 CST level is 43 Feet. Unit 2 is in Mode 1.

Initiating Cues:

You are the Unit 1 NPO. The Unit 1 Unit Supervisor has directed you to line up the Unit 2 CST to supply the 1C AFW Pump IAW 1-AOP-09.02, "Auxiliary Feedwater," Attachment 5, Steps 1.A through 1.D, and 1.F.1 through 1.F.5.