

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I SYS A**

**TITLE: Synchronize Main Turbine  
Generator to Grid**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Synchronize Main Turbine Generator to Grid

Alternate Path: No

Facility JPM #: 2001 NRC Exam

K/A: 045.A4.02 Importance: RO: 2.7 SRO: 2.6

K/A Statement: Ability to manually operate and/or monitor in the control room: T/G controls, including breakers.

Task Standard: Turbine/Generator has been synchronized to the grid, with both generator breakers closed

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: SOP-8, Main Turbine and Generating Systems  
GOP-4, MODE 2 to MODE 1

Validation Time: 30 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- SOP-8, "Main Turbine and Generating Systems," completed up to Step 7.1.3.b.
- GOP-4, "Mode 2 to Mode 1"

Also see **Simulator Operator Instructions** (later page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**Special Note:** Assume that all Plant Requirements and Precautions and Limitations have been reviewed and complied with. You are NOT expected, nor are you required to consult the Plant Requirements and Precautions and Limitations section of any procedure for this JPM.

**INITIAL CONDITIONS:**

- The plant is in MODE 2 and a Turbine/Generator startup is in progress. Main Turbine speed is 1800 RPM. All pre-op testing has been completed.
- GOP-4 is in progress and GCL-4 is complete up to Step 4.3
- SOP-8, Main Turbine and Generating Systems steps up to, and including SOP-8, Section 7.1.3.a (Placing Main Transformer Coolers in service) have been completed.

**INITIATING CUES:**

- The Control Room Supervisor has directed you to synchronize the Main Generator to the grid, in accordance with SOP-8, Section 7.1.3.b, c, d, e, and f.
- An operator is available to operate the primary systems, including the reactor.

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

**Evaluator Cue:** Provide candidate with a working copy of SOP-8 completed up to Step 7.1.3.b.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Obtain current procedure.	Obtains copy of SOP-8 and refers to Section 7.1.3.b.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
7.1.3.b.1	CLOSE field breaker 341 and verify Main Generator terminal voltage stabilizes at approx. 10 kV.	Field breaker switch 341/CS closed and terminal voltage at approx. 10 kV.	S U
<b>Comment:</b> <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
7.1.3.b.3	Adjust 370DC/CS Voltage Regulator DC Adjuster to raise terminal voltage.	Terminal voltage at approx. 22 kV, and NOT exceeding 23.1 kV	S U
<b>Comment:</b> <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.1.3.b.4	Ensure "Loss of Sensing" module is RESET (inside EC-281, Voltage Regulator Cabinet – in the DEH room)	Directs NPO to RESET "Loss of Sensing" module by performing the following inside Cabinet EC-281: <ul style="list-style-type: none"> <li>• PRESS RESET pushbutton to reset module</li> <li>• VERIFY red LIGHT is extinguished.</li> </ul>	S U
<b>Comment:</b> <b>Evaluator Cue:</b> Acknowledge applicant's request for NPO to reset Loss of Sensing Module and reply "The Loss of Sensing module has been reset and the red LED light is out"			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.1.3.b.5	Place Voltage Regulator Control Switch 390CS in TEST.	Voltage Regulator Control Switch in TEST. AMBER light is LIT.	S U
Comment:			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.1.3.b.6	Adjust the Voltage Regulator AC Adjuster 390AC/CS to change the Regulator Balance Meter indication.	AC Adjuster control operated to change the Regulator Balance Meter indication to between +5 and -5 volts.	S U
Comment:			
<b>Evaluator Note:</b> This step verifies the Voltage Regulator is operable.			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
7.1.3.b.7	Adjust the AC Adjuster 390AC/CS to zero the Regulator Balance Meter.	Regulator Balance Meter indication is at "0".	S U
Comment:			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.1.3.b.8	Place Voltage Regulator Control Switch 390CS to ON and verify red lamp lights.	Voltage Regulator Control Switch to ON and red lamp LIT.	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.1.3.b.9	Check terminal voltage for stability.	Main Generator Terminal Voltage meter is checked for stable indication.	S U
Comment:			
<b>Evaluator Cue:</b> If applicant determines generator terminal voltage is low (~21.5kV), acknowledge report and have applicant continue to synchronize the Main Generator.			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.1.3.b.10	If terminal voltage is NOT stable, return Voltage Regulator Control Switch to TEST or OFF.	Voltage Regulator Control Switch in TEST or OFF is terminal voltage is NOT stable.	S U
Comment:			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
7.1.3.c	Ensure Turbine speed is near 1800 rpm.	Turbine speed near 1800 rpm.	S U
Comment:			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
7.1.3.d.1	Turn Sync Scope for 25F7 to ON.	Locates removable sync switch handle and inserts in sync scope and turns to ON for Main Generator breaker 25F7.	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
7.1.3.d.2	Adjust "Incoming" voltage to match "Running" voltage.	Uses AC Adjuster to raise or lower generator voltage such that "Incoming" voltage and "Running" voltage are closely matched. Monitors Main Generator terminal voltage to ensure it does not reach 23.1 kV.	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
7.1.3.d.4	Verify all three phases are closely matched.	Uses Voltage Select Switch to check that each of the three phase voltages differ by less than 1 kV.	S U
Comment:			
Proc. Step	TASK ELEMENT 15	STANDARD	Grade
7.1.3.e	Request Transmission System Coordinator (TSC) permission to synchronize to the grid.	Verifies with TSC that permission is given to synchronize to the grid.	S U
Comment:			
<i>Evaluator Note: It is acceptable if candidate obtains this information from the CRS</i>			
<i>Evaluator Cue: Transmission System Coordinator has given permission to synchronize to the grid</i>			

Proc. Step	TASK ELEMENT 16	STANDARD	Grade
7.1.3.f.1&2	Ensure OPEN 25F7 and 25H9.	Checks 25F7 and 25H9 GREEN lights ON and RED lights OFF on panel C-01.	S U
Comment:			
<i>Evaluator Note: May also check indication on panel C-07, but this is NOT required.</i>			

Proc. Step	TASK ELEMENT 17	STANDARD	Grade
7.1.3.f.3	Ensure CLOSED MOD 26H5.	Checks 26H5 RED light ON and GREEN light OFF.	S U
Comment:			
<i>Evaluator Note: May check indications on Panel C-07</i>			

Proc. Step	TASK ELEMENT 18	STANDARD	Grade
7.1.3.f.4	Ensure the Reactor Operator is ready to raise load.	Checks with Reactor Operator to ensure ready to raise load.	S U
Comment:			
<i>Evaluator Note: A surrogate operator or instructor will function as the Reactor Operator.</i>			

Proc. Step	TASK ELEMENT 19	STANDARD	Grade
7.1.3.f.5	Adjust Turbine Speed to get Sync Scope turning slowly in the clockwise (fast) direction	Sync Scope is turning slowly in the clockwise (fast) direction.	S U
Comment:			

Proc. Step	TASK ELEMENT 20	STANDARD	Grade
7.1.3.f.6	Ensure Valve Position Limiter is at approximately 10%.	Checks DEH screen Valve Position Limiter indication at approximately 10%.	S U
Comment:			

Proc. Step	TASK ELEMENT 21	STANDARD	Grade
7.1.3.f.7	Ensure Turbine Bypass Controller PIC-0511 is in AUTO with a setpoint of 900 psig.	Checks Turbine Bypass Controller in AUTO with setpoint at 900 psi.	S U
Comment:			

Proc. Step	TASK ELEMENT 22	STANDARD	Grade
7.1.3.f.8	Establish the following parameters (Reactor Operator): <ul style="list-style-type: none"> <li>Reactor Power less than or equal to 13% power (highest of <math>\Delta T</math> or NI power).</li> <li>Tave less than or equal to 540°F</li> <li>PIC-0511, Turbine Bypass Controller output signal greater than 60%.</li> </ul>	Checks with Reactor Operator to ensure the above parameters are met before synchronizing.	S U
Comment:			

Proc. Step	TASK ELEMENT 23	STANDARD	Grade
7.1.3.f.9	Close 25F7 breaker as Sync scope nears "1200" hours.	25F7 closed and closed light illuminated	S U
Comment:			
<b>CRITICAL STEP</b>			



Proc. Step	TASK ELEMENT 24	STANDARD	Grade
7.1.3.f.11	Locally verify closed all three phases of 25F7 and turn sync scope to OFF.	Directs NPO to verify all three phase targets for 25F7 indicate RED. Sync scope for 25F7 turned to OFF.	S U
<p>Comment:</p> <p><b>Evaluator Cue:</b> When requested as NPO to locally verify 25F7, report "all three targets indicate RED"</p>			

Proc. Step	TASK ELEMENT 25	STANDARD	Grade
7.1.3.f.13	Verify the Generator has picked up a minimum of 20MW	Checks DEH screen indications or panel C-01 Power meter indication and verifies load at least 20 MW.	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 26	STANDARD	Grade
7.1.3.f.14	Verify Turbine Bypass Valve CV-0511 is closing.	Checks CV-0511 controller to verify valve closing.	S U
<p>Comment:</p> <p><b>Evaluator Note:</b> Also acceptable to ask Reactor Operator if CV-0511 is closing.</p>			

Proc. Step	TASK ELEMENT 27	STANDARD	Grade
7.1.3.f.15	Turn Sync Scope for 25H9 to ON.	Locates removable sync switch handle and inserts in sync scope and turns to ON for Main Generator breaker 25H9.	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 28	STANDARD	Grade
7.1.3.f.16	Close 25H9 breaker.	25H9 closed and closed light illuminated	S U
<p>Comment:</p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 29	STANDARD	Grade
7.1.3.f.18	Locally verify closed 25H9 and turn sync scope to OFF.	Directs NPO to verify all three phase targets for 25H9 indicate RED. Sync scope for 25H9 turned to OFF.	<b>S U</b>
<p><b>Comment:</b>  <i><b>Evaluator Cue:</b> When requested as NPO to locally verify 25H9, report “all three targets indicate RED”</i></p>			

Proc. Step	TASK ELEMENT 30	STANDARD	Grade
7.1.3.f.19	Inform Control Room Supervisor of completion.	Informs Control Room Supervisor that Main Turbine/Generator has been synchronized to the grid at minimum load.	S U
Comment:			

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

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-175

## CANDIDATE CUE SHEET

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

**Special Note:** Assume that all Plant Requirements and Precautions and Limitations have been reviewed and complied with. You are NOT expected, nor are you required to consult the Plant Requirements and Precautions and Limitations section of any procedure for this JPM.

### INITIAL CONDITIONS:

- The plant is in MODE 2 and a Turbine/Generator startup is in progress. Main Turbine speed is 1800 RPM. All pre-op testing has been completed.
- GOP-4 is in progress and GCL-4 is complete up to Step 4.3
- SOP-8, Main Turbine and Generating Systems steps up to, and including SOP-8, Section 7.1.3.a (Placing Main Transformer Coolers in service) have been completed.

### INITIATING CUES:

- The Control Room Supervisor has directed you to synchronize the Main Generator to the grid, in accordance with SOP-8, Section 7.1.3.b, c, d, e, and f.
- An operator is available to operate the primary systems, including the reactor.

**PALISADES**

**2017 INITIAL LICENSE EXAM**

**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I SYS B**

**TITLE: RESPOND TO SAFETY  
INJECTION TANK HIGH  
PRESSURE**

CANDIDATE:

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EXAMINER:

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JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Respond to Safety Injection Tank High Pressure

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 006.A1.13 Importance: RO: 3.5 SRO: 3.7

K/A Statement: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure (level, boron concentration).

Task Standard: Vent Safety Injection Tank T-82A to clear the high pressure alarms.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: ARP-8  
SOP-3

Validation Time: 10 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- SOP-3, "Safety Injection and Shutdown Cooling System" Section 7.5.5
- ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13)"

Also see **Simulator Operator Instructions** (later page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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**INITIAL CONDITIONS:**

- The Plant is at 25% power during initial power ascension.
- Safety Injection Tank T-82A has received alarms for high pressure.

**INITIATING CUES:**

Respond to the Safety Injection Tank (SIT) pressure alarms and adjust pressure in SIT T-82A to clear the alarms.



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

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Respond to alarm(s) EK-1316 and/or EK-1317. Obtain ARP-8	Obtain ARP-8 and respond to alarm(s) EK-1316/1317	<b>S U</b>
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
N/A	Check closed T-82A Nitrogen fill valve CV-3040	CV-3040 closed	<b>S U</b>
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
N/A	Check T-82A tank level normal on LIA-0365	Tank level is stable in normal band. Only pressure is high.	<b>S U</b>
<b>Comment:</b> <i>Evaluator Cue: When applicant has obtained SOP-3 and identified Section 7.5.5 to vent the SIT, provide applicant with a working copy of SOP-3 Section 7.5.5.</i>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.5.5.a	Informs CRS to review TS LCO 3.5.1 applicability.	Informs CRS to review TS LCO 3.5.1 applicability.	<b>S U</b>
<b>Comment:</b> <i>Evaluator Cue: Inform applicant that CRS is reviewing TS applicability.</i>			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.5.5.b	Ensure closed SIT fill and drain valves for T-82A <ul style="list-style-type: none"> <li>• CV-3039</li> </ul>	CV-3039 is closed	<b>S U</b>
<b>Comment:</b>			

**Evaluator Note:** Step 7.5.5.c is Not Applicable as the applicant should not be depressurizing the SIT to < 200 psig (minimum nitrogen cover pressure for operability).

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.5.5.d	Ensure open CWRT Vent Isolation Valves: <ul style="list-style-type: none"> <li>CV-1064</li> <li>CV-1065</li> </ul>	CV-1064 and CV-1065 open	S U
Comment:			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
7.5.5.e	Prior to opening the vent valve, inform the CRS of inoperability of T-82A due to the vent valve being opened.	Inform the CRS of T-82A inoperability upon opening the vent valve.	S U
Comment:			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.5.5.e	Open the vent valve for the SIT to be vented (T-82A): <ul style="list-style-type: none"> <li>CV-3067</li> </ul>	Open CV-3067 to begin the venting.	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.5.5.f	Check Waste Gas Surge Tank T-67 pressure and Primary System Drain Tank T-74 pressure.	Direct NPO to check Waste Gas Surge Tank and Primary System Drain Tank pressures.	S U
Comment: <i>Evaluator Cue: Tank pressures are normal and an NPO is monitoring at the C-40 Panel.</i>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.5.5.g	When venting is completed, close CV-3067	CV-3067 closed prior to reaching SIT inoperability of < 200 psig.	<b>S U</b>
<b>Comment:</b> <b>CRITICAL STEP</b>			

*Time End:* \_\_\_\_\_

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-177

## CANDIDATE CUE SHEET

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

### INITIAL CONDITIONS:

- The Plant is at 100% power
- Safety Injection Tank T-82A has received alarms for high pressure.

### INITIATING CUES:

Respond to the Safety Injection Tank (SIT) pressure alarms and adjust pressure in SIT T-82A to clear the alarms.

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO SYS C**

**TITLE: Respond to Control Room  
Outside Air Intake Radiation  
Monitor Alarms**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Respond to Control Room Outside Air Intake Radiation Monitor Alarms

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 061.AA1.01 Importance: RO: 3.6 SRO: 3.6

K/A Statement: Ability to operate and/or monitor the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Automatic actuation

Task Standard: Respond to a Control Room Outside Air Intake Radiation Monitor alarm by placing the operating CR HVAC train in emergency mode.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: ARP-33, Auxiliary Systems Scheme  
SOP-24, Ventilation and Air Conditioning System

Validation Time: 9 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- ARP-33, Auxiliary Systems Scheme
- SOP-24, Ventilation and Air Conditioning System

Also see **Simulator Operator Instructions** (later page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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**INITIAL CONDITIONS:**

- The reactor is critical with power at the POAH
- MSIV Bypass valves, MO-0501 and MO-0510, are open
- Vacuum is established on the Main Turbine and the secondary plant is in the process of being started up

**INITIATING CUES:**

You are the NCO-T operator and the Control Room Supervisor has directed you to respond to alarm EK-0239 "CR HVAC TRAIN 'A' RIA-1818A HI RAD/FAIL" and perform the applicable actions.



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

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Obtain current procedure.	Obtains copy of ARP-33 for EK-0239.	S U
Comment:			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
N/A	Place operating CR HVAC train ('A') in emergency mode per SOP-24	Refers to SOP-24 Section 7.7.9	S U
Comment:			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
N/A	Obtain a copy of SOP-24 Section 7.7.9	Obtain a copy of SOP-24 Section 7.7.9	S U
Comment:			
<i>Evaluator Cue: When applicant has obtained SOP-24 Section 7.7.9, provide a clean copy of the procedure section.</i>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.7.9.a.1	Ensure operating V-95 Train A Control Room Ventilation Main Supply Fan	Verify V-95 is operating.	S U
Comment:			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.7.9.a.2	Place V-26A Air Filter VF-26A Fan handswitch to ON	Start V-26A	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.7.9.b	Ensure open Train A Outside Air Damper D-7	Verify D-7 open	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
7.7.9.c	Ensure closed Train B Outside Air Damper D-14	Verify Train B (not in service) damper D-14 closed	S U
Comment:			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.7.9.d	Verify Outside Air Damper OR Modulating Damper for each CR HVAC Train is closed. <ul style="list-style-type: none"> <li>D-1 OR D-2 (Train A)</li> <li>D-8 OR D-9 (Train B)</li> </ul>	Verify the following dampers are closed: <ul style="list-style-type: none"> <li>D-1 OR D-2</li> <li>D-8 OR D-9</li> </ul>	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.7.9.e	Verify at least one V-16, Toilet Exhauster, Damper is closed <ul style="list-style-type: none"> <li>D-18 (Train A)</li> <li>D-17 (Train B)</li> </ul>	Verify damper D-18 or D-17 closed.	S U
Comment:			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.7.9.f	Verify at least one V-94, Control Room Purge Exhaust Fan, Damper is closed: <ul style="list-style-type: none"> <li>D-15 (Train A)</li> <li>D-16 (Train B)</li> </ul>	Verify damper D-15 or D-16 closed.	S U
Comment:			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
7.7.9.g	Verify the following components: <ul style="list-style-type: none"> <li>VHX-26A ON</li> <li>D-5 Open</li> <li>D-6 Open</li> <li>D-20 Modulating</li> <li>V-26A ON</li> <li>D-3 Open</li> <li>D-4 Open</li> <li>V-95 ON</li> </ul>	Verify the following components: <ul style="list-style-type: none"> <li>VHX-26A ON</li> <li>D-5 Open</li> <li>D-6 Open</li> <li>D-20 Modulating</li> <li>V-26A ON</li> <li>D-3 Open</li> <li>D-4 Open</li> <li>V-95 ON</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
7.7.9.h	Ensure V-94, Control Room Purge Exhaust Fan, is OFF	Verify V-94 OFF	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
7.7.9.i	Ensure V-47, Viewing Gallery & Switchgear Rm Emer Ex Fan, is OFF	Verify V-47 OFF	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
7.7.9.j	With CHP/CHR signal NOT present, Place VC-11 control switch to AUTO.	Verify VC-11 in AUTO	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 15	STANDARD	Grade
7.7.9.k	As soon as possible following a valid CAM alarm, verify door functionality and positions.	Direct an NPO to verify door positions and functionality per SOP-24 Step 7.7.9.k	S U
<b>Comment:</b>			
<i>Evaluator Cue: Inform applicant that "another operator will perform door functionality and position checks."</i>			

Proc. Step	TASK ELEMENT 16	STANDARD	Grade
N/A	Verify redundant CRHVAC train in operation.	Verify 'B' CRHVAC train not in operation.	S U
Comment:			

Proc. Step	TASK ELEMENT 17	STANDARD	Grade
N/A	Notify HP to determine validity of CAM alarm.	Notify HP to determine validity of CAM alarm.	S U
Comment:			
<i>Evaluator Cue: Another operator will notify HP to determine validity of CAM alarm.</i>			

Time End: \_\_\_\_\_

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-178

## CANDIDATE CUE SHEET

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

**Special Note:** Assume that all Plant Requirements and Precautions and Limitations have been reviewed and complied with. You are NOT expected, nor are you required to consult the Plant Requirements and Precautions and Limitations section of any procedure for this JPM.

### INITIAL CONDITIONS:

- The reactor is critical with power at the POAH
- MSIV Bypass valves, MO-0501 and MO-0510, are open
- Vacuum is established on the Main Turbine and the secondary plant is in the process of being started up

### INITIATING CUES:

You are the NCO-T operator and the Control Room Supervisor has directed you to respond to alarm EK-0239 "CR HVAC TRAIN 'A' RIA-1818A HI RAD/FAIL" and perform the applicable action

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I SYS D**

**TITLE: Shift 4160VAC Busses from  
Startup Power to Station Power**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Shift 4160VAC busses from Startup Power to Station Power.

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 062.A4.07 Importance: RO: 3.1 SRO: 3.1

K/A Statement: Ability to manually operate and/or monitor in the control room:  
Synchronizing and paralleling of different ac supplies.

Task Standard: Transfer 4160VAC busses from Startup Power to Station Power in  
accordance with SOP-30, Station Power.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  In Plant

References: SOP-30, Station Power

Validation Time: 15 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_



**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- SOP-30, section 7.2.1

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

The plant is at 25% reactor power with GCL 5.1 of GOP-5 in progress at step 2.12.a.

**INITIATING CUES:**

The Control Room Supervisor (CRS) has directed you to transfer the power supply for all 4160VAC Busses from Startup Power to Station Power.

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

Proc.Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Obtain a copy of SOP-30, Station Power procedure.	Locate SOP-30 and determine applicable section 7.2.1 to transfer from Startup Power to Station Power.	S U
<b>Comment:</b> <i>Evaluator Cue: When applicant opens SOP-30 Section 7.2.1, provide a clean copy of SOP-30 Section 7.2.1</i>			

Proc.Step	TASK ELEMENT 2	STANDARD	Grade
7.2.1.a.1	At EC-04, verify Bus 1A and Bus 1B control power lamps illuminated.	Bus 1A and Bus 1B control power lamps illuminated.	S U
<b>Comment:</b> <i>Evaluator Note: All 4 ED-11-1 and ED-21-1 lights illuminated</i>			

Proc.Step	TASK ELEMENT 3	STANDARD	Grade
7.2.1.a.2	At EC-04, check Startup Xfmr UV aux. relays 227X-5 and 227X-6 reset.	Check Startup Xfmr UV aux. relays 227X-5 and 227X-6 reset.	S U
<b>Comment:</b>			

Proc.Step	TASK ELEMENT 4	STANDARD	Grade
7.2.1.a.3	Check EX-01 Station Power Xfmr No 1-1 Trouble lamp functional by depressing red pushbutton	Check EX-01 Station Power Xfmr 1-1 Trouble lamp functional by depressing red pushbutton	S U
<b>Comment:</b>			

Proc.Step	TASK ELEMENT 5	STANDARD	Grade
7.2.1.a.4	Check voltage on Station Power Xfmr No 1-1 at ~4160VAC.	Check voltage on Station Power Xfmr 1-1 at ~4160VAC	S U
<b>Comment:</b>			

Proc.Step	TASK ELEMENT 6	STANDARD	Grade
7.2.1.b.1	At EC-106, check Bus 1F and Bus 1G control power lamps illuminated.	Bus 1F and Bus 1G control power lamps illuminated.	S U
Comment:			

Proc.Step	TASK ELEMENT 7	STANDARD	Grade
7.2.1.b.2	Check voltage on EX-6 Station Power Xfmr 1-3 at ~4160VAC	Check voltage on EX-6 Station Power Xfmr 1-3 at ~4160VAC.	S U
Comment:			

Proc.Step	TASK ELEMENT 8	STANDARD	Grade
7.2.1.c	Direct NPO to check all relays cut in and targets reset on bus and feeder breakers for: <ul style="list-style-type: none"> <li>• Bus 1A</li> <li>• Bus 1B</li> <li>• Bus 1F</li> <li>• Bus 1G</li> </ul>	Direct NPO to check all relays cut in and targets reset on bus and feeder breakers for: <ul style="list-style-type: none"> <li>• Bus 1A</li> <li>• Bus 1B</li> <li>• Bus 1F</li> <li>• Bus 1G</li> </ul>	S U
Comment:			
<i>Evaluator Cue: NPO reports "All relays cut in and targets are reset on bus feeder breakers."</i>			

**Evaluator Note:** Steps 7.2.1.d.1 through 7.2.1.d.6 are repeated for Busses 1A, 1B, 1F, and 1G

Proc.Step	TASK ELEMENT 9	STANDARD	Grade
7.2.1.d.1	Scope and close Station Power Incoming breaker for Bus 1A, 252-101.	Scope and close Station Power Incoming breaker for Bus 1A, 252-101.	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc.Step	TASK ELEMENT 10	STANDARD	Grade
7.2.1.d.2	Verify Startup Power Incoming breaker opens on Bus 1A, 252-102	Verify Startup Power Incoming breaker opens on Bus 1A, 252-102.	S U
Comment:			

Proc.Step	TASK ELEMENT 11	STANDARD	Grade
7.2.1.d.3	Place synchsopce switch to OFF and remove handle.	Place synchsopce switch to OFF and remove handle.	S U
Comment:			

Proc.Step	TASK ELEMENT 12	STANDARD	Grade
7.2.1.d.4	Verify WHITE Springs Charged lamp lit for breaker 252-101.	Verify WHITE Springs Charged lamp lit for breaker 252-101.	S U
Comment:			

Proc.Step	TASK ELEMENT 13	STANDARD	Grade
7.2.1.d.6	Match targets on breaker 252-102 by taking the C/S momentarily to trip.	Place breaker 252-102 C/S to trip and verify targets matched.	S U
Comment:			

Proc.Step	TASK ELEMENT 14	STANDARD	Grade
7.2.1.d.1	Scope and close Station Power Incoming breaker for Bus 1B, 252-201.	Scope and close Station Power Incoming Brkr for Bus 1B, 252-201.	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc.Step	TASK ELEMENT 15	STANDARD	Grade
7.2.1.d.2	Verify Startup Power Incoming breaker opens on Bus 1B, 252-202.	Verify Startup Power Incoming breaker opens on Bus 1B, 252-202.	S U
Comment:			

Proc.Step	TASK ELEMENT 16	STANDARD	Grade
7.2.1.d.3	Place synchsopce switch to OFF and remove handle.	Place synchsopce switch to OFF and remove handle.	S U
Comment:			

Proc.Step	TASK ELEMENT 17	STANDARD	Grade
7.2.1.d.4	Verify WHITE Springs Charged lamp lit for breaker 252-202.	Verify WHITE Springs Charged lamp lit for breaker 252-202.	S U
Comment:			

Proc.Step	TASK ELEMENT 18	STANDARD	Grade
7.2.1.d.6	Match targets on breaker 252-202 by taking the C/S momentarily to trip.	Place breaker 252-202 C/S to trip and verify targets matched.	S U
Comment:			

Proc.Step	TASK ELEMENT 19	STANDARD	Grade
7.2.1.d.1	Scope and Close Station Power Incoming breaker for Bus 1F, 252-301.	Scope and Close Station Power Incoming breaker for Bus 1F, 252-301.	S U
Comment: <b>CRITICAL STEP</b>			

Proc.Step	TASK ELEMENT 20	STANDARD	Grade
7.2.1.d.2	Verify Startup Power Incoming breaker opens on Bus 1F, 252-302.	Verify Startup Power Incoming breaker opens on Bus 1F, 252-302.	S U
Comment: <i>Evaluator Note: Applicant may check ARP; no actions to take.</i>			

Proc.Step	TASK ELEMENT 21	STANDARD	Grade
7.2.1.d.3	Place synchscope switch to OFF and remove handle.	Place synchscope switch to OFF and remove handle.	S U
Comment:			

Proc.Step	TASK ELEMENT 22	STANDARD	Grade
7.2.1.d.4	Verify WHITE Springs Charged lamp lit for breaker 252-302,	Verify WHITE Springs Charged lamp lit for breaker 252-302,	S U
Comment:			

Proc.Step	TASK ELEMENT 23	STANDARD	Grade
7.2.1.d.6	Match targets on breaker 252-302 by taking the C/S momentarily to trip.	Place breaker 252-302 C/S to trip and verify targets matched.	S U
Comment:			

Proc.Step	TASK ELEMENT 24	STANDARD	Grade
7.2.1.d.1	Scope and Close Station Power Incoming breaker for Bus 1G, 252-401.	Scope and Close Station Power Incoming breaker for Bus 1G, 252-401.	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc.Step	TASK ELEMENT 25	STANDARD	Grade
7.2.1.d.2	Verify Startup Power Incoming breaker opens on Bus 1G, 252-402.	Verify Startup Power Incoming breaker opens on Bus 1G, 252-402. Acknowledge expected alarm EK-3310.	S U
Comment:			
<i>Evaluator Note: Applicant may check ARP; no actions to take.</i>			

Proc.Step	TASK ELEMENT 26	STANDARD	Grade
7.2.1.d.3	Place synchsopce switch to OFF and remove handle.	Place synchsopce switch to OFF and remove handle.	S U
Comment:			

Proc.Step	TASK ELEMENT 27	STANDARD	Grade
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7.2.1.d.4	Verify WHITE Springs Charged lamp lit for breaker 252-402,	Verify WHITE Springs Charged lamp lit for breaker 252-402,	S U
Comment:			

Proc.Step	TASK ELEMENT 28	STANDARD	Grade
7.2.1.d.6	Match targets on breaker 252-402 by taking the C/S momentarily to trip.	Place breaker 252-402 C/S to trip and verify targets matched.	S U
Comment:			

Time End: \_\_\_\_\_

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-177



## CANDIDATE CUE SHEET

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

**Special Note:** Assume that all Plant Requirements and Precautions and Limitations have been reviewed and complied with. You are NOT expected, nor are you required to consult the Plant Requirements and Precautions and Limitations section of any procedure for this JPM.

### INITIAL CONDITIONS:

The plant is at 25% reactor power with GCL 5.1 of GOP-5 in progress at step 2.12.a.

### INITIATING CUES:

The Control Room Supervisor (CRS) has directed you to transfer the power supply for all 4160VAC Busses from Startup Power to Station Power.

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I SYS E**

**TITLE: OPEN MAIN STEAM ISOLATION  
VALVES AFTER REACTOR IS  
CRITICAL**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Open MSIVs

Alternate Path: Yes

Facility JPM #: 2010 NRC Exam

K/A: 035K6.01 Importance: RO: 3.2 SRO: 3.6

K/A Statement: Knowledge of the effect of a loss or malfunction of the following will have on the S/Gs: MSIVs

Task Standard: Both MSIVs Open, MSIV bypasses closed, ADVs and TBV in AUTO

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: SOP-7, "Main Steam System"

Validation Time: 15 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

SOP-7, "Main Steam System"

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- The reactor is critical with power at the Point of Adding Heat
- MSIV Bypass valves, MO-0501 and MO-0510, are open
- Vacuum is established on the Main Turbine and the secondary plant is in the process of being started up

**INITIATING CUES:**

The Control Room Supervisor directs you to open the MSIVs per SOP-7, starting at step 7.2.2.c.

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

**Evaluator Cue:** Provide candidate a working copy of SOP-7, section 7.2.2.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
7.2.2.c	LATCH MSIV solenoid valves.	Applicant contacts NPO to latch all MSIV solenoids in the turbine building and 'D' bus area.	S U
<b>Comment:</b> <b>Simulator Operator:</b> Use MS36 on P&ID MS02, DO NOT latch 'A' MSIV (MS25) but report that it is complete.			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
7.2.2.d	IF MSIVs opened after performance of Step 7.2.2c, THEN GO TO Step 7.2.2q.	Applicant determines that CV-0510, 'A' S/G MSIV, did not open. Proceeds to step 7.2.2.e	S U
<b>Comment:</b> <b>Evaluator Cue:</b> If applicant questions the CRS, then direct applicant to proceed to step 7.2.2.e.  <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
7.2.2.e	Establish conditions to open CV-0511, Turbine Bypass to Condenser:	Applicant performs the following: <ul style="list-style-type: none"> <li>• ENSURE CV-0511 is open slightly</li> <li>• Quickly CLOSE CV-0511</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.2.2.f	ENSURE CV-0511, Turbine Bypass to Condenser, remains CLOSED by performing the following:	Applicant performs the following: <ul style="list-style-type: none"> <li>• PLACES PIC-0511, Turbine Bypass Valve Control to MANUAL.</li> <li>• Sets PIC-0511, Turbine Bypass Control Valve to CLOSE.</li> <li>• Have NPO Close MV-CA390, Turbine Bypass CV-0511 A/S Isolation.</li> <li>• Have NPO OPEN accumulator drain valve to bleed pressure from CV-0511 accumulator, THEN CLOSE the valve.</li> </ul>	S U
<b>Comment:</b> <b>Simulator Operator:</b> Use MS35 on PIDMS03 to close air supply to CV-0511, then notify as NPO that air supply is closed and accumulator is bled down			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.2.2.g	PERFORM the following notifications of impending Steam Dump operation:	Applicant informs CRS to notify Chemistry and to refer to ADMIN 4.00.	S U
Comment: <b>Evaluator Cue:</b> Inform applicant that the Shift Engineer will perform these notifications.			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.2.2.h	CLOSE three of the four Steam Dump Air Supplies for the MSIV to be opened, listed below:	Applicant directs NPO to close the following valves in the ADV control cabinet: <ul style="list-style-type: none"> <li>• MV-CA779</li> <li>• MV-CA780</li> <li>• MV-CA781 OR MV-CA782</li> </ul>	S U
Comment: <b>Evaluator Cue:</b> LCO 3.7.4.A is applicable. If applicant asks, notify them that the CRS will address LCO 3.7.4.  <b>Simulator Operator:</b> Use MS18, MS19, MS20 (or MS21) on PID MS01 to close these valves  <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
7.2.2.i & j	<ul style="list-style-type: none"> <li>• PLACE HIC-0780A, Steam Generator E-50B Steam Dump to MANUAL.</li> <li>• OPERATE HIC-0780A toward 100% OPEN position to equalize DP across MSIV.</li> </ul>	<ul style="list-style-type: none"> <li>• Places HIC-0780A in Manual</li> <li>• Operates manual output lever to open ADV until MSIV CV-0510 opens.</li> </ul>	S U
Comment: <b>Evaluator Cue:</b> If applicant asks, inform them that the required notifications are made.  <b>Evaluator Note:</b> CV-0510 will latch when HIC-0780A reaches ~25% output.  <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.2.2.k	WHEN MSIV opens, THEN PLACE HIC-0780A to CLOSE position.	Operates manual output lever to close ADV.	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.2.2.l	OPEN Steam Dump Air Supplies closed in Step 7.2.2g above.	Directs NPO to open: <ul style="list-style-type: none"> <li>• MV-CA779</li> <li>• MV-CA780</li> <li>• MV-CA781 OR MV-CA782</li> </ul>	S U
<p><b>Comment:</b>  <i>Simulator Operator: Use MS18, MS19, MS20 (or MS21) on PID MS01 to open the valves that were closed in Task Element #6.</i></p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.2.2.m	IF both MSIVs did NOT open, THEN REPEAT Steps 7.2.2g through 7.2.2k for affected MSIV.	Determines this step is N/A because both MSIVs are now open.	S U
<p><b>Comment:</b></p>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
7.2.2.n&o	<ul style="list-style-type: none"> <li>• CLOSE CV-0511 accumulator drain valve.</li> <li>• OPEN MV-CA390, Turbine Bypass CV-0511 A/S Isol.</li> </ul>	Directs NPO to: <ul style="list-style-type: none"> <li>• CLOSE CV-0511 accumulator drain valve</li> <li>• OPEN MV-CA390, Turbine Bypass CV-0511 A/S Isol.</li> </ul>	S U
<p><b>Comment:</b>  <i>Simulator Operator: Use MS35 on PIDMS03 to open air supply to CV-0511.</i></p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
7.2.2.p&q	<ul style="list-style-type: none"> <li>• RETURN HIC-0780A to AUTO or the AS FOUND position.</li> <li>• RETURN PIC-0511 to AUTO or the AS FOUND position.</li> </ul>	Places HIC-0780A and CV-0511 in AUTO by depressing the 'A' button on their controllers and verifying the 'A' button lights.	S U
<p><b>Comment:</b>  <i>Evaluator Cue: If asked, inform candidate that PIC-0511 and HIC-0780A should be placed back in AUTO.</i></p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
7.2.2.r	CLOSE the following valves: <ul style="list-style-type: none"> <li>• MO-0501, MSIV CV-0501 Bypass (MZ-3)</li> <li>• MO-0510, MSIV CV-0510 Bypass (MZ-2)</li> </ul>	Closes MO-0501 and MO-0510 by holding switch in the CLOSE position until associated Green light is ON and Red light is OFF.	<b>S U</b>
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
N/A	Applicant informs the CRS that the MSIVs are open and the MSIV bypasses are closed.	CRS informed.	<b>S U</b>
Comment:			

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

**END OF TASK**



## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-178
- Load Schedule E

## CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

### INITIAL CONDITIONS:

- The reactor is critical with power at the Point of Adding Heat
- MSIV Bypass valves, MO-0501 and MO-0510, are open
- Vacuum is established on the Main Turbine and the secondary plant is in the process of being started up

### INITIATING CUES:

The Control Room Supervisor directs you to open the MSIVs per SOP-7, starting at step 7.2.2.c.

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I/SRO-U SYS F**  
**TITLE: PCS Inventory Control**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_



**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- EOP Supplement 42, "Pre and Post RAS Actions"
- EOP-4.0, "Loss of Coolant Accident Recovery"

Also see **Simulator Operator Instructions** (later page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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**INITIAL CONDITIONS:**

- A large break LOCA has occurred.
- The Plant has been tripped and EOP-1.0, "Standard Post Trip Actions," have been completed.
- EOP-4.0, "Loss of Coolant Accident Recovery," has been entered.
- SIS and CHP have actuated.
- Pre-RAS actions have been taken per EOP Supplement 42.
- RAS is imminent.

**INITIATING CUES:**

During performance of EOP-4.0 step 52, the Control Room Supervisor directs you to perform Post-RAS actions in accordance with EOP Supplement 42, step 2.0 when RAS occurs.

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

**Evaluator Cue:** *If requested, provide applicant with working copy of EOP-4.0.*

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Obtain a copy of EOP Supplement 42, POST-RAS Actions.	When applicant indicates where to find current copy of procedure <b>PROVIDE</b> a copy of EOP Supplement 42.	S U
<b>Comment:</b> <i><b>Evaluator Cue:</b> When applicant has located EOP Supplement 42, provide them with a working copy of the procedure.</i>			

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
2.1	When SIRWT level lowers to < 2%, perform Step 2.0 of EOP Supp. 42, Post-RAS Actions.	Start Step 2.0 of EOP Supplement 42, Post-RAS Actions when SIRWT is < 2%.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
2.1.a.1	When SIRWT level lowers to below 2%, verify both LPSI pumps trip.	Verify both LPSI pumps trip on the RAS.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
2.1.b	Check open both Containment Sump Isolation Valves: <ul style="list-style-type: none"> <li>• CV-3030</li> <li>• CV-3029</li> </ul>	Verify: <ul style="list-style-type: none"> <li>• CV-3030 opened</li> <li>• CV-3029 failed to open.</li> </ul>	S U
<b>Comment:</b> <i><b>Evaluator Cue:</b> If applicant notifies CRS of CV-3029 failing to open, acknowledge the failure and direct applicant to continue performing post-RAS actions.</i>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
2.1.b.2	With CV-3029 failing to open, <ul style="list-style-type: none"> <li>Stop CS Pump P-54A</li> <li>Ensure open CV-3071, P-66A Subcooling valve (Key: 152)</li> </ul>	<ul style="list-style-type: none"> <li>Trip CS Pump P-54A</li> <li>Identifies CV-3071, P-66A Subcooling valve will NOT open</li> </ul>	S U
<b>Comment:</b> <i>Evaluator Note: CV-3071 will not open due to mechanical binding.</i> <i>Evaluator Cue: If applicant notifies CRS of CV-3071 failing to open, acknowledge the failure and direct applicant to continue performing post-RAS actions.</i> <b>CRITICAL STEP: Critical step is to trip CS Pump P-54A.</b>			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.1.d	Ensure closed both SIRWT Isolation Valves: <ul style="list-style-type: none"> <li>CV-3031 (Key: 149)</li> <li>CV-3057 (Key: 150)</li> </ul>	Verify closed both SI Pump Minimum flow Stop Valves: <ul style="list-style-type: none"> <li>CV-3031</li> <li>CV-3057</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
2.1.d	Ensure closed both SI Pump Minimum Flow Stop Valves: <ul style="list-style-type: none"> <li>CV-3027 (Key: 28)</li> <li>CV-3056 (Key: 27)</li> </ul>	Verify closed both SI Pump Minimum flow Stop Valves: <ul style="list-style-type: none"> <li>CV-3027</li> <li>CV-3056</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
2.1.e	Ensure open both CCW Hx Service Water Outlet valves: <ul style="list-style-type: none"> <li>CV-0826</li> <li>CV-0823</li> </ul>	Verify open both CCW Hx Service Water Outlet valves: <ul style="list-style-type: none"> <li>CV-0826</li> <li>CV-0823</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
2.1.f	Ensure closed both CCW Hx TCVs: <ul style="list-style-type: none"> <li>CV-0822</li> <li>CV-0821</li> </ul>	Verify closed both CCW Hx TCVs: <ul style="list-style-type: none"> <li>CV-0822</li> <li>CV-0821</li> </ul>	S U
<b>Comment:</b> <i>Evaluator Note: Both CCW Hx TCVs indicate closed when green light is lit above HS-0828.</i>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
2.1.g	Ensure at least one Containment Spray Pump operating for each operating HPSI Pump	Verifies P-54A CS Pump is not operating and P-66A HPSI Pump is operating.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
2.1.g	Verify open HPSI Subcooling Valve for any operating HPSI Pump <ul style="list-style-type: none"> <li>CV-3070 (P-66B)</li> <li>CV-3071 (P-66A)</li> </ul>	Verifies <ul style="list-style-type: none"> <li>P-66A is operating with CV-3071 closed.</li> <li>P-66B is operating with CV-3070 open.</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
2.1.h	<u>IF</u> any HPSI pump is operating with subcooling valve closed, then trip the associated pump.	Trips P-66A HPSI Pump due to CV-3071 failing to open.	S U
<b>Comment:</b> <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
2.1.i	With 2 CS Pumps operating, ensure both Containment Spray Valves are in the THROTTLE position.	Verifies CV-3001 and CV-3002 are throttled.	S U
<b>Comment:</b>			



Proc. Step	TASK ELEMENT 13	STANDARD	Grade
2.1.j	If one Containment spray valve is closed and one is throttled...	Determines that this step is not applicable.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
2.1.k	If only one Containment Spray Pump is operating...	Determines that this step is not applicable.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 17	STANDARD	Grade
2.1.l	With Containment Sump isolation valve CV-3029 failing to open: <ul style="list-style-type: none"> <li>Place HS-3029A to open (Key: 148)</li> </ul>	Place HS-3029A to the open position	S U
<b>Comment:</b>			
<i>Evaluator Cue: If applicant asks CRS if CV-3029 should be opened, question applicant for recommended action. Concur with applicant's recommendation (CV-3029 will not open when attempted).</i>			

Proc. Step	TASK ELEMENT 18	STANDARD	Grade
2.1.m	If operation of additional spray pumps or HPSI pumps is desired...	Determines that this step is not applicable.	S U
<b>Comment:</b>			
<i>Evaluator Cue: Cue Operator that no other pumps are desired to be placed in operation.</i>			

Proc. Step	TASK ELEMENT 20	STANDARD	Grade
2.1.n	Monitor for sump screen clogging.	Sump screen monitored for clogging	S U
<b>Comment:</b>			
<i>Evaluator Cue: Cue Operator that another Operator will monitor for sump clogging.</i>			

Proc. Step	TASK ELEMENT 21	STANDARD	Grade
2.1.o	<p><u>IF</u> EITHER of the following exist:</p> <ul style="list-style-type: none"> <li>Only P-54A Containment Spray Pump operating</li> <li>P-54A OFF</li> </ul> <p>Then Crosstie ESS suction headers</p>	Notifies CRS of need to crosstie ESS suction headers	S U
<p><b>Comment:</b>  <i>Evaluator Cue: Cue Operator that another Operator will crosstie ESS suction headers.</i></p>			

Proc. Step	TASK ELEMENT 22	STANDARD	Grade
2.1.p	Initiate refill of the SIRW Tank.	Notifies CRS of need to refill SIRW Tank.	S U
<p><b>Comment:</b>  <i>Evaluator Cue: Cue Operator that another Operator will refill SIRW Tank.</i></p>			

Proc. Step	TASK ELEMENT 23	STANDARD	Grade
2.1.q	Verify 1-2 Startup Transformer is not supplying Bus 1C or 1D.	Verify 1-2 Startup Transformer is not supplying Bus 1C or 1D.	S U
<p><b>Comment:</b></p>			

Proc. Step	TASK ELEMENT 24	STANDARD	Grade
N/A	Notify the CRS that the post RAS actions have been completed.	CRS notified that the post RAS actions have been completed.	S U
<p><b>Comment:</b>  <i>Evaluator Cue: Repeat back notification.</i></p>			

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

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-179

# CANDIDATE CUE SHEET

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

## INITIAL CONDITIONS:

- A large break LOCA has occurred.
- The plant has been tripped and EOP-1.0, "Standard Post Trip Actions," have been completed.
- EOP-4.0, "Loss of Coolant Accident Recovery," has been entered.
- SIS and CHP have actuated.
- Pre-RAS actions have been taken per EOP Supplement 42.
- RAS is imminent.

## INITIATING CUES:

During performance of EOP-4.0 step 52, the Control Room Supervisor directs you to perform Post-RAS actions in accordance with EOP Supplement 42, step 2.0 when RAS occurs.

**PALISADES**

**2017 INITIAL LICENSE EXAM**

**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I/SRO-U SYS G**

**TITLE: Containment Air Cooler Service  
Water Leak**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Diagnose and isolate a Containment Air Cooler Service Water leak.

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 022.A2.05      Importance:      RO: 3.1      SRO: 3.5

K/A Statement: Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Major leak in CCS.

Task Standard: Determine which Containment Air Cooler has a Service Water leak by performing Annunciator Response actions to diagnose and isolate the leak.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: ARP-8, "Safeguards Safety Injection and Isolation Scheme"  
SOP-17B, "Dirty Radioactive Waste System"

Validation Time: 20 minutes      Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_      UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- ARP-8, "Safeguards Safety Injection and Isolation Scheme"
- SOP-17B, "Dirty Radioactive Waste System"

Also see **Simulator Operator Instructions** (later page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- The plant is in MODE 2 and a Turbine/Generator startup is in progress.
- GOP-4 is in progress and GCL-4 is complete up to Step 4.3

**INITIATING CUES:**

You are the on-shift NCO-R operator. You are to address alarm EK-1347, "Containment Air Coolers Serv Water Leak" and address any additional panel C-13 alarms received.

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

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Obtain a copy of ARP-8 for EK-1347	Obtains ARP-8 and identifies page associated with EK-1347	S U
<b>Comment:</b> <b>Evaluator Cue:</b> When applicant has located ARP-8 for EK-1347, provide them with a working copy of the procedure.			

**Evaluator Note:** Task Element 2-5 may be performed in any order per ARP-8 until Task Element 4 is completed satisfactorily and the leak is isolated. Tasks 2, 3, and 5 may not be performed once the leak is isolated by performing Task 4.

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
N/A	For VHX-1: <ul style="list-style-type: none"> <li>• Close CV-0862, VHX-1 SW Inlet</li> <li>• Verify EK-1347 did not clear</li> <li>• Open CV-0862, VHX-1 SW Inlet</li> </ul>	Verify the SW leak is <u>not</u> in VHX-1 CAC: <ul style="list-style-type: none"> <li>• Close CV-0862, VHX-1 SW Inlet</li> <li>• Verify EK-1347 did not clear</li> <li>• Open CV-0862, VHX-1 SW Inlet</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
N/A	For VHX-2: <ul style="list-style-type: none"> <li>• Close CV-0865, VHX-2 SW Inlet</li> <li>• Verify EK-1347 did not clear</li> <li>• Open CV-0865, VHX-2 SW Inlet</li> </ul>	Verify the SW leak is <u>not</u> in VHX-2 CAC: <ul style="list-style-type: none"> <li>• Close CV-0865, VHX-2 SW Inlet</li> <li>• Verify EK-1347 did not clear</li> <li>• Open CV-0865, VHX-2 SW Inlet</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
N/A	For VHX-3: <ul style="list-style-type: none"> <li>• Close CV-0870, VHX-3 SW Inlet</li> <li>• Verify alarm EK-1347 cleared</li> <li>• Notify CRS of SW leak in VHX-3 CAC</li> </ul>	Verify the SW leak is in VHX-3 CAC: <ul style="list-style-type: none"> <li>• Close CV-0870, VHX-3 SW Inlet</li> <li>• Verify alarm EK-1347 cleared</li> <li>• Notify CRS of SW leak in VHX-3 CAC</li> </ul>	S U
<b>Comment:</b> <b>CRITICAL STEP</b>			



Proc. Step	TASK ELEMENT 5	STANDARD	Grade
N/A	For VHX-4: <ul style="list-style-type: none"> <li>Close CV-0869, VHX-4 SW Inlet</li> <li>Verify EK-1347 did not clear</li> <li>Open CV-0869, VHX-4 SW Inlet</li> </ul>	Verify the SW leak is <u>not</u> in VHX-4 CAC: <ul style="list-style-type: none"> <li>Close CV-0869, VHX-4 SW Inlet</li> <li>Verify EK-1347 did not clear</li> <li>Open CV-0869, VHX-4 SW Inlet</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
N/A	Notifies CRS of TS LCO 3.6.1 and 3.6.6 potential applicability.	Informs CRS of potential TS LCO 3.6.1 and 3.6.6 applicability.	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
N/A	Addresses alarm EK-1351 to drain containment sump to dirty waste per SOP-17B.	Obtains and reviews ARP-8 for EK-1351. Determine the need to drain the containment sump to dirty waste per SOP-17B.	S U
<b>Comment:</b>			
<p><b>Evaluator Note:</b> When applicant states the need to drain the containment sump to dirty waste, inform the applicant that the CRS directs the sump drained per Section 7.11.1 of SOP 17B. When applicant locates SOP 17B, provide them with a working copy of Section 7.11.1 of the procedure.</p> <p><b>Evaluator Cue:</b> Inform the applicant that an NPO has completed Steps 7.11.1 a through c, and there is sufficient room in the dirty waste tanks to drain the sump.</p>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
7.11.1.d	Determine the final DWDT levels for the I/S tanks per Steps 7.11.1 d.	Calculates the final DWDT levels	S U
<b>Comment:</b>			
<p><b>Evaluator Cue:</b> Inform the applicant that both DWDTs T-60A/B are in-service at 25% and are cross-tied.</p> <p><b>Evaluator Note:</b> Applicant obtains containment sump level from C-13 Panel (the level may be different for each candidate depending on the time it takes to isolate the CAC SW leak).</p>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
7.11.1.e	Drain the containment sump to the dirty waste drain tanks: <ul style="list-style-type: none"> <li>• Open CV-1103, MZ-52 Cont Sump Drain to Sump Tank Isol.</li> <li>• Open CV-1104, MZ-52 Cont Sump Drain to Sump Tank Isol.</li> <li>• Log the following:               <ul style="list-style-type: none"> <li>– Start time; Initial level of DWDTs; CTMT sump level</li> </ul> </li> </ul>	Initiate draining the containment sump to dirty waste: <ul style="list-style-type: none"> <li>• Open CV-1103;</li> <li>• Open CV-1104;</li> <li>• Log data.</li> </ul>	S U
<b>Comment:</b> <i>Evaluator Cue: Acknowledge the applicant log entry.</i> <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7.11.1.f/g	Pump down DWDTs as required per Section 7.1.4, and Obtain grab sample from MV-DRW511 while draining the sump if desired.	Applicant determines that these steps are N/A per the evaluator's Cue.	S U
<b>Comment:</b> <i>Evaluator Cue: Inform the applicant that the DWDTs will not need to be pumped down during the evolution and that grab samples are not required.</i> <i>Evaluator Cue: Inform the applicant that (using time compression) the containment sump has been drained to the desired level. Containment sump high level alarm may not clear and sump indication will show that draining is still required.</i>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
7.11.1.h	Secure draining the containment sump to the dirty waste drain tanks by: <ul style="list-style-type: none"> <li>• Close CV-1103, MZ-52 Cont Sump Drain to Sump Tank Isol.</li> <li>• Close CV-1104, MZ-52 Cont Sump Drain to Sump Tank Isol.</li> <li>• Log the stop time.</li> </ul>	Secure draining the containment sump to dirty waste: <ul style="list-style-type: none"> <li>• Close CV-1103;</li> <li>• Close CV-1104;</li> <li>• Log the stop time.</li> </ul>	S U
<b>Comment:</b> <b>CRITICAL STEP</b>			

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

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- Reset to IC-175

## CANDIDATE CUE SHEET

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

### INITIAL CONDITIONS:

- The plant is in MODE 2 and a Turbine/Generator startup is in progress.
- GOP-4 is in progress and GCL-4 is complete up to Step 4.3

### INITIATING CUES:

You are the on-shift NCO-R operator. You are to address alarm EK-1347, "Containment Air Coolers Serv Water Leak" and address any additional panel C-13 alarms received.

**PALISADES**  
**2017 INITIAL LICENSE EXAM**  
**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I/SRO-U SYS H**

**TITLE: HOT LEG INJECTION USING P-66B  
AND SPLIT FLOW**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Establish Hot Leg Injection per in-use EOP

Alternate Path: Yes

Facility JPM #: 2009 NRC Exam (modified)

K/A: 006A2.02 Importance: RO:3.9 SRO: 4.3

K/A Statement: Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: loss of flow path

Task Standard: Hot Leg Injection flow established via HPSI Pump P-66B using EOP Supplement 20 split flow method.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: EOP Supplement 20, "Hot Leg Injection Via PZR"  
EOP Supplement 4, "HPSI and LPSI Flow Curves"  
EOP-4.0, "Loss of Coolant Accident Recovery"

Validation Time: 25 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- EOP-4.0, "Loss of Coolant Accident Recovery"
- EOP Supplement 20, Hot Leg Injection Via PZR
- EOP Supplement 4, HPSI and LPSI Flow Curves

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- Plant was tripped from 100% power.
- EOP-4.0 (Loss of Coolant Accident) has been entered.
- Conditions for initiating Hot Leg Injection per Step 60 are met.
- HPSI Pump P-66A was manually tripped during post-RAS actions due to CV-3029 and CV-3071 failing to open.

**INITIATING CUES:**

The CRS has directed you to establish hot leg injection using EOP-4.0 Step 60.

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

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
N/A	Candidate locates EOP-4.0 Step 60	EOP-4.0 Step 60 is in hand.	S U
<b>Comment:</b> <i>Evaluator Cue: Provide candidate with a working copy of EOP-4.0 Step 60</i> <i>Evaluator Cue: If applicant asks, inform applicant to review initial conditions.</i>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
60.a	Close HPSI Train 2 to Cold Leg Valve, MO-3080 (Key: 117)	Attempts to close MO-3080 and identifies failure of the valve to close.	S U
<b>Comment:</b> <i>Evaluator Cue: If Applicant informs CRS, acknowledge applicant's report of MO-3080 failure.</i>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
60.RNO	Determines the following: <ul style="list-style-type: none"> <li>Hot leg injection cannot be established through normal path</li> <li>Refers to EOP Supplement 20</li> <li>The inability to use P-66A (tripped)</li> </ul>	Refers to EOP Supplement 20 and determines Section 2.0 "Hot Leg Injection Using P-66B and Split Flow" is necessary.	S U
<b>Comment:</b> <i>Evaluator Cue: When the applicant has EOP Supplement 20 in hand, provide a clean working copy of the procedure.</i>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
2.0.1	Record each occurrence of PZR Spray operation with a $\Delta T$ greater than 200°F in the Reactor Logbook.	<ul style="list-style-type: none"> <li>Notes this requirement for future action in this JPM.</li> <li>Notes current temperatures for vapor phase, spray lines, and charging</li> <li>Determines requirement is currently not applicable.</li> </ul>	S U
<b>Comment:</b>			



Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.0.2	Ensure P-66B is operating within the limits of EOP Supplement 4.	Verifies P-66B flow is within EOP Supplement 4	S U
Comment:			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
2.0.3	Ensure open the following valves: <ul style="list-style-type: none"> <li>• CV-2111 , Chg Line Stop</li> <li>• CV-2117, Aux Spray</li> <li>• MO-3072, Chg Pump Dis. to Train 2</li> <li>• CV-3018, HPSI Pump B Dis. to Train 2</li> </ul>	Places hand switches for the following valves to OPEN and verifies valves open: <ul style="list-style-type: none"> <li>• CV-2111</li> <li>• CV-2117</li> <li>• MO-3072</li> <li>• CV-3018</li> </ul>	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
2.0.4	Stop ALL Charging Pumps	Applicant determines all three Charging Pumps are operating and have electrical power available. <ul style="list-style-type: none"> <li>• Stop P-55A, P-55B, and P-55C.</li> </ul>	S U
Comment:			
<i>Evaluator Note: Applicant may also place Auto/Manual switches on Panel C-12 to MANUAL (this is not required to meet Standard).</i>			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
2.0.5	CLOSE the following valves: <ul style="list-style-type: none"> <li>• CV-2113, Loop 1A</li> <li>• CV-2115, Loop 2A</li> <li>• CV-1057, Spray</li> <li>• CV-1059, Spray</li> </ul>	Places hand switches for the following valves to CLOSE and verifies valves close: <ul style="list-style-type: none"> <li>• CV-2113</li> <li>• CV-2115</li> <li>• CV-1057</li> <li>• CV-1059</li> </ul>	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
6	Ensure open the following HPSI Train 1 valves: <ul style="list-style-type: none"> <li>• MO-3007, HPSI Train 1 Loop 1A</li> <li>• MO-3009, HPSI Train 1 Loop 1B</li> <li>• MO-3011, HPSI Train 1 Loop 2A</li> <li>• MO-3013, HPSI Train 1 Loop 2B</li> </ul>	Verifies open the following valves: <ul style="list-style-type: none"> <li>• MO-3007</li> <li>• MO-3009</li> <li>• MO-3011</li> <li>• MO-3013</li> </ul>	S U
Comment:			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
7	CLOSE the following valves: <ul style="list-style-type: none"> <li>• MO-3062, HPSI Train 2 Loop 2B</li> <li>• MO-3064, HPSI Train 2 Loop 2A</li> <li>• MO-3066, HPSI Train 2 Loop 1B</li> <li>• MO-3068, HPSI Train 2 Loop 1A</li> </ul>	Places and holds hand switches for the following valves to CLOSE and verifies valves close: <ul style="list-style-type: none"> <li>• MO-3062</li> <li>• MO-3064</li> <li>• MO-3066</li> <li>• MO-3068</li> </ul>	S U
Comment:			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
8	Ensure HPSI flow of greater than or equal to 100 gpm to the Pressurizer through the charging line is indicated on FIA-0212.	Applicant checks flow is indicated on FIA-0212 greater than 100 gpm.	S U
Comment:			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
N/A	Applicant informs the CRS that the Hot Leg Injection using P-66B and split flow has been established per EOP Supplement 20 section 2.0.	CRS informed that Hot Leg Injection using P-66B and split flow has been established	S U
Comment:			

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

**END OF TASK**



## **SIMULATOR OPERATOR INSTRUCTIONS**

- Initialize IC-179
- Enter Override for MO-3080 to ON on PNL C-03.

## CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

### INITIAL CONDITIONS:

- Plant was tripped from 100% power.
- EOP-4.0 (Loss of Coolant Accident) has been entered.
- Conditions for initiating Hot Leg Injection per Step 60 are met.
- HPSI Pump P-66A was manually tripped during post-RAS actions due to CV-3029 and CV-3071 failing to open.

### INITIATING CUES:

The CRS has directed you to establish hot leg injection using EOP-4.0 Step 60.

**PALISADES**

**2017 INITIAL LICENSE EXAM**

**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I/SRO-U SYSTEM I**

**TITLE: RESPOND TO RADIATION MONITOR RIA-  
1810 LOW SAMPLE FLOW RATE**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Respond to a low sample flow rate condition on radiation monitor RIA-1810

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 073.A2.02 Importance: RO: 3.2 SRO: 3.2

K/A Statement: Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure.

Task Standard: Restore the adequate sample flow rate to radiation monitor RIA-1810 to clear Control Room alarms for low sample flow rate.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: SOP-38, Gaseous Process Monitoring System  
ARP-8, Safeguards Safety Injection and Isolation Scheme

Validation Time: 10 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- ARP-8, Safeguards Safety Injection and Isolation Scheme
- SOP-38 Attachment 1, System Malfunctions, Low Sample Flow Rate

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- The Plant is at 100% power.
- Alarm EK-1370, "Radiation Monitors Samplers Flow Failure" is in for RIA-1810
- The sample pump for RIA-1810 is OFF.
- RMC has been notified per ARP-8

**INITIATING CUES:**

The CRS directs you to respond to alarm EK-1370 in accordance with ARP-8 and clear the low flow condition on RIA-1810.



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

**Evaluator Cue:** Provide applicant with a working copy of ARP-8 for EK-1370 and SOP-38 Attachment 1

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
1.a	For Containment Air Rad Monitor RIA-1817...	Determines Attachment 1, Step 1.a is not applicable for RIA-1810	S U
Comment:			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
1.b.1	Ensure sample pump is ON	Verify sample pump is not operating (given in initial conditions) and identifies hand switch is in OFF.  Applicant starts sample pump by taking hand switch to Auto.	S U
<p>Comment:</p> <p><b>Evaluator Cue:</b> Applicant may notify CRS of abnormal position of sample pump hand switch. If applicant asks, inform applicant to clear the flow condition on the rad monitor.</p> <p><b>Evaluator Cue:</b> If applicant asks, question applicant what position they think the hand switch should be in, Hand or Auto (should take to Auto).</p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
1.b.2	Ensure closed cleaner fill valves: <ul style="list-style-type: none"> <li>MV-VA126</li> <li>MV-VA132</li> </ul>	Verify closed: <ul style="list-style-type: none"> <li>MV-VA126</li> <li>MV-VA132</li> </ul>	S U
Comment:			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
1.b.3	Ensure open Sampler Inlet Isolation Valves: <ul style="list-style-type: none"> <li>MV-VA120</li> </ul>	Verify MV-VA120 open	S U
Comment:			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
1.b.4	Ensure throttled Sampler Outlet Isolation Valve MV-VA139 to maintain vacuum less than 5" Hg on pressure indicator PI-2324	<ul style="list-style-type: none"> <li>Check pressure on PI-2324 to determine initial vacuum pressure.</li> <li>Determine pressure is too high (~8"Hg) and needs to be lowered</li> <li>Adjusts MV-VA139 clockwise slowly to lower pressure while monitoring PI-2324.</li> <li>Stop adjusting pressure when PI-2324 is &lt; 5"Hg vacuum (<i>may be done in multiple steps</i>)</li> </ul>	S U
<p><b>Comment:</b>  <b>Evaluator Cue:</b> <i>If/when applicant checks vacuum pressure on PI-2324, inform applicant that vacuum pressure is too high (~8" Hg).</i>  <b>Evaluator Note:</b> <i>Applicant may make multiple small adjustments to lower vacuum pressure.</i></p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
1.b.5	Ensure open Pump and Monitor Outlet Valves: <ul style="list-style-type: none"> <li>MV-VA122</li> <li>MV-VA124</li> </ul>	Verify open: <ul style="list-style-type: none"> <li>MV-VA122</li> <li>MV-VA124</li> </ul>	S U
<p><b>Comment:</b></p>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
1.b.6	Contacts CRS or NCO to validate if low flow condition and alarm EK-1370 has cleared.	Verify low flow condition and alarm EK-1470 clear.	S U
<p><b>Comment:</b>  <b>Evaluator Cue:</b> <i>When applicant has adjusted vacuum pressure to &lt; 5"Hg, inform the applicant that alarm EK-1370 for RIA-1810 has cleared</i></p>			

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

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- N/A, In plant JPM

## CANDIDATE CUE SHEET

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

### INITIAL CONDITIONS:

- The Plant is at 100% power.
- Alarm EK-1370, "Radiation Monitors Samplers Flow Failure" is in for RIA-1810
- The sample pump for RIA-1810 is OFF.
- RMC has been notified per ARP-8

### INITIATING CUES:

The CRS directs you to respond to alarm EK-1370 in accordance with ARP-8 and clear the low flow condition on RIA-1810.

**PALISADES**

**2017 INITIAL LICENSE EXAM**

**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I SYSTEM J**

**TITLE: PURGE THE MAIN GENERATOR TO  
RAISE HYDROGEN PURITY**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Purge the Main Generator to Raise Hydrogen Purity

Alternate Path: No

Facility JPM #: N/A (new)

K/A: 045.K5.03 Importance: RO: 2.8 SRO: 3.2

K/A Statement: Knowledge of the operational implications of the following concepts as they apply to the MT/G System: Possible presence of explosive mixture in generator if hydrogen purity deteriorates.

Task Standard: Purge the Main Generator with Hydrogen to raise Hydrogen Purity as a result of a low purity alarm.

Preferred Evaluation Location: Simulator  In Plant

Preferred Evaluation Method: Perform  Simulate

References: SOP-8, Main Turbine and Generating Systems  
ARP-2, Generator Scheme  
ARP-6, Generator Hydrogen System Scheme

Validation Time: 20 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- SOP-8, Main Turbine and Generating Systems
- ARP-2, Generator Scheme
- ARP-6, Generator Hydrogen System Scheme

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- The Plant is at 100% power.
- Alarm EK-0302, "Hydrogen/Seal Oil System Trouble" is in.
- Alarm EK-1001, "Hydrogen Purity High or Low" is in.
- Hydrogen purity is 88% and stable.

**INITIATING CUES:**

The CRS directs you to purge the Main Generator to raise Hydrogen purity to 97% using SOP-8 Attachment 3 via the Feed and Bleed Method. A Hydrogen grab sample is not required.

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

**Evaluator Cue:** When applicant has located SOP-8 Attachment 3, “Purging Generator to Raise Hydrogen Purity,” provide a copy of the procedure attachment.

**Evaluator Cue:** Applicant may request a copy of ARP-6 to address local alarm EK-1001. A clean working copy can be provided if requested.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
2.1	Monitor Main Generator Hydrogen pressure: <ul style="list-style-type: none"> <li>PI-1419 (Control Room)</li> <li>PI-1419A (Panel EC-21)</li> </ul>	Monitor Main Generator Hydrogen pressure. May contact NCO to monitor in the Control Room.	S U
<b>Comment:</b> <i>Evaluator Cue: If applicant contacts NCO to monitor Hydrogen pressure, acknowledge the request.</i>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
2.2	Ensure the following Hydrogen pressure alarms are functional and clear: <ul style="list-style-type: none"> <li>EK-1002, “Hydrogen Pressure High or Low”</li> <li>EK-1003, “Hydrogen Supply Pressure Low”</li> </ul>	Verify alarms EK-1002 and EK-1003 are clear and performs a functional test of alarms.	S U
<b>Comment:</b> <i>Evaluator Note: Applicant should simulate testing the alarms only.</i> <i>Evaluator Note: EK-1001, “Hydrogen Purity Hi or Low” will be LIT.</i>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
2.3.1-4	Bypass FI-2245, Hydrogen Flow Indicator: <ul style="list-style-type: none"> <li>Close MV-WE103, Main Gen H2 Flow Meter FI-2245 Inlet</li> <li>Close MV-WE104, Main Gen H2 Flow Meter FI-2245 Out</li> <li>Open MV-WE102, Main Gen H2 Flow Meter FI-2245 B/P</li> </ul>	Bypass Hydrogen Flow Indicator FI-2245 as follows: <ul style="list-style-type: none"> <li>Close MV-WE103</li> <li>Close MV-WE104</li> <li>Open MV-WE102</li> </ul>	S U
<b>Comment:</b>			



Proc. Step	TASK ELEMENT 4	STANDARD	Grade
2.4	Ensure the following: <ul style="list-style-type: none"> <li>NCO is aware of evolution and monitoring Main Gen H2 pressure</li> <li>NPO involved has walked down Step 2.5 and 2.6 prior to performance since they need to be completed in an expeditious manner</li> </ul>	Verify NCO is monitoring Main Gen H2 pressure	S U
Comment: <b>Evaluator Cue:</b> As NCO, acknowledge NPO's request to monitor Generator H2 pressure.			

**Evaluator Note:** Steps 2.5.1-3 initialize the Feed portion of the Feed and Bleed evolution.

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.5.1	Open MV-WE332, FCV-2201 Bypass (outlet of bulk hydrogen tank)	Open MV-WE332	S U
Comment: <b>Evaluator Cue:</b> If applicant asks, inform applicant that a full H2 bottle is aligned. <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
2.5.2	Ensure open: <ul style="list-style-type: none"> <li>MV-WE052, Main Gen H2 Supply Manifold Bypass</li> <li>MV-WE053, Main Gen H2 Supply Manifold Inlet</li> <li>MV-WE008, H2 Supply to Main Gen</li> </ul>	Ensure open: <ul style="list-style-type: none"> <li>MV-WE052</li> <li>MV-WE053</li> <li>MV-WE008</li> </ul>	S U
Comment: <b>CRITICAL STEP</b>			

**Evaluator Cue:** When hydrogen is valved in, H2 header pressure on PI-2245 ~120 psig. When MV-WE050 is opened to initiate the H2 feed to the generator, H2 header pressure should drop on PI-2245 to ~100 psig.

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
2.5.3	Throttle open MV-WE050, Main Gen H2 Supply Manifold Outlet as required to establish H2 flow to Main Gen. and maintain PI-2245 > 90 psig	Establish H2 flow by throttling open MV-WE050 as necessary and maintain PI-2245 > 90 psig	S U
Comment: <b>Evaluator Note:</b> Hydrogen Flow Meter FI-2245 is bypassed at this point. Applicant can verify H2 header pressure > 90 psig, H2 Supply pressures (PI-2262 or PI-2297), and Main Gen H2 Purity rising. <b>CRITICAL STEP</b>			

**Evaluator Note:** Steps 2.6.1-2 initialize the Bleed portion of the Feed and Bleed evolution.

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
2.6.1	Throttle open ½ turn MV-WE006, Main Gen Bottom Manifold (CO2) Vent	Throttle open ½ turn MV-WE006	S U
Comment:			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
2.6.2	Barely throttle open MV-WE026, Main Gen Vent to Atm.	Barely throttle open MV-WE026 (crack off the closed seat).	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
2.7	Operate MV-WE006, Main Gen Bottom Manifold (CO2) Vent, as necessary to maintain: <ul style="list-style-type: none"> <li>Stable H2 Bleed rate to match the Feed rate</li> <li>Gen H2 pressure 74-76 psig</li> </ul>	Operate MV-WE006 as necessary to maintain stable feed and bleed rate as well as stable Main Gen H2 pressure (74-76 psig)	S U
Comment: <b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
2.8	If a Hydrogen grab sample is desired...	Determines a Hydrogen grab sample is not required (Initial Cue).	S U
Comment:			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
2.9	When Hydrogen Purity is at desired value (97%), stop Feed and Bleed as follows: <ul style="list-style-type: none"> <li>• Close MV-WE026, Main Gen Vent to Atm</li> <li>• Close MV-WE006, Main Gen Bottom Manifold (CO2) Vent</li> <li>• Close MV-WE050, Main Gen H2 Supply Manifold Outlet</li> <li>• Close MV-WE052, Main Gen H2 Supply Manifold Bypass</li> <li>• Close MV-WE053, Main Gen H2 Supply Manifold Inlet</li> <li>• Ensure open MV-WE008, H2 Supply to Main Gen.</li> </ul>	When H2 Purity reaches 97%, secure Feed and Bleed: <ul style="list-style-type: none"> <li>• Close MV-WE026</li> <li>• Close MV-WE006</li> <li>• Close MV-WE050</li> <li>• Close MV-WE052</li> <li>• Close MV-WE053</li> <li>• Ensure open MV-WE008</li> </ul>	S U
<b>Comment:</b> <i><b>Evaluator Cue:</b> After a short time when applicant has balanced the feed and bleed, cue applicant that alarm EK-1001, "Hydrogen Purity Hi or Low" has cleared.</i>  <i><b>Evaluator Cue:</b> A short time after the previous cue, inform applicant that Hydrogen purity is ~97%.</i>			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
2.10	Restore FI-2245, Hydrogen Flow Indicator to service <ul style="list-style-type: none"> <li>• Open MV-WE103, Main Gen H2 Flow Meter FI-2245 Inlet</li> <li>• Open MV-WE104, Main Gen H2 Flow Meter FI-2245 Out</li> <li>• Close MV-WE102, Main Gen H2 Flow Meter FI-2245 B/P</li> <li>• Close MV-WE332, FCV-2201 Bypass</li> </ul>	Restore FI-2245: <ul style="list-style-type: none"> <li>• Open MV-WE103</li> <li>• Open MV-WE104</li> <li>• Close MV-WE102</li> <li>• Close MV-WE332</li> </ul>	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
N/A	Contact NCO to verify normal/stable Main Gen parameters and inform CRS of task completion.	<ul style="list-style-type: none"> <li>• May verify normal Main Gen H2 pressure</li> <li>• May verify stable Main Gen H2 Purity</li> <li>• Inform CRS of task completion.</li> </ul>	S U
<b>Comment:</b>			

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

## END OF TASK

## **SIMULATOR OPERATOR INSTRUCTIONS**

- N/A, In plant JPM

## CANDIDATE CUE SHEET

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

### INITIAL CONDITIONS:

- The Plant is at 100% power.
- Alarm EK-0302, "Hydrogen/Seal Oil System Trouble" is in.
- Alarm EK-1001, "Hydrogen Purity High or Low" is in.
- Hydrogen purity is 88% and stable.

### INITIATING CUES:

The CRS directs you to purge the Main Generator to raise Hydrogen purity to 97% using SOP-8 Attachment 3 via the Feed and Bleed Method. A Hydrogen grab sample is not required.

**PALISADES**

**2017 INITIAL LICENSE EXAM**

**JOB PERFORMANCE MEASURE**

**JPM: RO/SRO-I/SRO-U SYSTEM K**

**TITLE: OUTSIDE CONTROL ROOM 'B' ESDE  
ISOLATION PER EOP SUPPLEMENT 18**

CANDIDATE: \_\_\_\_\_

EXAMINER: \_\_\_\_\_

JOB PERFORMANCE MEASURE  
DATA PAGE

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Task: Outside Control Room 'B' S/G ESDE Isolation IAW EOP Supplement 18

Alternate Path: Yes

Facility JPM #: PL-OPS-EOP-010J

K/A: 040AA1.03 Importance: RO: 4.3 SRO: 4.3

K/A Statement: Isolation of one steam line from the header

Task Standard: "B" S/G isolated per EOP Supplement 18 Section 2.0

Preferred Evaluation Location: Simulator \_\_\_\_\_ In Plant   X  

Preferred Evaluation Method: Perform \_\_\_\_\_ Simulate   X  

References: EOP-6.0, Excess Steam Demand Event  
EOP Supplement 18, 'B' S/G ESDE Isolation Checklist

Validation Time: 30 minutes Time Critical: NO

Candidate: \_\_\_\_\_

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

Performance Time: \_\_\_\_\_ minutes

Performance Rating: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Comments:

Examiner: \_\_\_\_\_  
Signature

Date: \_\_\_\_\_

**EXAMINER COPY ONLY**

Tools/Equipment/Procedures Needed:

- EOP Supplement 18, 'B' S/G ESDE Isolation Checklist

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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

**INITIAL CONDITIONS:**

- The Plant has been tripped from 100% power.
- EOP-6.0 has been entered due to a steam leak on the "B" S/G.
- The control room has completed EOP Supplement 18 "B" S/G Isolation Checklist Section 1.0, Isolation from the Control Room.
- All steps of EOP Supplement 1, Section 1.0 have been completed with the exception of CV-0501, 'B' S/G MSIV which did not close.

**INITIATING CUES:**

The CRS directs you to perform EOP Supplement 18 "B" S/G Isolation Checklist Section 2.0, Isolation Outside the Control Room.



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

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
n/a	Locate EOP Supplement 18.	EOP Supplement 18 in hand.	S U
<b>Comment:</b> <i>Evaluator Cue: When applicant has located EOP Supplement 18, provide a working copy of EOP Supplement 18, 'B' S/G ESDE Isolation Checklist, completed with the exception of Step 1.a, CV-0501 is "circled" as not being complete.</i>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
n/a	Determines that 'B' S/G MSIV (CV-0501) could not be closed from the Control Room and must be closed locally and proceeds to Section 2.0 to locally close the valve.	Identifies the failure of CV-0501 to close and the need to close the valve locally per Section 2.0.	S U
<b>Comment:</b>			

**Evaluator Note:** Applicant can perform actions to unlatch solenoid valves at panels C-180 and C-181 in any order. The first panel the applicant attempts to unlatch solenoid valves at, will NOT unlatch.

**Evaluator Note:** Solenoid valves are unlatched by lifting handle upward and sliding locking mechanism to the right, then allowing handle to drop downward.

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
2.1.a	<b>Close</b> the 'B' MSIV by manually unlatching the indicated solenoids from ANY of the following locations: <ul style="list-style-type: none"> <li>• C-180 (Turb Bldg East Mezzanine)</li> <li>• SV-0505A and SV-0507A</li> </ul>	Attempt to unlatch SV-0505A and SV-0507A at C-180 panel	S U
<b>Comment:</b> <i>Evaluator Cue: Use attached picture and have applicant demonstrate how they would unlatch the Solenoid Valve.</i>  <i>Evaluator Cue: IF the applicant has not attempted valve unlatching at panel C-181, then, when applicant attempts to unlatch SV-0505A and SV-0507A, inform the applicant that the SVs remain latched as the locking tab will NOT release.</i>  <i>IF the applicant has previously attempted valve unlatching at panel C-181, then, when the applicant attempts to unlatch SV-0505A and SV-0507A, inform the applicant that the SVs are unlatched.</i>  <b>CRITICAL STEP: Task Element 3 OR Task Element 4 is a critical step. Must unlatch both valves from either cabinet.</b>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
2.1.a	<p><b>Close</b> the 'B' MSIV by manually unlatching the indicated solenoids from ANY of the following locations:</p> <ul style="list-style-type: none"> <li>• C-181 ('D' Bus Cableway)</li> <li>• SV-0502 and SV-0514</li> </ul>	Unlatches SV-0502 and SV-0514 at C-181 panel	<b>S U</b>
<p><b>Comment:</b>  <i><b>Evaluator Cue:</b> Use attached picture and have applicant demonstrate how they would unlatch the Solenoid Valve.</i></p> <p><i><b>Evaluator Cue:</b> If the applicant has not attempted valve unlatching at panel C-180, then, when applicant attempts to unlatch SV-0502 and SV-0514, inform the applicant that the SVs remain latched, as the locking tab will NOT release.</i></p> <p><i>If the applicant has previously attempted valve unlatching at panel C-180, then, when the applicant attempts to unlatch SV-0502 and SV-0514, inform the applicant that the SVs are unlatched.</i></p> <p><b>CRITICAL STEP: Task Element 3 OR Task Element 4 is a critical step. Must unlatch both valves from either cabinet.</b></p>			

***Evaluator Cue:** While outside on roof area, question applicant as to what the pipes on the top of the roof are.*

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.1.b	<p>Isolate S/G E-50B Atmospheric Steam Dump Valves using ANY of the following methods:</p> <ul style="list-style-type: none"> <li>○ Close ADV isolation valves: <ul style="list-style-type: none"> <li>• MV-MS102 closed</li> <li>• MV-MS104 closed</li> </ul> </li> <li>○ Fail I/A to ADVs (<i>roof outside CCW Upper Level inside Cabinet C-182</i>) <ul style="list-style-type: none"> <li>• MV-CA779 closed</li> <li>• MV-CA780 closed</li> </ul> </li> </ul>	<p>Isolate 'B' S/G ADVs by performing one of the following:</p> <ul style="list-style-type: none"> <li>○ Close ADV isolation valves: <ul style="list-style-type: none"> <li>• MV-MS102 closed</li> <li>• MV-MS104 closed</li> </ul> </li> <li>• Fail I/A to ADVs <ul style="list-style-type: none"> <li>• MV-CA779 closed</li> <li>• MV-CA780 closed</li> </ul> </li> </ul>	<b>S U</b>
<p><b>Comment:</b>  <i><b>Evaluator Note:</b> About 150 turns is required to close a Steam Dump Isolation Valve from full open.</i></p> <p><i><b>Evaluator Cue:</b> After applicant has simulated operating each valve hand wheel in the clockwise direction, CUE operator that valve has turned many times and has stopped moving.</i></p> <p><b>CRITICAL STEP</b></p>			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.1.c	Close the following 'B' S/G Steam Dump Drain Trap valves ( <i>Middle Level CCW Room</i> ): <ul style="list-style-type: none"> <li>MV-MS527, ST-0790 Inlet</li> <li>MV-MS529, ST-0790 Bypass</li> <li>MV-MS523, ST-0789 Inlet</li> <li>Mv-MS525, ST-0789 Bypass</li> </ul>	Close 'B' S/G Steam Dump Drain Trap valves by turning hand-wheel clockwise: <ul style="list-style-type: none"> <li>MV-MS527, ST-0790 Inlet</li> <li>MV-MS529, ST-0790 Bypass (already closed)</li> <li>MV-MS523, ST-0789 Inlet</li> <li>Mv-MS525, ST-0789 Bypass</li> </ul> <i>Note: Bypass valves are locked closed per system checklists</i>	S U
<b>Comment:</b> <i>Evaluate Note: Applicant is not to close MV-MS527, MV-MS529, MV-MS523, or MV-MS525, simulate only</i>  <i>Evaluate Cue: After applicant has simulated operating each valve hand wheel in the clockwise direction, CUE applicant that valve has closed.</i>			
<b>CRITICAL STEP</b>			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
2.1.d	Verify 'B' S/G Safety Valves are closed ( <i>Roof outside CCW Upper Level</i> )	'B' S/G Safety Valve exhausts verified closed (visual inspection of steam)	S U
<b>Comment:</b> <i>Evaluator Cue: Question applicant as how to determine if steam is issuing from any Safety Valve exhausts. Once applicant describes correctly, inform applicant of no steam discharging through safety valves.</i>			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
2.1.e	If CV-0744, 'B' S/G Main Feed Reg Block Valve, did NOT close from the Control Room, then close ...	Determines that this step is not applicable (given in Supplement 18, Section 1.1.d. as closed).	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
N/A	EOP Supplement 18: Signed Completed by: and Dated/Timed	Competed By: _____  Date/Time _____ / _____	S U
<b>Comment:</b>			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
N/A	The CRS notified that EOP Supplement 18 has been completed.	CRS notified Supplement 18 completed satisfactorily.	S U
Comment:			

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

**END OF TASK**

## **SIMULATOR OPERATOR INSTRUCTIONS**

- N/A, In plant JPM

# CANDIDATE CUE SHEET

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

## INITIAL CONDITIONS:

- The Plant has been tripped from 100% power.
- EOP-6.0 has been entered due to a steam leak on the “B” S/G.
- The control room has completed EOP Supplement 18 “B” S/G Isolation Checklist Section 1.0, Isolation from the Control Room.
- All steps of Section 1.0 have been completed with the exception of CV-0501, ‘B’ S/G MSIV which did not close.

## INITIATING CUES:

The CRS directs you to perform EOP Supplement 18 “B” S/G Isolation Checklist Section 2.0, Isolation Outside the Control Room.

