

Facility: HB ROBINSON Task No.: 01001100302

Task Title: Perform Rod Cluster Exercise IAW OST-011. JPM No.: 2008 NRC SIM a

K/A Reference: 001 A2.11 4.4/4.7

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing: _____

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is at 75% power.
- OST-011, ROD CLUSTER CONTROL EXERCISE AND ROD POSITION INDICATION (Monthly) is being performed.
- The prerequisites of Section 4 have been completed.

Task Standard: Reactor has been manually tripped in response to a dropped rod.

Required Materials: OST-011, Rod Cluster Control Exercise and Rod Position Indication (Monthly)

General References: OST-011, Rod Cluster Control Exercise and Rod Position Indication (Monthly)

Handouts: OST-011, Section 8.1

Initiating Cue: You are to perform OST-011 commencing with Section 8.1 for Shutdown Bank "A" rods.

Time Critical Task: NO

Validation Time: 18 minutes

SIMULATOR SETUP

1. IC # 618.
2. SCN: 006_JPM_S8.
3. When directed by the Chief Examiner, insert IMF CRF03A for Shutdown Bank "A" Rod N-7 to drop into the core during withdrawal.
4. OST-011 Prerequisites are signed off as complete.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Reviews procedure and any required information.

Standard: OST-011, Section 8.1 is the required procedure to be performed.

Examiner's Note: **Candidate may wish to review the prerequisites in Section 4.**

Comment:

Performance Step: 2 Record the initial Group Step counter height for Shutdown Bank "A". (Step 8.1.1)

Standard: Candidate observes the proper group step counters and records 225 steps for Groups A and B.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 If necessary to verify performance of Shutdown Bank A Demand Position Indication System prior to the required height change position of the test, THEN PERFORM the following:
Position the ROD BANK SELECTOR switch to the SBA position for Shutdown Bank "A". (Step 8.1.2.1)

Standard: Candidate places the ROD BANK SELECTOR switch to the SBA position.

Examiner's Note:

Examiner's Cue: **Performance of Shutdown Bank A Demand Position Indication System is required.**

Comment:

Performance Step: 4 Using the IN-HOLD-OUT lever AND RTGB step counter indication, POSITION Shutdown Bank "A" rods in TWO steps. (Step 8.1.2.2)

Standard: Candidate uses the IN-HOLD-OUT lever and inserts Shutdown Bank "A" rods from 225 steps to 223 steps.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 5 Using the IN-HOLD-OUT lever, RETURN rods to the initial height as indicated on the operable step counter(s) for Shutdown Bank "A".(Step 8.1.2.3)

Standard: Candidate uses the IN-HOLD-OUT lever and withdraws Shutdown Bank "A" rods from 223 steps to 225 steps.

Examiner's Note:

Comment:

Performance Step: 6 Check that Shutdown Bank "A" individual RPI indications on ERFIS have returned to their pre-test positions. (Step 8.1.2.4)

Standard: Candidate checks that Shutdown Bank "A" RPI indications on ERFIS have returned to their pre-test positions.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 7 Record Initial Rod Heights from the RTGB (Steps), Initial Rod Heights from ERFIS (Inches). (Step 8.1.3)

Standard: Candidate records initial rod heights from the RTGB and ERFIS.

Examiner's Note:

Comment:

* **Performance Step: 8** Determine the required change in rod height based on current plant conditions. (Step 8.1.4)

Standard: Plant is in Mode 1. Rod height change is 19 steps.
 $225 - 19 = 206$ steps.

Examiner's Note:

Comment:

* **Performance Step: 9** Verify the ROD BANK SELECTOR switch in the SBA position for Shutdown Bank "A". (Step 8.1.5)

Standard: Candidate re-positions switch to the SBA position.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 10** Using the IN-HOLD-OUT lever and RTGB Step Counter indication, position Shutdown Bank "A" rods to the required number of steps as dictated by plant conditions. (Step 8.1.6)

Standard: Candidate positions the IN-HOLD-OUT lever to IN position and inserts Shutdown Bank "A" 19 steps to 206 steps.

Examiner's Note: APP-005-F3, APP-005-D6 and APP-003-F4 will be received during the rod insertion.

Comment:

Performance Step: 11 Record tested Rod Heights from the RTGB (Steps) and tested Rod Heights from ERFIS (Inches). (Step 8.1.7)

Standard: Candidate records Shutdown Bank "A" Rod Heights from RTGB (Steps) and Rod Heights from ERFIS (Inches).

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 12** Using the IN-HOLD-OUT lever, return rods to the Initial Height (Steps) as indicated by the step counters. (Step 8.1.8)

Standard: Candidate positions the IN-HOLD-OUT lever to the OUT position and begins withdrawing Shutdown Bank "A" rods.

Examiner's Note: Withdrawal shall NOT be the continuous 19 steps per Precaution 5.5.5.

Booth Operator: Insert malfunction IMF CRF03A to cause Rod N-7 to drop into the core AFTER the candidate starts the second withdrawal of the rods.

Comment:

* **Performance Step: 13** Candidate diagnoses a dropped rod in Shutdown Bank "A".

Standard: Candidate determines a dropped rod has occurred in Shutdown Bank "A" by the following indications:

- Rod Bottom Light for Rod N-7
- Prompt drop in reactor power
- APP-005-A3; PR DROPPED ROD
- APP-005-C3; PR CHANNEL DEV
- APP-005-F2; ROD BOTTOM ROD DROP

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 14** Stop withdrawal of Shutdown Bank "A" rods.

Standard: Candidate releases IN-HOLD-OUT lever to the HOLD position.

Examiner's Note:

Comment:

* **Performance Step: 15** Informs CRSS of need to trip reactor and initiates a manual reactor trip. (Based on Caution at the beginning of Section 8.1 and Precaution 5.5.4).

Standard: Informs CRSS and depresses either reactor trip pushbutton. Candidate verifies that reactor is tripped by Reactor Trip and Bypass breaker indication, Rod Bottom Lights, RPI indication, and Nuclear Flux decreasing.

Examiner's Note:

Comment:

END OF TASK

Termination: Reactor has been manually tripped due to a dropped rod while in Individual Bank select mode.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM a

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The plant is at 75% power.
- OST-011, ROD CLUSTER CONTROL EXERCISE AND ROD POSITION INDICATION (Monthly) is being performed.
- The prerequisites of Section 4 have been completed.

INITIATING CUE:

You are to perform OST-011 commencing with Section 8.1 for Shutdown Bank "A" rods.

Facility: HB ROBINSON Task No.: 01006100101

Task Title: Fill a Safety Injection Accumulator IAW OP-202. JPM No.: 2008 NRC SIM b

K/A Reference: 006 A4.01 4.1/3.9
006 A4.02 4.0/3.8
006 A1.07 3.3/3.6
006 A1.13 3.5/3.7

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing: _____

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is operating at 100% RTP.
- SI ACCUM C HI/LO LVL (APP-002-E4) alarm has been received and actions have been reviewed by the RO.
- OP-202, Section 8.2.1.1 Initial Conditions have been completed.
- Refueling Water Purification is NOT in progress.
- You are the Licensed Dedicated Operator referred to in OP-202.
- Safety Injection Pump "A" has been walked down and pre-start checks are complete.

Task Standard: SI Accumulator "C" filled to reset the low level alarm without exceeding specified limits.

Required Materials: OP-202, Revision 75, Section 8.2.1

General References: OP-202, Revision 75, Section 8.2.1

Handouts: OP-202, Revision 75, Section 8.2.1

Initiating Cue: The CRSS briefs and has directed you to fill SI Accumulator "C" to reset the low level alarm IAW OP-202, Section 8.2.1.

Time Critical Task: NO

Validation Time: 12 minutes

SIMULATOR SETUP

1. IC-611.
2. NO SCN Required.
3. If IC-611 not available, reset simulator to IC-13 and drain SI Accumulator "C" to ~61%.
4. Ensure that Refueling Water Purification is NOT in progress.
5. Mark up OP-202, Section 8.2.1 with Initial Conditions Steps 8.2.1.1.a through 8.2.1.1.f.2 completed.
6. FREEZE the simulator until directed by the Chief Examiner to RUN.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Examiner's Note: The candidate may use ERFIS to monitor SI Accumulator "C" level. (ERFIS:QP ACCUM C)

Performance Step: 1 Check open SI-856A, SI PUMP RECIRC and SI-856B, SI PUMP RECIRC.

Standard: Valves SI-856A and B checked OPEN.

Comment:

* **Performance Step: 2** Verify the Control Power Defeat Switch for SI-869 is in the NORMAL position.

Standard: Locating NORMAL / DEFEAT key switch for SI-869 and placing the switch in the NORMAL position.

Examiner's Note:

- **Key switch is located in the rear of the RTGB on the "ECCS VALVES CONTROL POWER DEFEAT PANEL."**
- **When the key switch is selected to NORMAL, amber light above the key switch will ILLUMINATE.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 If an SI actuation is received during filling, then immediately close the applicable SI Accumulator makeup valve and perform Step 8.2.1.2.m to restore the SI System lineup.

Standard: Candidate acknowledges continuous action step in the event of an SI actuation.

Examiner's Note:

Comment:

* **Performance Step: 4** Open SI-869, SI HOT LEG HDR.

Standard: Valve SI-869 opened.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 5** Start SI Pump "A".

Standard: SI Pump "A" started.

Examiner's Note: Neither SI has been run in the last 15 days.
When an SI Pump is started, APP-002-C3, BIT HDR HI PRESS will be received due to the cold leg header being pressurized by the SI Pump. This is an expected alarm and the BOP should be directed to review the APP.

Listed below are APP-002-C3 actions:

- Compare the indications on PI-943 and PI-934 to determine validity.
- If the header high pressure is due to SI System testing, then do NOT perform actions to clear the high pressure until testing is complete or the operating SI Pump discharge valve is closed.

Comment:

Performance Step: 6 At least 1 SI Pump Area Cooling unit is operating (HVH-6A or 6B or both).

Standard: HVH-6A and/or 6B verified operating.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Note prior to Step
8.2.1.2.h

NOTE: The following are pressure and level limits/alarms for the SI Accumulators:

- **High Pressure Alarm** **646 psig**
- **Normal Operating Pressure** **630 psig**
- **High Level Alarm** **75 percent**
- **Low Level Alarm** **67 percent**

* **Performance Step: 7**

- a. Open SI-851C, MAKEUP.
- b. Monitor the level and pressure of SI Accumulator "C".
- c. When desired level is obtained, then close SI-851C.

Standard:

- a. Valve SI-851C opened.
- b. Maintained > 614 psig and < 646 psig pressure limits as indicated on PI-929/931 and > 67% and < 75% level limits as indicated on LI-928/930.
- c. Valve SI-851C closed.

Examiner's Note:

**ITS limits for SI Accumulators:
Pressure of 600 – 660 psig.
Level of 61.5 – 80.4%.**

Comment:

PERFORMANCE INFORMATION

★ **Performance Step: 8** Stop the operating SI Pump

Standard: Operating SI Pump stopped.

Examiner's Note:

Comment:

Performance Step: 9 Verify both SI Pump Area Cooling units (HVH-6A and 6B) are OFF

Standard: Verifies HVH-6A and 6B are OFF.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 10** Close SI-869, SI HOT LEG HDR

Standard: Valve SI-869 closed and independently verified closed.

Examiner's Note: When an independent verification of Valve SI-869 is requested, inform the candidate that the valve has been independently verified closed.

Comment:

* **Performance Step: 11** Place the Control Power Defeat switch for SI-869 in the DEFEAT position.

Standard: Valve SI-869 control power switch has been positioned to DEFEAT.

Examiner's Cue: When an independent verification of SI-869 Control Power switch is requested, inform the candidate that the switch has been independently verified in the DEFEAT position.

Examiner's Note: When switch is positioned to DEFEAT position, amber light above the switch will extinguish.

Comment:

PERFORMANCE INFORMATION

Performance Step: 12 IF the Refueling Water Purification Pump was stopped in Step 8.2.1.1.f, THEN perform the following:

- Open SFPC-805B, RWST RETURN.
- Start the Refueling Water Purification Pump.

Standard: Candidate determines that the RWST purification was NOT in progress from the initial conditions and places N/As in these steps.

Examiner's Note:

Comment:

END OF TASK

Terminating Cue: SI Accumulator "C" has been filled to clear the low level alarm.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM b

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- The plant is operating at 100% RTP.
 - SI ACCUM C HI/LO LVL (APP-002-E4) alarm has been received and actions have been reviewed by the RO.
 - OP-202, Section 8.2.1.1 Initial Conditions have been completed.
 - Refueling Water Purification is NOT in progress.
 - You are the Licensed Dedicated Operator referred to in OP-202.
 - Safety Injection Pump "A" has been walked down and pre-start checks are complete.

INITIATING CUE: The CRSS briefs and has directed you to fill SI Accumulator "C" to reset the low level alarm IAW OP-202, Section 8.2.1.

Facility: HB ROBINSON Task No.: 01000109605

Task Title: Isolate Ruptured S/G IAW PATH-2. JPM No.: 2008 NRC SIM c

K/A Reference: 038 EK3.02 4.4/4.5
038 EA2.09 3.2/3.3
038 EA1.11 3.8/3.9
038 EA1.16 4.4/4.3
038 EA1.18 4.0/3.9

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant was operating at 100% RTP.
- RCS depressurization led to a Reactor Trip and Safety Injection.
- S/G "A" has been identified as ruptured.
- Grid location B-6 (Maintain at least ONE S/G available for RCS Cooldown) of PATH-2 has just been reached.
- Supplement G actions have NOT been completed.

Task Standard: S/G "A" is isolated per PATH-2 and Supplement N.

Required Materials: PATH-2, Revision 17 and Supplement N, Revision 35.

General References: PATH-2, Revision 17 and Supplement N, Revision 35.

Handouts: None

Initiating Cue: The CRSS directs you to completely isolate S/G "A" starting at PATH-2 grid location B-6 (Ruptured S/G identified) in preparation for a rapid cooldown.

Time Critical Task: NO

Validation Time: 20 minutes

SIMULATOR SETUP

1. IC-614.
2. SCN 006_JPM_S4.
3. If IC-614 is not available, reset simulator to IC-13 and perform the following :
 - a. Override MSIV V1-3A to the OPEN position – IMF MSS03A f:FAIL_TO_CLOSE.
 - b. Override MSIV V1-3A OPEN / CLOSED indication AS IS – IOR doMSSDDO049B f:OFF and IOR doMSSDDO049C f:ON.
 - c. Insert 300 GPM tube rupture on S/G A - MFI SGN02A.
 - d. Carry out actions of PATH-1 and PATH-2 until Step B-6 is reached then FREEZE.
4. Ensure PATH-2 is marked up to Step B-6. Have a copy of SUPPLEMENT N available for the operator to use and mark up.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Maintain at least one S/G available for RCS cooldown.

Standard: Operator identifies S/Gs "B" and "C" are available for RCS cooldown.

Examiner's Note:

Comment:

* **Performance Step: 2** Verify ruptured Steam Line PORV setpoint at 1035 psig using status board.

Standard: Operator adjusts potentiometer to 3.36, steam line PORV setpoint at 1035 psig, by comparing Status Board setpoint for S/G "A" PORV with potentiometer setting for RV1-1.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

★ **Performance Step: 3** Verify RCS temp less than 547 °F prior to MSIV closure.

Standard: Operator dumps steam to lower RCS temperature below 547 °F using Steam Line PORVs or Condenser Steam Dumps.

- Condenser Steam Dumps:
 - Take PC-464B to MANUAL and adjust valve position using UP or DOWN pushbuttons.
 - PC-464B in Automatic, adjust potentiometer to a lower setting to reduce RCS temperature.
- Steam Line PORVs:
 - Adjust Potentiometer to OPEN or CLOSE PORV.

Examiner's Note:

Comment:

Performance Step: 4 Close ruptured S/G MSIV AND MSIV bypass.

Standard: After RCS temperature less than 547 °F, Operator attempts to close MSIV.

Examiner's Note: **MSIV will NOT close.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 5 Ruptured S/G MSIV AND MSIV Bypass Closed.

Standard: Operator responds NO, MSIV A will not close. Will transition to Supplement N to complete the isolation.

Examiner's Note: **The Operator will go to Supplement N to address the alternate method of isolating the ruptured S/G.**

Comment:

Supplement N Actions

Performance Step: 6 Verify BOTH Turbine Stop Valves CLOSED. (Step 1)

Standard: Operator verifies BOTH Turbine Stop Valves indicate CLOSED on the RTGB.

Examiner's Note: **Turbine Stop and Bypass Valves were closed when the plant tripped.**

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 7** Verify ALL Condenser Steam Dump Valves CLOSED (Step 2)

Standard: Operator closes the condenser dump isolation valves, and verifies that ALL valves indicate CLOSED (GREEN).

- NE COND DUMP 1324A-1
- NW COND DUMP 1324B-1
- SE COND DUMP 1324A-2
- W COND DUMP 1324B-3
- SW COND DUMP 1324B-2

Examiner's Note: **Condenser steam dump valves can be closed by placing PC-464B in MAN and closing ALL valves OR place the Steam Dump Control to OFF.**

Comment:

Performance Step: 8 Verify ALL MSR Purge Valves CLOSED (Step 3)

Standard: Operator verifies valves MS-V1-6-1A, MS-V1-6-1B, MS-V1-6-2A and MS-V1-6-2B are closed at the RTGB by observing green lights illuminated the MSR Purge isolation valves.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 9 Verify ALL MSR Shutoff Valves CLOSED (Step 4)

Standard: Operator verifies MS-V1-5-1A, 1B, 2A, & 2B valves are closed at the RTGB by observing green lights illuminated the MSR Shutoff isolation valves.

Examiner's Note:

Comment:

* **Performance Step: 10** Go To Step 6 to address the S/G "A" MSIV NOT closing. (Step 5)
Verify the S/G "B" & "C" MSIVs CLOSED. (Step 6)

Standard: Operator closes MSIVs V1-3B and V1-3C for S/Gs "B" & "C".

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * Performance Step: 11** Verify steam supply valve to SDAFW pump from S/G "A" CLOSED. (Step 7)
- Standard:** Operator CLOSES V1-8A, Steam Shutoff and Goes to Step 14.
- Examiner's Cue:**
- Examiner's Note:**
- Comment:**
-
- * Performance Step: 12** Dispatch an Operator to perform the following: (Step 14)
- a) Check BOTH the Turbine Stop Valve Bypass valves MS-297 & 298 CLOSED.
 - b) Close Gland Seal Steam Supply Inlet Valve, GS-31.
 - c) Close ALL Condenser Steam Dump Trap Isolation valves
 - MS-128, PRV-1324A-2, Trap T-67 Inlet
 - MS-133, PRV-1324A-1, Trap T-66 Inlet
 - MS-139, PRV-1324B-2, Trap T-69 Inlet
 - MS-145, PRV-1324B-1, Trap T-68 Inlet
 - MS-148, PRV-1324B-3, Trap T-70 Inlet
- Standard:** Operator directs AO to close and / or verify the valves closed.
- Examiner's Note:**
- Examiner's Cue:** When directed by operator, acknowledge request. Report that all valves are closed.
- Comment:**

PERFORMANCE INFORMATION

Performance Step: 13 Check ALL actions of Supplement N complete. (Step 15)

Standard: Operator informs CRSS that ALL actions of Supplement N are complete.

Examiner's Note: **This completes the actions of Supplement N, the Operator should now resume PATH-2 at Step B-8.**

Comment:

Performance Step: 14 Use intact Steam Line PORVs for steam dump.

Standard: Operator uses intact steam line PORVs for steam dump (S/G 'B' and 'C' only).

Examiner's Note:

Comment:

Performance Step: 15 Ruptured S/G isolated from at least one intact S/G.

Standard: Operator answers YES, Ruptured S/G is isolated from at least one S/G.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 16 WHEN ruptured S/G press decreases below 1035 psig THEN verify ruptured steam line PORV closed.

Standard: Operator verifies PORV RV1-1 closed when S/G 'A' pressure less than 1035 psig.

Examiner's Note:

Comment:

Performance Step: 17 IF MDAFW pump is not available, THEN maintain at least one S/G supply to SDAFW pump.

Standard: Operator verifies both MDAFW pumps available.

Examiner's Note:

Comment:

Performance Step: 18 Close ruptured S/G steam shutoff to SDAFW pump.

Standard: Operator verifies MS-V1-8A closed.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 19 Verify S/G blowdown isolation and sample valves closed.

Standard: Operator verifies S/G 'A' blowdown isolation and sample valves closed (FCV-1930 A&B, FCV-1933 A&B) by Phase A panel status light illuminated on RTGB.

Examiner's Note: Phase A panel status light illuminates when all of the blowdown and sample isolation valves for S/G A are closed. Candidate may use SPDS function for Containment to verify that all S/G Blowdown and Sample valves are closed.

Comment:

* **Performance Step: 20** Locally close warmup steam supply from ruptured S/G to SDAFW pump.

Standard: Operator dispatches an AO to locally close warmup steam supply from S/G 'A' to SDAFW pump.

Booth Operator Note: When directed by operator, acknowledge request. Close valve MS-20 by selecting Remote Function MSS047 (IRF MSS047 f:0). Report back that valve is closed.

Comment:

PERFORMANCE INFORMATION

Performance Step: 21 Locally close MSIV above and below seat drains from ruptured S/G.

Standard: These are locked valves that are part of the CV Integrity boundary in the steam lines and do not require local action to verify the valves are shut. These valves are normally locked closed and a dedicated operator is provided to close them in the event that an accident takes place. It is expected that if a valve has been opened the CRSS would be aware of it. The Operator may dispatch an AO to close MSIV MS-V1-3A above and below seat drains from S/G 'A'.

Booth Operator Note: **If directed by operator, acknowledge request. Report back valves closed.**

Comment:

Performance Step: 22 Isolate feed flow to any ruptured S/G that is faulted unless needed for RCS cooldown.

Standard: Operator determines that the S/G 'A' is not faulted.

Examiner's Note:

Comment:

* **Performance Step: 23** When ruptured S/G level greater than 8% [18%] then isolate feed flow.

Standard: Operator checks level greater than 8% and isolates feed flow to S/G 'A' by closing V2-14A and V2-16A.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 24** Open breakers for any V1-8, V2-14, and V2-16 valve closed to isolate ruptured S/G.

Standard: Operator contacts AO to open breakers for V1-8A, V2-14A and V2-16A.

Booth Operator Note: IRF EPSMCC5_189 f:RACK_OUT
IRF EPSMCC10_262 f:RACK_OUT
IRF EPSMCC10_264 f:RACK_OUT
IRF EPSMCC9_255 f:RACK_OUT

Note: Valve V2-16A has 2 power supplies, Normal and Emergency.

Comment:

Terminating Cue: Ruptured S/G has been isolated IAW Supplement N.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM c

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

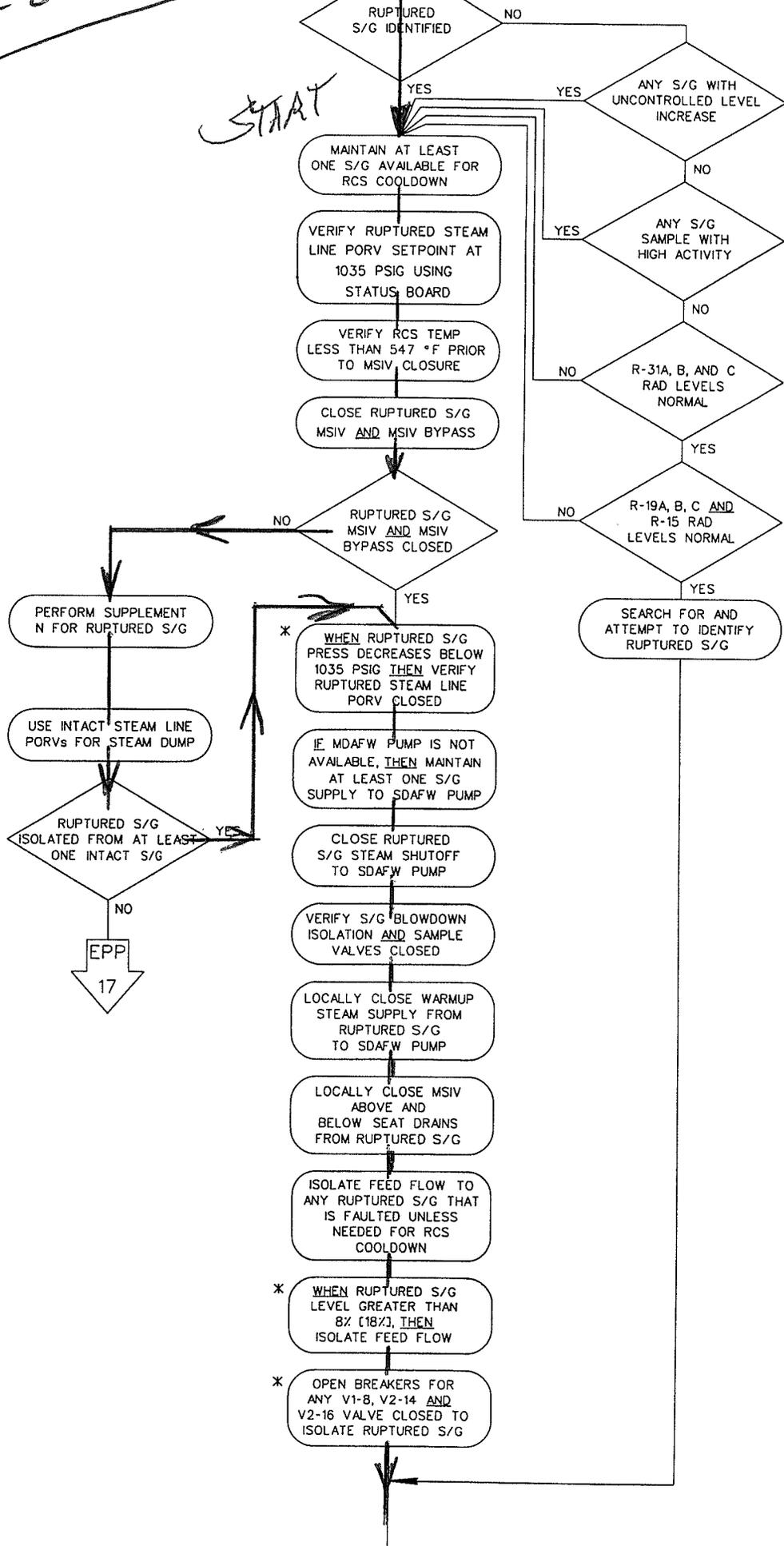
Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- The plant was operating at 100% RTP.
 - RCS depressurization led to a Reactor Trip and Safety Injection.
 - S/G "A" has been identified as ruptured.
 - Grid location B-6 (Maintain at least ONE S/G available for RCS Cooldown) of PATH-2 has just been reached.
 - Supplement G actions have NOT been completed.

INITIATING CUE: The CRSS directs you to completely isolate S/G "A" starting at grid location B-6 (Maintain at least ONE S/G available for RCS Cooldown) of PATH-2 in preparation for a rapid cooldown.

PATH-2

START



STEP

INSTRUCTIONS

RESPONSE NOT OBTAINED

CONTINUOUS USE
Supplement N

Isolation of a Ruptured S/G From Intact S/Gs

(Page 1 of 5)

1. Verify BOTH Turbine Stop Valves
- CLOSED

Yes

NOTE

Local operation of the Steam Dump valves below is via reverse acting handwheels.

2. Verify ALL Condenser Steam Dump
Valves - CLOSED

Yes

- NE COND DUMP (1324A-1)
- NW COND DUMP (1324B-1)
- SE COND DUMP (1324A-2)
- W COND DUMP (1324B-3)
- SW COND DUMP (1324B-2)

3. Verify ALL MSR PURGE Valves -
CLOSED

Yes

- MS-V1-6-1A
- MS-V1-6-1B
- MS-V1-6-2A
- MS-V1-6-2B

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
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CONTINUOUS USE
Supplement N

Isolation of a Ruptured S/G From Intact S/Gs

(Page 2 of 5)

4. Verify ALL MSR SHUTOFF Valves -
CLOSED *Yes*
- MS-V1-5-1A
 - MS-V1-5-1B
 - MS-V1-5-2A
 - MS-V1-5-2B

NOTE

This procedure is designed to handle ONLY one stuck open MSIV.

5. Go To Appropriate Step From
Following Table:

STUCK MSIV	STEP
V1-3A	6
V1-3B	9
V1-3C	12

6. Verify The B & C S/G MSIVs -
CLOSED *Yes*
- MSIV V1-3B
 - MSIV V1-3C

7. Verify Steam Supply Valve To
SDAFW Pump From S/G "A"- CLOSED

- V1-8A, STEAM SHUTOFF *Yes*

8. Go To Step 14

STEP

INSTRUCTIONS

RESPONSE NOT OBTAINED

CONTINUOUS USE
Supplement N

Isolation of a Ruptured S/G From Intact S/Gs

(Page 3 of 5)

9. Verify The A & C S/G MSIVs -
CLOSED
 - MSIV V1-3A
 - MSIV V1-3C
10. Verify Steam Supply Valve To
SDAFW Pump From S/G "B"- CLOSED
 - V1-8B, STEAM SHUTOFF
11. Go To Step 14
12. Verify The A & B S/G MSIVs -
CLOSED
 - MSIV V1-3A
 - MSIV V1-3B
13. Verify Steam Supply Valve To
SDAFW Pump From S/G "C"- CLOSED
 - V1-8C, STEAM SHUTOFF

STEP

INSTRUCTIONS

RESPONSE NOT OBTAINED

CONTINUOUS USESupplement NIsolation of a Ruptured S/G From Intact S/Gs

(Page 4 of 5)

~~14.~~ Dispatch An Operator To
Perform The Following Local
Actions:

~~a.~~ Check BOTH the TURBINE STOP
VALVE BYPASS Valves - CLOSED

- MS-297
- MS-298

~~b.~~ Close Gland Seal Steam Supply
Valve, GS-31, STEAM SUPPLY
INLET

~~c.~~ Close ALL Condenser Steam
Dump Trap Isolation Valves

- MS-128, PRV-1324A-2 TRAP
T-67 INLET
- MS-133, PRV-1324A-1 TRAP
T-66 INLET
- MS-139, PRV-1324B-2 TRAP
T-69 INLET
- MS-145, PRV-1324B-1 TRAP
T-68 INLET
- MS-148, PRV-1324B-3 TRAP
T-70 INLET

~~15.~~ Check ALL Actions Supplement N -
COMPLETE

a. Perform the following:

- 1) Verify ALL Governor valves
are closed.
- 2) Contact Plant Operations
Staff to initiate action to
fail the valves closed.

WHEN ALL actions have been
completed, THEN notify the CRSS
that Supplement N is complete.

IF an action can NOT be
completed, THEN notify the CRSS
of its status.

STEP

INSTRUCTIONS

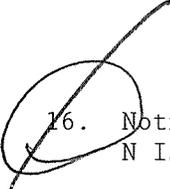
RESPONSE NOT OBTAINED

CONTINUOUS USE

Supplement N

Isolation of a Ruptured S/G From Intact S/Gs

(Page 5 of 5)



- 16. Notify The CRSS That Supplement N Is Complete

- END -

Worksheet

Facility: HB ROBINSON Task No.: 01026100101

Task Title: Manually Initiate Containment Spray IAW PATH-1. JPM No.: 2008 NRC SIM d

K/A Reference: 026 A3.01 4.3/4.5
026 A4.01 4.5/4.3

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
 Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- You are the RO.
- The plant was operating at 100% RTP, 15 minutes ago an automatic Reactor Trip and Safety Injection was initiated.
- PATH-1 has been implemented and is complete through grid location B-6, 'Restart Battery Chargers within 30 minutes of power loss using OP-601'.
- Foldout "A" is in effect.

Task Standard: Containment Spray is manually aligned IAW PATH-1.

Required Materials: PATH-1, REACTOR TRIP AND SAFETY INJECTION, Rev. 18

General References: PATH-1, REACTOR TRIP AND SAFETY INJECTION, Rev. 18

Handouts: PATH-1, REACTOR TRIP AND SAFETY INJECTION, Rev. 18

Initiating Cue: The CRSS has directed you to continue PATH-1 execution.

Time Critical Task: NO

Validation Time: 10 minutes

SIMULATOR SETUP

1. IC-615.
2. SCN: 006_JPM_S5.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

* **Performance Step: 1** CV pressure remained below 10 psig.

Standard: Candidate checks CV pressure and determines it has NOT remained below 10 psig.

Examiner's Note:

Comment:

* **Performance Step: 2** Verify CV Spray initiated.

Standard: Identifies CV Spray has NOT been initiated.

Examiner's Note: NO CV Spray pumps are running, SI-880A/B/C/D are closed. The candidate may depress the CV Spray pushbuttons, but they will be unsuccessful. The candidate may also return to Foldout "A" to stop RCPs due to low subcooling.

Comment:

PERFORMANCE INFORMATION

★ **Performance Step: 3** Verify all CV Spray pumps running with valves properly aligned.

Standard: Candidate attempts to start CV Spray Pumps “A” and “B”, and open SI-845 and SI-880 valves. Candidate should recognize and report that CV Spray Pump “A” will NOT start.

Examiner’s Note: Acknowledge candidates report. Starting CV Spray Pump “B” and aligning “B” train valves satisfies the requirement of the JPM.

Supplement B valves and required positions for CV Spray Train B:

- SI-844B, PUMP B INLET – OPEN
- SI-845B, SAT DISCH – OPEN
- SI-845C, SAT THROTTLING – THROTTLED TO ~12 GPM
- SI-880C, PUMP B DISCH – OPEN
- SI-880D, PUMP B DISCH – OPEN

Note: Opening either SI-880C or SI-880D will provide CV Spray flow path to the CV.

Comment:

Performance Step: 4 Verify approximately 12 GPM spray additive tank flow.

Standard: Candidate observes FI-949 indicates ~ 20 GPM and manually adjusts SI-845C until flow is ~12 GPM.

Examiner’s Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 5** Verify Phase B isolation valves closed.

Standard: Candidate shuts Phase B isolation valves CCW-716A OR 716B, CCW-730, CCW-626 OR 735 and CVC-381 using RTGB control switches. Only 1 of either CCW-716A or B is required for completion. Only 1 of either CCW-626 or 735 is required for completion.

Examiner's Note: **Supplement B valves that will close on a Phase B signal:**

- CVC-381, SEAL WTR RTRN ISO
- FCV-626, THERM BAR FLOW CONT
- CC-735, THERM BAR OUT ISO
- CC-716A, CCW TO RCP ISO
- CC-716B, CCW TO RCP ISO
- CC-730, BRG OUTLET ISO
- MSIV AND MSIV BYPs

Comment:

* **Performance Step: 6** Stop all RCPs.

Standard: Candidate places all RCP control switches to STOP.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

★ **Performance Step: 7** Verify all MSIVs and MSIV Bypasses closed.

Standard: Candidate verifies all MSIVs and MSIV Bypasses closed by placing the control switches for the MSIVs to CLOSE.

Examiner's Note:

Comment:

Performance Step: 8 Locally open breaker for HVS-1 at MCC-5, CMPT 7J within 60 minutes of SI initiation.

Standard: Candidate contacts AO to open breaker for HVS-1.

Examiner's Note: **JPM is complete when the candidate has established one Train of CV Spray and the Inside AO has been contacted to open the breaker for HVS-1.**

Comment:

Termination: **At least 1 train of CV Spray has been initiated.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM d

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

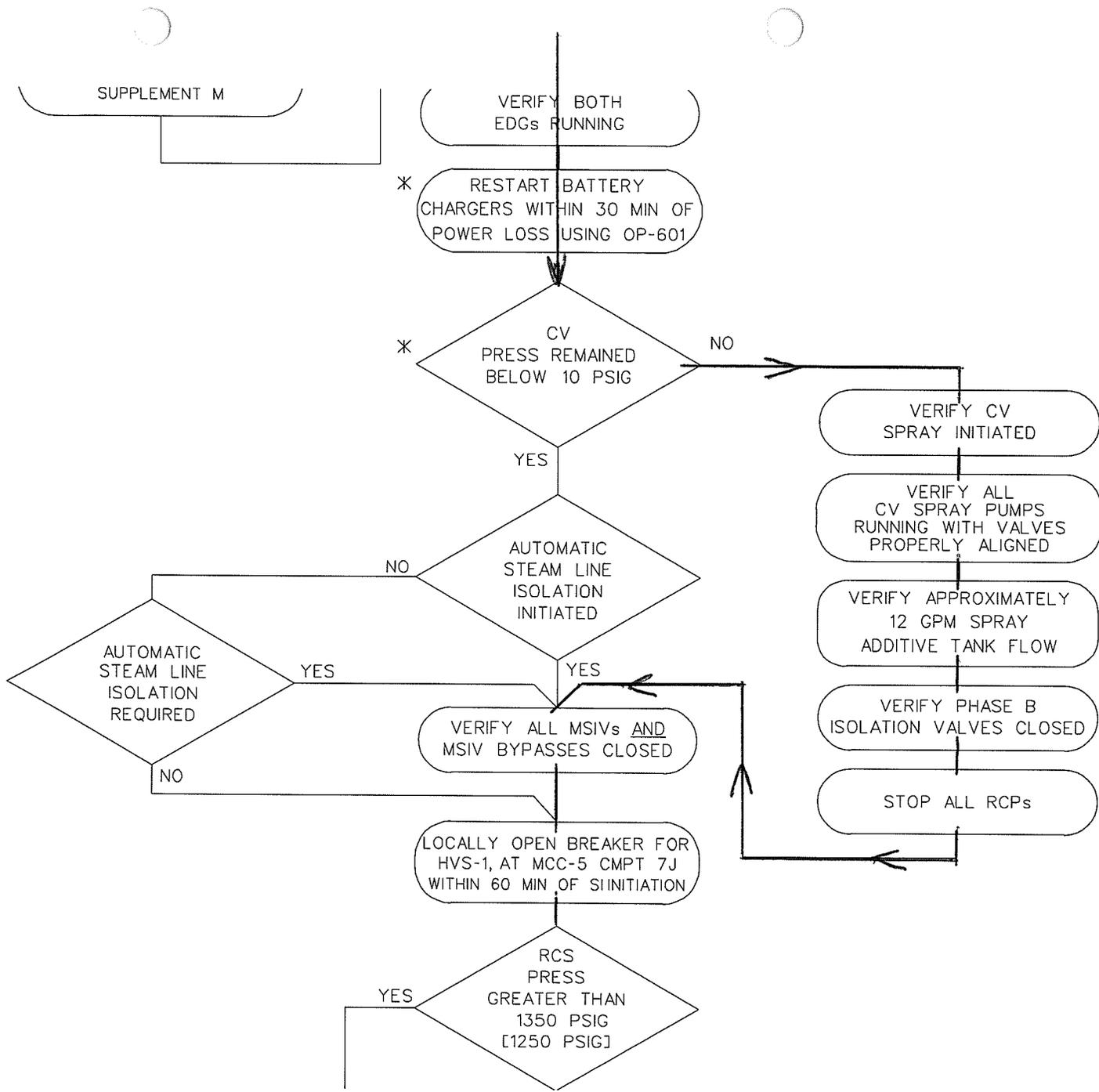
Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- You are the RO.
 - The plant was operating at 100% RTP, 15 minutes ago an automatic Reactor Trip and Safety Injection was initiated.
 - PATH-1 has been implemented and is complete through grid location B-6, 'Restart Battery Chargers within 30 minutes of power loss using OP-601'.
 - Foldout "A" is in effect.

INITIATING CUE: The CRSS has directed you to continue PATH-1 execution.



CONTINUOUS USESupplement BPhase B And CV Spray Component Alignment

(Page 1 of 1)

1. To establish Phase B Containment Isolation, verify the following valves - CLOSED

a. RCP Cooling

- CVC-381, SEAL WTR RTRN ISO
- FCV-626, THERM BAR FLOW CONT
- CC-735, THERM BAR OUT ISO
- CC-716A, CCW TO RCP ISO
- CC-716B, CCW TO RCP ISO
- CC-730, BRG OUTLET ISO

b. MSIV AND MSIV BYPs - CLOSED

2. To establish CV Spray, perform the following:

a. Verify valves positioned as follows:

- ~~SI-844A, PUMP A INLET - OPEN~~
- SI-844B, PUMP B INLET - OPEN
- ~~SI-845A, SAT DISCH - OPEN~~
- SI-845B, SAT DISCH - OPEN
- SI-845C, SAT THROTTLING - THROTTLED TO APPROXIMATELY 12 GPM
- ~~SI-880A, PUMP A DISCH - OPEN~~
- ~~SI-880B, PUMP A DISCH - OPEN~~
- SI-880C, PUMP B DISCH - OPEN
- SI-880D, PUMP B DISCH - OPEN

b. Return to procedure and step in effect.

- END -

Worksheet

Facility: HB ROBINSON Task No.: 01000102805

Task Title: Perform a Post LOCA Cooldown and
Depressurization IAW EPP-8. JPM No.: 2008 NRC SIM e

K/A Reference: 063 K3.02 3.5/3.7
002 K1.08 4.5/4.6
00009 EA1.13 4.4/4.4
00009 EA2.15 3.3/3.4

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing: _____

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- Plant was initially at 100% power.
 - RCS depressurization resulted in a Reactor Trip and Safety Injection.
 - PATH-1 has directed the crew to EPP-8, POST LOCA COOLDOWN AND DEPRESSURIZATION.
 - You are the Reactor Operator.
 - EPP-8 has been completed through Step 28.
 - CV Pressure is at its maximum value reached during the transient.

Task Standard: SI Accumulators are either isolated or depressurized IAW EPP-8.

Required Materials: EPP-8, Revision 16, Post LOCA Cooldown and Depressurization.

General References: EPP-8, Revision 16, Post LOCA Cooldown and Depressurization.

Handouts: EPP-8, Revision 16, Post LOCA Cooldown and Depressurization.

Initiating Cue: The CRSS has directed you to continue with EPP-8 until the SI Accumulators have been isolated.

Time Critical Task: NO

Validation Time: 17 minutes

SIMULATOR SETUP

1. IC # 612.
2. SCN: 006_JPM_S2.
3. EPP-8 marked up as completed through Step 28.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Determine if One SI Pump should be stopped:
Check SI Pumps – Any Running (Step 29.a).

Standard: Determines that 2 SI Pumps are running.

Examiner's Note:

Comment:

Performance Step: 2 Determine if One SI Pump should be stopped:
Determine required RCS Subcooling from Table:
Conditions: - 3 Charging Pumps Running
 - NO RCPs running
 - 2 SI Pumps Running
Required RCS Subcooling is 70 [93] degrees F.

Standard: Determines from table that required RCS Subcooling is 70 degrees F.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 Check RCS Subcooling – Less than required subcooling.

Standard: Determines that RCS subcooling is ~ 149 degrees F which is more than the required subcooling.

Go To Step 29.f (RND)

Examiner's Note:

Comment:

Performance Step: 4 Check PZR level – Greater than 24% [45%].

Standard: Determines that PZR level is greater than required level.

Examiner's Note: PZR is full.

Comment:

* **Performance Step: 5** Stop one SI Pump.

Standard: Candidate stops either SI Pump "A" or "C".

Comment:

PERFORMANCE INFORMATION

Performance Step: 6 Check RCS pressure – Stable or Increasing.

Standard: Determines that RCS pressure is decreasing due to stopping the SI Pump. Step 29.h RNO action will hold candidate until pressure is stable or increasing and then proceed back to Step 29.a.

Examiner's Note: RCS pressure will stabilize at ~ 1220 psig and should take ~ 4 minutes to stabilize after the SI Pump is secured.

Examiner's Cue: **After ~ 1 minute has elapsed, inform the operator that RCS pressure is stable.**

Comment:

Performance Step: 7 Determine if One SI Pump should be stopped:
Check SI Pumps – Any Running (Step 29.a)

Standard: Determines that one SI Pump is running.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 8** Determine if One SI Pump should be stopped:
Determine required RCS Subcooling from Table:
Conditions: - 3 Charging Pumps Running
 - NO RCPs running
 - 1 SI Pump Running
Required RCS Subcooling is 165 [191] degrees F.

Standard: Determines from table that required RCS Subcooling is 165 degrees F.

Examiner's Note:

Comment:

- * **Performance Step: 9** Check RCS Subcooling – Less than required subcooling.

Standard: Determines that RCS subcooling is ~ 125 degrees F which is less than the required subcooling.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 10** Check RCS Hot Leg temperatures – Less than 320 [300] degrees F.

Standard: Determines that RCS Hot Leg temperatures are ~ 440 degrees F.
Go To Step 32. (N/A)

Examiner's Note:

Comment:

Performance Step: 11 Check SI Reinitiation Criteria as follows:

- Check RCS Subcooling – Greater than 35 [55] degrees F
- Check PZR Level – Greater than 10% [32%]

Standard: Determines that both conditions are satisfied.

Examiner's Note: RCS Subcooling is 125 degrees F and PZR level is 100%.

Comment:

PERFORMANCE INFORMATION

- ★ **Performance Step: 12** Determine if SI Accumulators should be isolated:
- Check RCS subcooling – Less than 35 [55] degrees F

Standard: Determines that RCS subcooling is greater than specified.
Go To Step 33.d. (AND)

Examiner's Note: RCS Subcooling is 125 degrees F.

Comment:

- ★ **Performance Step: 13** Check PZR Level – Greater than 10% [32%].

Standard: Determines that PZR Level is greater than specified limits.

Examiner's Note: PZR level is 100%.

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 14** Isolate SI Accumulators as follows:
Locally close the breakers for
- SI-865C, ACCUMULATOR C DISCHARGE (MCC-5 CMPT 9F)
 - SI-865A, ACCUMULATOR A DISCHARGE (MCC-5 CMPT 14F)
 - SI-865B, ACCUMULATOR B DISCHARGE (MCC-6 CMPT 10J)
- Standard:** Contacts the Inside and Outside AOs to close the breakers for the SI Accumulator Discharge Valves on MCC-5 and 6.
- Examiner's Note:** **The Inside and Outside AOs will communicate back to the Reactor Operator that the breakers are closed as requested. Valves SI-865A/B/C will have RED open indication on the RTGB.**
- Comment:**
- * **Performance Step: 15** Verify all ACCUM DISCHs – CLOSED.
SI-865A, SI-865B, SI-865C.
- Standard:** Control switches are placed in the closed position. Candidate should note that SI-865A and SI-865B close but SI-865C has dual indication (RED and GREEN position lights ILLUMINATED)
Go To Step 34.b. RNO
- Examiner's Note:**
- Comment:**

PERFORMANCE INFORMATION

- * **Performance Step: 16** Vent any unisolated accumulator as follows:
Verify SI-855, ACC NITROGEN ISO, is closed.

Standard: Candidate determines that valve SI-855 is closed.

Examiner's Note:

Comment:

- * **Performance Step: 17** Open the appropriate ACCUM VENT valve: SI-853C.

Standard: Candidate opens valve SI-853C to align SI Accumulator "C" to the vent path.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 18** Open HIC-936, ACC VENT HDR FLOW.

Standard: Candidate opens HIC-936 by turning the valve potentiometer in the clockwise direction to open the valve and depressurize SI Accumulator "C" to the CV atmosphere.

Examiner's Note: APP-002-F4, SI ACCUM C HI/LO PRESS, will clear and come back in as the accumulator is depressurized.

APP-036-C9, CV N2 HDR HI/LO PRESS, will be received when HIC-936 is opened.

Once candidate notes that SI Accumulator "C" pressure is decreasing, examiner can terminate the JPM at his discretion.

Comment:

END OF TASK

Termination: SI Accumulators are isolated and/or depressurizing.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM e

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- Plant was initially at 100% power.
 - RCS depressurization resulted in a Reactor Trip and Safety Injection.
 - PATH-1 has directed the crew to EPP-8, POST LOCA COOLDOWN AND DEPRESSURIZATION.
 - You are the Reactor Operator.
 - EPP-8 has been completed through Step 28.
 - CV Pressure is at its maximum value reached during the transient.

INITIATING CUE: The CRSS has directed you to continue with EPP-8 until the SI Accumulators have been isolated.

Facility: HB ROBINSON Task No.: 01015100501

Task Title: Remove N-44 from service IAW OWP-011. JPM No.: 2008 NRC SIM f

K/A Reference: 015 A4.02 3.9/3.9
015 A4.03 3.8/3.9

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
 Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- The plant is operating at 100% RTP.
 - No equipment is out of service.
 - I&C has requested a clearance on N-44 to replace the high voltage power supply.
 - This clearance and work scope will render the N-44 input to QPTR inoperable.
 - You are the BOP operator.
 - The CRSS has completed the required pre-job briefing.
 - QPTR meets the SR 3.2.4.2 requirement.
 - Reactor Engineering has been contacted to perform a Flux Map.

Task Standard: Power Range Channel NI-44 removed from service IAW OWP-011, NI-4.

Required Materials: OWP-011, NI-4
ERFIS Computer

General References: OWP-011, NI-4

Handouts: OWP-011, NI-4

Initiating Cue: You are directed by the CRSS to remove N-44 from service IAW OWP-011, NI-4.

Time Critical Task: NO

Validation Time: 10 minutes

SIMULATOR SETUP

1. IC # 616.
2. SCN: 006_JPM_S6.
3. QP RO at RO ERFIS terminal and QP BOP at BOP ERFIS terminal.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Remove NI-44 from ERFIS scan: **NIN0044A REMOVED**

Standard: NI-44 removed from ERFIS scan.

Examiner's Note: **Removal from scan can be performed by the following actions:**

- **Select F3 = MENU on the bottom of the ERFIS screen**
- **Select ADMIN (ADMINISTRATIVE FUNCTIONS MENU)**
- **Select DR (DEL/RES POINT FROM/TO SCAN OR ALARM)**
- **Select DELETE SCAN**
- **ENTER POINT ID**

Removal from scan can be performed by the following actions:

- **If candidate knows the Turn On Code (TOC), he can type in DR and hit ENTER to go directly to the DR screen**
- **Select DELETE SCAN**
- **ENTER POINT ID**

APP-005-D6, Delta Flux Warning / Status will be received and a printout initiated for the CAOC Alarm Report. "CHANNEL #4 NOW OUT OF SERVICE with reading noted as 0000 ??"

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 2** DROPPED ROD MODE switch: **BYPASS.**

Standard: On NI-44 drawer, NI-44 DROPPED ROD MODE switch selected to BYPASS.

Examiner's Note: **APP-005-D4, NIS TRIP/DROP ROD BYPASS will alarm when a Dropped Rod Mode switch is placed in BYPASS.**
DROPPED ROD BYPASS on the NI-44 drawer front will ILLUMINATE.

Comment:

Performance Step: 3 NIS ROD DROP BYPASS NI-44 Status Light: ILLUMINATED.

Standard: The candidate observes the NIS ROD DROP BYPASS NI-44 status light on RTGB Section B is illuminated.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 4** NI-44 OUT OF SERVICE TRIP SWITCH: **TRIPPED.**

Standard: In the rear of NI-44 cabinet, the candidate positions the NI-44 OUT OF SERVICE TRIP SWITCH to the TRIPPED position. (Toggle switch in the UP position)

Examiner's Note: Operator determines that independent verification is not required due to the bistable status light is not illuminated prior to positioning the NI-44 OUT OF SERVICE TRIP SWITCH.
This trips the 108% High Flux bistable for NI-44.

Comment:

Performance Step: 5 Bistable light HI POW RANGE HI FLUX NC44R: **ILLUMINATED.**

Standard: The candidate determines that bistable light HI POW RANGE HI FLUX NC44R is illuminated on Bistable Status Panel B.

Examiner's Note: APP-005-A4, PR SINGLE CH HI RANGE ALERT will be received when bistable is actuated.
OVERPOWER TRIP HIGH RANGE light on NI-44 drawer front will illuminate

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 6** ROD STOP BYPASS switch: **BYPASS PR 44.**

Standard: On the Miscellaneous Control and Indication Panel, the candidate places the ROD STOP BYPASS switch to the BYPASS PR 44 position.

Examiner's Note:

Comment:

- * **Performance Step: 7** COMPARATOR CHANNEL DEFEAT switch: Select **PR 44.**

Standard: On the Comparator and Rate drawer, the candidate places the COMPARATOR CHANNEL DEFEAT switch to select PR 44 position.

COMPARATOR DEFEAT light illuminates on the drawer above the switch.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 8** DETECTOR CURRENT COMPARATOR Drawer:
UPPER SECTION Switch: Select PR 44.

Standard: On the Detector Current Comparator drawer, the candidate selects PR 44 with the Upper Section switch.

CHANNEL DEFEAT light for Upper Section illuminates when switch is selected out of NORMAL.

Examiner's Note:

Comment:

* **Performance Step: 9** DETECTOR CURRENT COMPARATOR Drawer:
LOWER SECTION Switch: Select PR 44.

Standard: On the Detector Current Comparator drawer, the candidate selects PR 44 with the Lower Section switch.

CHANNEL DEFEAT light for Lower Section illuminates when switch is selected out of NORMAL.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 10 NI-44 INSTRUMENT POWER FUSES: **REMOVED.**

Standard: Candidate determines that this step is not required and N/As.

Examiner's Cue: **If candidate asks, inform him that I&C personnel will deenergize the drawer after AS FOUND readings are taken.**

Examiner's Note: **This action is N/A if power is > P-10 or the reactor is in Modes 3 through 6 (ITS Table 3.3.1-1).**

Comment:

★ **Performance Step: 11** Bistable light LOW POW RANGE HI FLUX NC44P: **ILLUMINATED.**

Standard: Candidate determines that this step can be signed or N/A'd.

Examiner's Cue:

Examiner's Note: **This bistable is normally in the tripped condition (ILLUMINATED) at this power level. The candidate may sign for the step or N/A the step.**

Comment:

Terminating Cue: **N-44 has been removed from service IAW OWP-011, NI-4.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM f

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- The plant is operating at 100% RTP.
 - No equipment is out of service.
 - I&C has requested a clearance on N-44 to replace the high voltage power supply.
 - This clearance and work scope will render the N-44 input to QPTR inoperable.
 - You are the BOP operator.
 - The CRSS has completed the required pre-job briefing.
 - QPTR meets the SR 3.2.4.2 requirement.
 - Reactor Engineering has been contacted to perform a Flux Map.

INITIATING CUE: You are directed by the CRSS to remove N-44 from service IAW OWP-011, NI-4.

Facility: HB ROBINSON Task No.: 01000106705

Task Title: Respond to a Loss of CCW IAW AOP-014. JPM No.: 2008 NRC SIM g

K/A Reference: 008 K1.02 3.3/3.4
008 K3.03 4.1/4.2
026 AK3.03 4.0/4.2

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X
Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is operating at 100% power.
- No equipment is out of service.
- You are the Reactor operator.

Task Standard: AOP-014 actions taken to ensure the RCPs are not damaged.

Required Materials: AOP-014, COMPONENT COOLING WATER SYSTEM MALFUNCTION, Revision 24

General References: APP-001-A4
AOP-014, COMPONENT COOLING WATER SYSTEM MALFUNCTION, Revision 24

Handouts: None

Initiating Cue: The CRSS is involved with a security situation and has told you to take the necessary actions for any alarm conditions that might arise.

Time Critical Task: NO
2008 NRC SIM g

Validation Time: 15 minutes

SIMULATOR SETUP

1. IC # 617
2. SCN: 006_JPM_S7
3. On cue from the Chief Examiner, insert a 2000 GPM CCW piping rupture inside the CV.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Candidate refers to APP-001-A4.

Standard: Candidate observes rapidly lowering CCW Surge Tank level.

Candidate takes recommended action from APP-001-A4 and enters AOP-014, CCW System Malfunction

Examiner's Note:

Comment:

Performance Step: 2 Implement The EALs. (Step 1)

Standard: Candidate notifies supervision of EAL implementation.

Examiner's Note: Candidate is not responsible for implementing EALs

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 Make PA Announcement For Procedure Entry.

Standard: Candidate makes announcement for AOP-014 entry using the PA system.

Examiner's Note:

Comment:

* **Performance Step: 4** Go To Appropriate Section For Indicated Malfunction. (Step 2)

Standard: Candidate proceeds to Section A based on loss of CCW inventory.

Examiner's Note:

Comment:

* **Performance Step: 5** Determine if pump cavitation is occurring or imminent:

- Check Surge Tank Level < 5%.
- OR
- Check CCW Pump Discharge Pressure (Local) AND Flow -WIDE OSCILLATIONS.

Standard: Candidate determines that CCW Surge Tank is < 5% level and that pump cavitation is imminent.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 6 Check Reactor CRITICAL. (Step 2)

Standard: Candidate determines that the Reactor is critical.

Examiner's Note:

Comment:

* **Performance Step: 7** Verify the Reactor is Tripped. (Step 3)

Standard: Candidate depresses the Reactor Trip pushbutton to trip the Reactor and verify the Reactor is tripped.

Examiner's Note:

Comment:

* **Performance Step: 8** Stop ALL RCPs. (Step 4)

Standard: Candidate stops ALL Reactor Coolant Pumps using the Control switches on the RTGB.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 9 Go To PATH-1 while continuing with this procedure. (Step 5)

Standard: Candidate informs CRSS to enter PATH-1 while the Candidate continues in AOP-014.

Examiner's Cue: **Cue or acknowledge the candidate that the CRSS and the BOP will continue in PATH-1 and the RO will continue in AOP-014.**

Comment:

- * **Performance Step: 10** Lockout CCW Pumps:
- Place AND hold all CCW Pump switches in STOP position.
 - Check APP-001-F5, CCW PMP LO PRESS, ILLUMINATED.
 - Release CCW Pump Switches.

Standard: Candidate places ALL CCW pump switches to STOP and holds them while verifying APP-001-F5 is illuminated.

Examiner's Note: **The Candidate may ask and receive assistance from the BOP to hold one of the CCW Pump switches.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 11 Dispatch Operator To Perform Attachment 3, CCW Leak Search, While Continuing With Procedure. (Step 11)

Standard: Candidate contacts the AO to perform Attachment to identify the source of the leak.

Examiner's Note:

Comment:

* **Performance Step: 12** Check CV For CCW Break Using Control Room Indications. (Step 12.a)

Standard: Candidate monitors ERFIS trends and CV WATER LEVEL (White Sump Lights) and determines that CV water level has increased.

Examiner's Note: CV Water level increase from ~ 4.00 inches to 8 inches and stabilize.

Bottom white lights for CV Keyway Sump are illuminated.

Comment:

PERFORMANCE INFORMATION

★ **Performance Step: 13** Check CV location of CCW break. (Step 12.b)

Standard: Candidate determines that CCW leak is in the CV.

Examiner's Note:

Comment:

Performance Step: 14 Inform personnel performing leak search that the leak location is in the CV. (Step 12.c)

Standard: Candidate informs AO performing leak search of leak in CV.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 15 Determine RCP alarm status. (Step 13)

Standard: Candidate recognizes that:

- APP-001-B1, RCP BRG COOL WTR LO FLOW, is illuminated.
- APP-001-B3, RCP A BEARING HI TEMP, is NOT illuminated.
- APP-001-D3, RCP B BEARING HI TEMP, is NOT illuminated.
- APP-001-F3, RCP C BEARING HI TEMP, is NOT illuminated.

Examiner's Note:

Comment:

Performance Step: 16 Check Reactor CRITICAL. (Step 14)

Standard: Candidate determines that the Reactor is NOT critical.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 17 Verify Control Rods are Tripped. (Step 14.a RNO)

Standard: Candidate verifies ALL Control Rods are inserted.

Examiner's Note:

Comment:

Performance Step: 18 Stop ALL RCPs. (Step 14.b RNO)

Standard: Candidate verifies that ALL Reactor Coolant Pumps are stopped.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- ★ **Performance Step: 19** Close The Following Valves To Isolate CCW To The RCPs:
(Step 18)
- CC-716A, CCW TO RCP ISO
 - CC-716B, CCW TO RCP ISO
 - CC-730, BRG OUTLET ISO
 - CC-735, THERM BAR OUT ISO
 - FCV-626, THERM BAR FLOW CONT

Standard:

Candidate uses RTGB switches to close the following valves:

- CC-716A, CCW TO RCP ISO
- CC-716B, CCW TO RCP ISO
- CC-730, BRG OUTLET ISO
- CC-735, THERM BAR OUT ISO
- FCV-626, THERM BAR FLOW CONT

Examiner's Cue:**Comment:****Termination:**

CCW valves are closed to isolate CCW piping rupture in CV.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM g

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

- INITIAL CONDITIONS:
- The plant is operating at 100% power.
 - No equipment is out of service.
 - You are the Reactor operator.

INITIATING CUE: The CRSS is involved with a security situation and has told you to take the necessary actions for any alarm conditions that might arise.

Facility: HB ROBINSON Task No.: 01000101405

Task Title: Limit Radiation Exposure in Response to Radiation Alarm IAW AOP-005. JPM No.: 2008 NRC SIM h

K/A Reference: 072 A1.01 3.4/3.6

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing: _____

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is at 100% power.
- AOP-016, EXCESSIVE PRIMARY PLANT LEAKAGE, is being performed.
- An unscheduled Containment entry is in progress to determine the leak location.
- APP-036-L5, CV PERSONNEL HATCH DOOR OPEN, is ILLUMINATED.

Task Standard: Actions of AOP-005, Attachment 12, have been completed satisfactorily.

Required Materials: APP-036-D8, Revision 62
AOP-005, Revision 27

General References: APP-036-D8, Revision 62
AOP-005, Revision 27

Handouts: AOP-005, Revision 27

Initiating Cue: You are the Control Room Operator. Respond to plant conditions.

Time Critical Task: NO

Validation Time: 12 minutes

SIMULATOR SETUP

1. IC # 613.
2. SCN: 006_JPM_S3.
3. Verify that the R-11/12 selector switch is in the CV position.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Locates proper procedure and required information.

Standard: Locates APP-036-D8, PROCESS MONITOR HI RAD.

Examiner's Note: RR-1 Point #11 (R-12) is in alarm.

Comment:

Performance Step: 2 Determine process channel in alarm condition.

Standard: Determines alarming channel is R-12, CV AIR AND PLANT VENT RADIOACTIVE GAS.

Examiner's Note:

Comment:

Performance Step: 3 IF the cause of the alarm is known to be the movement of radioactive material or is an expected alarm due to actions under operator control, THEN no further actions for this APP are required. (Step 1) (NO)

Standard: The cause for the alarm is not known and personnel inside the CV are currently searching for the leak source.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 4 Observe affected radiation monitor for radiation levels and evidence of short term spiking. (Step 2) (NO)

Standard: R-12 is in high alarm and no appearance of short term spiking is noted.

Examiner's Note:

Comment:

Performance Step: 5 IF short term spiking is evidenced, THEN allow the indicated level to decrease prior to performing Step 4. (Step 3)

Standard: No short term spiking is observed.

Examiner's Note:

Comment:

* **Performance Step: 6** Determine if the alarm is valid by momentarily depressing the ALARM/RESET pushbutton for R-12 monitor (Step 4.4).

Standard: Candidate depresses the RED ALARM/RESET pushbutton

Examiner's Note: **This action will cause the RED light and APP-036-D8 to extinguish.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 7 IF the alarm returns, THEN refer to AOP-005 (Step 4.5).

Standard: APP-036-D8 and the RED ALARM/RESET module on R-12 monitor returns, thus the alarm is valid.

Examiner's Note:

Comment:

Performance Step: 8 Make PA announcement for procedure entry into AOP-005 due to an R-12 alarm.

Standard: Candidate makes PA announcement for AOP-005 entry due to R-12 alarm.

Examiner's Note:

Comment:

Performance Step: 9 Use non-performed attachments listed below for Radiation Monitors in alarm.

Standard: Candidate selects Attachment 12 due to R-12 in alarm.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 10 Check R-11/12 selector switch – SELECTED TO CV (Step 1).

Standard: Candidate locates selector switch on the Radiation Monitoring Panel and checks that the switch is selected to the CV position.

Examiner's Note: **There is an illuminated white light above the switch that is labeled as CV.**

Comment:

Performance Step: 11 Check RCS temperature – Greater than 200 degrees F.

Standard: Unit is at 100% power. RCS Tavg is 575.9 degrees F.

Examiner's Note:

Comment:

Performance Step: 12 Check EOP network procedures – IMPLEMENTED.

Standard: Candidate determines that EOP procedures have NOT been implemented and proceeds to Step 5.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 13 Check personnel – IN CV. (Step 5)

Standard: Determines that personnel are presently in CV from the initial conditions.

Examiner's Note: **APP-036-L5, CV PERSONNEL HATCH DOOR OPEN, is illuminated.**

Comment:

* **Performance Step: 14** Place VLC switch to EMERG position. (Step 6)

Standard: VLC switch placed in the EMERG position.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 15** Depress and Hold CV Evacuation Horn pushbutton for 15 seconds. (Step 7)

Standard: Depresses and holds CV evacuation horn pushbutton for 15 seconds

Examiner's Note:

Comment:

- * **Performance Step: 16** Announce the following over Plant PA System:
ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL. A HIGH RADIATION ALARM HAS BEEN RECEIVED ON CV VENT PROCESS MONITOR R-12. ALL NON-ESSENTIAL PERSONNEL EVACUATE CV UNTIL FURTHER NOTICE. (Step 8)

Standard: Announces condition requiring CV evacuation, stating that alarm is on R-12.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 17 Repeat CV Evacuation announcement over PA System. (Step 9)

Standard: Candidate repeats announcement.

Examiner's Note:

Comment:

Performance Step: 18 Place VLC switch to NORM position. (Step 10)

Standard: Returns VLC switch to NORM position.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 19 Check Containment Ventilation Isolation valves closed. (Step 11)

Standard: Determines Containment Ventilation Isolation valves closed by valve position indication and/or status lights.

Examiner's Note: **Containment Ventilation Isolation Panel Status Lights will be pink with valves in the proper position.**

Individual valves can be observed on the RTGB for position indication.

Amber lights lit for the CV Ventilation Isolation Signal Relay V-1 and V-2 on the bottom of the Radiation Monitoring Panel.

CV Purge valves V12-6, V12-7, V12-8, V12-9

CV Pressure Reliefs V12-10, V12-11

CV Vacuum Reliefs V12-12, V12-13

Comment:

* **Performance Step: 20** Place the following CV IODINE REMOVAL FAN control switches to PREPURGE position: HVE-3 and HVE-4. (Step 12)

Standard: Places switches for HVE-3 and HVE-4 to PREPURGE position and verifies proper operation by fan and damper indication.

Examiner's Note: **RTGB indications for HVE-3 and 4: Fans ON by RED lights illuminated and PREPURGE aligned by YELLOW lights illuminated.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 21 Request RC to perform a background radiation check at Radiation Monitors R-11 and R-12. (Step 13)

Standard: Contacts RC personnel to perform background checks at the radiation monitors.

Examiner's Cue: **RC personnel will perform background radiation checks at R-11 and R-12.**

Comment:

Performance Step: 22 Determine if Primary System leakage is occurring. (Step 14)

Standard: Determines that leakage is occurring.

Examiner's Note: **Initial conditions stated entry had been made into AOP-016 to determine the location of the RCS leakage.**

Comment:

Performance Step: 23 Go To the Main Body, Step 1b, of this procedure. (Step 16)

Standard: Proceeds to Main Body, Step 1b, of AOP-005.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 24 Use non-performed attachments listed below for radiation monitors in alarm – NONE to be addressed.

Standard: R-12 attachment has already been addressed and there are no other Radiation monitors in alarm, thus none are remaining to be addressed.

Examiner's Note:

Comment:

Performance Step: 25 Implement the EALs. (Main Body, Step 2)

Standard: Informs the SSO of the need to implement the EALs.

Examiner's Note: **SSO acknowledges the information provided.**

Comment:

END OF TASK

Termination: **AOP-005 actions for an R-12 alarm have been completed.**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC SIM h

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The plant is at 100% power.
- AOP-016, EXCESSIVE PRIMARY PLANT LEAKAGE, is being performed.
- An unscheduled Containment entry is in progress to determine the leak location.
- APP-036-L5, CV PERSONNEL HATCH DOOR OPEN, is ILLUMINATED.

INITIATING CUE:

You are the Control Room Operator. Respond to plant conditions.

Facility: HB ROBINSON Task No.: 01311100906

Task Title: Trip the Reactor from the Rod Drive MG Set Room JPM No.: 2008 NRC In-Plant i

K/A Reference: 029 EA1.11 3.9/4.1
029 EA1.12 4.1/4.0

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____
Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- You are the Inside AO.
- Plant is operating at 100% RTP.
- The Reactor cannot be tripped from the Control Room.
- FRP-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, is being implemented.

Task Standard: BOTH Rod Drive Motor Generator Circuit Breakers "A" and "B" are opened locally.

Required Materials: FRP-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, Rev. 17.

General References: FRP-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, Rev. 17.

Initiating Cue: The CRSS directs you to the Rod Drive MG Set Room to trip the following breakers: Reactor Trip Breakers "A" and "B" and Rod Drive Motor Generator "A" and "B" Circuit Breakers.

Time Critical Task: YES

Validation Time: 5 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

EXAMINER'S NOTE: FRP-S.1, Steps 1 and 2 are immediate action steps and the AOs would be expected to execute these steps from memory without procedure in hand.

These immediate action steps are represented by Steps 1, 2, 3 and 4 of this JPM, thus Steps 1 through 4 are time critical steps.

START TIME: _____ TIME CRITICAL START TIME: _____

Performance Step: 1 Trip Reactor Trip Breaker "A".

Standard: Simulates tripping Reactor Trip Breaker "A" by depressing the trip button in the center of the breaker.

Examiner's Note: As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window.

Examiner's Cue: After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker trip pushbutton in the center of the cubicle door has been pressed and the breaker RED CLOSED flag remains in the breaker's status window.

Comment:

PERFORMANCE INFORMATION

- Performance Step: 2** Trip Reactor Trip Breaker "B".
- Standard:** Simulates tripping Reactor Trip Breaker "B" by depressing the trip button in the center of the breaker.
- Examiner's Note:** As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window.
- Examiner's Cue:** **After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker trip pushbutton in the center of the cubicle door has been pressed and the breaker RED CLOSED flag remains in the breaker's status window.**
- Comment:**

PERFORMANCE INFORMATION

★ **Performance Step: 3** Trip Motor Generator “A” Circuit Breaker.

Standard: Simulates tripping Motor Generator “A” Circuit Breaker.

Examiner’s Note: As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window or indication on the MG Set panel has the RED light illuminated and the GREEN light extinguished.

BOTH Motor Generator Circuit Breakers “A” and “B” must be tripped locally for a success path in this JPM.

Examiner’s Cue: After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker trip pushbutton in the center of the cubicle door has been pressed and the breaker OPEN GREEN flag has appeared in the breaker’s status window. Noise was heard as the breaker re-positioned.

OR

The operator may choose to trip the breaker with the pistol grip switch on the MG Set panel. After locating and describing how the breaker would be tripped using the pistol grip switch, inform the candidate that the pistol grip switch has been taken to the TRIP position and the RED light is extinguished and the GREEN light is illuminated. Noise was heard as the breaker re-positioned.

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 4** Trip Motor Generator "B" Circuit Breaker.

Standard: Simulates tripping Motor Generator "B" Circuit Breaker.

Examiner's Note: As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window or indication on the MG Set panel has the RED light illuminated and the GREEN light extinguished.

BOTH Motor Generator Circuit Breakers "A" and "B" must be tripped locally for a success path in this JPM.

Examiner's Cue: After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker trip pushbutton in the center of the cubicle door has been pressed and the breaker OPEN GREEN flag has appeared in the breaker's status window. Noise was heard as the breaker re-positioned.

OR

The operator may choose to trip the breaker with the pistol grip switch on the MG Set panel. After locating and describing how the breaker would be tripped using the pistol grip switch, inform the candidate that the pistol grip switch has been taken to the TRIP position and the RED light is extinguished and the GREEN light is illuminated. Noise was heard as the breaker re-positioned.

Comment:

TIME CRITICAL STOP TIME: _____

PERFORMANCE INFORMATION

Performance Step: 5 Inform the Control Room that Motor Generator "A" and "B" Circuit Breakers have been tripped open and that Reactor Trip Breakers "A" and "B" would NOT open.

Standard: Contacts the Control Room and reports that Motor Generator "A" and "B" Circuit Breakers have been tripped open and that Reactor Trip Breakers "A" and "B" would NOT open.

Examiner's Cue: **As the CRSS, acknowledge the candidate's report.**

Examiner's Note:

Comment:

END OF TASK

Termination: Rod Drive MG Set Circuit Breakers "A" and "B" are tripped open.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC IP i

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- You are the Inside AO.
- Plant is operating at 100% RTP.
- The Reactor cannot be tripped from the Control Room.
- FRP-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, is being implemented.

INITIATING CUE:

The CRSS directs you to the Rod Drive MG Set Room to trip the following breakers: Reactor Trip Breakers "A" and "B" and Rod Drive Motor Generator "A" and "B" Circuit Breakers.

Facility: HB ROBINSON Task No.: 04010100101

Task Title: Energize PZR Heaters from Emergency Busses (Turbine Building Actions) IAW EPP-21. JPM No.: 2008 NRC In-Plant j

K/A Reference: 027 AA1.05 3.3/3.2
056 AA1.21 3.3/3.3

Examinee: NRC Examiner:
Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____
Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant has experienced a loss of offsite AC power.
- EOP Network has been implemented.
- EPP-4, REACTOR TRIP RESPONSE, has directed the implementation of EPP-21, ENERGIZING PRESSURIZER HEATERS FROM EMERGENCY BUSSES.
- You are the Outside AO.
- Emergency Bus E-1 is powered by EDG "A".
- You have been given Key # 69, "PZR Heater Breaker Arm Switch" and a set of large fuse pullers.
- The breakers listed in Step # 3 cannot be verified open from the RTGB.

Task Standard: Align breakers in preparation for energizing PZR Backup Heater Group A IAW EPP-21.

Required Materials: EPP-21, ENERGIZING PRESSURIZER HEATERS FROM EMERGENCY BUSSES, Rev. 15.
Key # 69
Large Fuse Pullers

General References: EPP-21, ENERGIZING PRESSURIZER HEATERS FROM EMERGENCY BUSSES, Rev. 15.

Initiating Cue: The CRSS has directed you to perform the Turbine Building actions required to energize PZR Heaters from the emergency bus in accordance with EPP-21, Steps 3 through 6.

Time Critical Task: NO

Validation Time: 20 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

Performance Step: 1 Obtain a copy of the appropriate procedure.

Standard: Candidate obtains copy of EPP-21 from the IAO office, WCC, Control Room or other valid location.

Examiner's Note:

Examiner's Cue: When candidate states they need to obtain a copy of EPP-21, ask him where to locate one. If correct, provide him with a copy of EPP-21.

Comment:

* **Performance Step: 2** Verify OPEN SST-2A TO 480V SYSTEM BKR 52/1B. (Step 3, First Bullet)

Standard: Breaker 52/1B opened by depressing the trip pushbutton in the center of the breaker cubicle door.

Examiner's Note: As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window.

Examiner's Cue: After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker trip pushbutton in the center of the cubicle door has been pressed and the breaker OPEN GREEN flag has appeared in the breaker's status window. Noise was heard as the breaker re-positioned.

Comment:

PERFORMANCE INFORMATION

Performance Step: 3	Verify OPEN 480V BUS 1 MAIN BKR 52/2B. (Step 3, Second Bullet)
Standard:	Breaker 52/2B opened by depressing the trip pushbutton in the center of the breaker cubicle door.
Examiner's Note:	As Found position of the breaker is OPEN with GREEN OPEN flag in the breaker status window.
Examiner's Cue:	Breaker indicates OPEN with GREEN flag in breaker status window.
Comment:	
Performance Step: 4	Verify OPEN 480V BUS 1-2A TIE BKR 52/5B. (Step 3, Third Bullet)
Standard:	Breaker 52/5B opened by depressing the trip pushbutton in the center of the breaker cubicle door.
Examiner's Note:	As Found position of the breaker is OPEN with GREEN OPEN flag in the breaker status window.
Examiner's Cue:	Breaker indicates OPEN with GREEN flag in breaker status window.
Comment:	

PERFORMANCE INFORMATION

Performance Step: 5 Verify OPEN 480V BUS E1 MAIN BKR 52/18B. (Step 3, Fourth Bullet)

Standard: Breaker 52/18B opened by depressing the trip pushbutton located in the center of the breaker cubicle door.

Examiner's Note: As Found position of the breaker is OPEN with GREEN OPEN flag in the breaker status window.

Examiner's Cue: **Breaker indicates OPEN with GREEN flag in breaker status window.**

Comment:

Performance Step: 6 Obtain the following: (Step 4)

- Key # 69 to PZR HEATER BKR ARM SWITCH
- Large Fuse Pullers

Standard: Obtain the key and large fuse pullers.

Examiner's Note: Key and large fuse pullers were obtained during the initial conditions.

Examiner's Cue: **Ensure that the candidate is clear that the initial conditions provided the necessary materials.**

Comment:

NOTE: 4160V Breaker 52/13 is locally opened by rotating the switch counterclockwise to the TRIP position and then pulled out to lock.

PERFORMANCE INFORMATION

- ★ **Performance Step: 7** Locally open and Pull-To-Lock STATION SERVICE TRANSFORMER 2A and 2F BKR 52/13 (4160V Bus 2, CMPT-13). (Step 5)
- Standard:** Breaker 52/13 opened by turning the breaker control switch counterclockwise to the TRIP position and placed in Pull-To-Lock (Located on 4160V Bus 2, CMPT-13).
- Examiner's Note:** As Found position of the breaker is CLOSED with RED CLOSED indicator light illuminated on the breaker cubicle door.
If candidate decides to look at the breaker by opening the cubicle door, the as found position of the breaker is CLOSED with RED CLOSED flag on the breaker status window.
- Examiner's Cue:** **After the candidate locates and describes / simulates how the breaker would be tripped open, inform the candidate the breaker control switch has been rotated counterclockwise and the RED CLOSED indicator has extinguished and the GREEN OPEN indicator has illuminated. Noise was heard as the breaker re-positioned.**
- Comment:**

PERFORMANCE INFORMATION

- ★ **Performance Step: 8** Perform the following: (Step 6)
- a. Locally verify the following breakers at 480V Bus 1 – OPEN
 - Pressurizer Heater Backup Group A (CMPT-2C)
 - Feed to MCC-1 (CMPT-3A)
 - CV Polar Crane Power Supply (CMPT-3B)
 - Feed to PP-63 (CMPT-3C)
 - Construction Facilities Main Disconnect (CMPT-4B)
 - Spent Fuel Pit Cooling Pump B (CMPT-4C)
 - Condenser Vacuum Pump A (CMPT-5C)
 - b. Remove breaker control power fuses from Condenser Vacuum Pump A. (CMPT-5C)

Standard:

- a. All 480V Bus 1 breakers verified OPEN by checking for GREEN OPEN indication or by depressing the TRIP pushbutton in the center of the breaker cubicle door to place the breaker in the OPEN position.
- b. Breaker door is opened and control power fuses are removed from Condenser Vacuum Pump A. (CMPT-5C)

Examiner's Note:

As Found position of the following breakers is CLOSED with RED CLOSED indicator light illuminated on the breaker cubicle door:

- Feed to MCC-1 (CMPT-2C)
- Feed to PP-63 (CMPT-3C)
- Construction Facilities Main Disconnect (CMPT 4B)

The remaining breaker positions may be OPEN or CLOSED, depending on whether they were operating for plant needs at the time of the loss of power.

PERFORMANCE INFORMATION

- Examiner's Cue:**
- a. When the breakers are located, and the candidate has simulated pushing the TRIP pushbutton, inform the candidate that GREEN OPEN indication is visible.
 - b. Once the candidate has determined and identified the proper 480V breaker cubicle to remove the control power fuses, present him with the breaker cubicle picture and allow him to identify the fuses and the removal process. When the fuses are identified, inform the candidate that they are removed.

Comment:

Performance Step: 9 Inform the CRSS that the Turbine Building actions of EPP-21, Steps 3 through 6 have been completed as directed.

Standard: Candidate contacts the Control Room and informs the CRSS that the Turbine Building portions of EPP-21 have been completed as directed.

Examiner's Note:

Examiner's Cue: CRSS acknowledges the report.

Comment:

END OF TASK

Termination: EPP-21 Steps 3 through 6 have been completed as directed.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC IP j

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- The plant has experienced a loss of offsite AC power.
- EOP Network has been implemented.
- EPP-4, REACTOR TRIP RESPONSE, has directed the implementation of EPP-21, ENERGIZING PRESSURIZER HEATERS FROM EMERGENCY BUSES.
- You are the Outside AO.
- Emergency Bus E-1 is powered by EDG "A".
- You have been given Key # 69, "PZR Heater Breaker Arm Switch" and a set of large fuse pullers.
- The breakers listed in Step # 3 cannot be verified open from the RTGB.

INITIATING CUE:

The CRSS has directed you to perform the Turbine Building actions required to energize PZR Heaters from the emergency bus in accordance with EPP-21, Steps 3 through 6.

Facility: HB ROBINSON Task No.: 04064100901

Task Title: Manually Start EDG Using Air Start Solenoids JPM No.: 2008 NRC In-Plant k

K/A Reference: 064 A3.01 4.1/4.0
056 AK3.02 4.4/4.7
056 AA2.14 4.4/4.6

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____
Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- You are the Inside AO.
- The unit has experienced a total loss of onsite and offsite power.
- EPP-1, LOSS OF ALL AC POWER, has been implemented.
- Emergency Diesel Generator "B" is out of service for scheduled maintenance to replace the fuel oil filters.
- Emergency Diesel Generator "A" failed to start.

Task Standard: Start EDG "A" locally and energize 480V Bus E-1

Required Materials: EPP-1, Revision 38

General References: EPP-1, Revision 38

Initiating Cue: The CRSS has dispatched you to perform EPP-1, starting at Step 10.b. RNO.

Time Critical Task: NO

Validation Time: 12 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

* **Performance Step: 1** Place the EDG Control Switch in the LOCAL position.

Standard: Candidate locates and simulates placing the EDG "A" LOCAL / REMOTE CONTROL switch in the LOCAL position.

Examiner's Cue: EDG "A" LOCAL / REMOTE CONTROL switch is rotated to the LOCAL position and the Local Control WHITE light is ILLUMINATED.

Comment:

* **Performance Step: 2** Depress the Local Engine START pushbutton.

Standard: Candidate simulates depressing the Local Engine START pushbutton on the EDG "A" Engine Control Panel.

Examiner's Cue: EDG "A" does NOT start.

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 3** If the affected EDG did NOT start from the Engine Control Panel, Then perform the following at the EDG Hand Start valves:
Remove the locking pin from the Hand Start valves Lock Bar and remove the Lock Bar.

Standard: Candidate simulates removing the locking pin from the Hand Start valves Lock Bar and removing the Lock Bar from valves DA-41 and DA-42.

Examiner's Cue: Locking pin from the Hand Start valves Lock Bar is removed and the Lock Bar from valves DA-41 and DA-42 is removed.

Comment:

* **Performance Step: 4** If the affected EDG did NOT start from the Engine Control Panel, Then perform the following at the EDG Hand Start valves:
Pull down and hold either of the EDG Hand Start valves until the EDG starts:

- DA-41
- DA-42

Standard: Candidate selects one of the Hand Start valves and simulates pulling down on the handle until the EDG starts.

Examiner's Cue: EDG "A" has started and is running at 900 RPM.

Comment:

PERFORMANCE INFORMATION

Performance Step: 5 If either EDG has started, Then Go To Step 11.

Standard: EDG "A" started and candidate proceeds to Step 11.

Examiner's Note:

Comment:

Performance Step: 6 Check either Emergency Bus E-1 or E-2 – ENERGIZED.

Standard: Candidate observes indication on the EDG "A" Generator Control Panel and notes that 480V Bus E-1 is NOT energized.

Examiner's Cue: **GENERATOR AC VOLTS indicates 480 Volts.**
EMERGENCY BUS AC VOLTS indicates 0 Volts.
NORMAL BUS AC VOLTS INDICATES 0 Volts.
GENERATOR HERTZ indicates 60 Hz.
If candidate requests information from the Control Room,
inform him that neither Emergency Bus is energized.

Comment:

PERFORMANCE INFORMATION

Performance Step: 8 If either Emergency Bus is energized, Then Go To Step 12.

Standard: 480V Bus E-1 is energized at ~ 480 Volts with EDG "A" supplying the bus.

Examiner's Cue: Inform the candidate that EMERGENCY BUS AC VOLTS indicates 480 Volts and that Emergency Bus E-1 is energized.

Comment:

END OF TASK

Termination: EDG "A" started and 480V Bus E-1 energized.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC IP k

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- You are the Inside AO.
- The unit has experienced a total loss of onsite and offsite power.
- EPP-1, LOSS OF ALL AC POWER, has been implemented.
- Emergency Diesel Generator "B" is out of service for scheduled maintenance to replace the fuel oil filters.
- Emergency Diesel Generator "A" failed to start.

INITIATING CUE:

The CRSS has dispatched you to perform EPP-1, starting at Step 10.b. RNO.

Facility: HB ROBINSON Task No.: 04064100901

Task Title: Manually Start EDG Using Air Start Solenoids JPM No.: 2008 NRC In-Plant k

K/A Reference: 064 A3.01 4.1/4.0
056 AK3.02 4.4/4.7
056 AA2.14 4.4/4.6

Examinee: _____ NRC Examiner: _____
 Facility Evaluator: _____ Date: _____
 Method of testing: _____

Simulated Performance: X Actual Performance: _____
 Classroom _____ Simulator _____ Plant X

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- You are the Inside AO.
 - The unit has experienced a total loss of onsite and offsite power.
 - EPP-1, LOSS OF ALL AC POWER, has been implemented.
 - Emergency Diesel Generator "B" is out of service for scheduled maintenance to replace the fuel oil filters.
 - Emergency Diesel Generator "A" failed to start.

Task Standard: Start EDG "A" locally and energize 480V Bus E-1

Required Materials: EPP-1, Revision 38

General References: EPP-1, Revision 38

Initiating Cue: The CRSS has dispatched you to perform EPP-1, starting at Step 10.b. RNO.

Time Critical Task: NO

Validation Time: 12 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

- * **Performance Step: 1** Place the EDG Control Switch in the LOCAL position.

Standard: Candidate locates and simulates placing the EDG "A" LOCAL / REMOTE CONTROL switch in the LOCAL position.

Examiner's Cue: EDG "A" LOCAL / REMOTE CONTROL switch is rotated to the LOCAL position and the Local Control WHITE light is ILLUMINATED.

Comment:

- * **Performance Step: 2** Depress the Local Engine START pushbutton.

Standard: Candidate simulates depressing the Local Engine START pushbutton on the EDG "A" Engine Control Panel.

Examiner's Cue: EDG "A" does NOT start.

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 3** If the affected EDG did NOT start from the Engine Control Panel, Then perform the following at the EDG Hand Start valves:
Remove the locking pin from the Hand Start valves Lock Bar and remove the Lock Bar.

Standard: Candidate simulates removing the locking pin from the Hand Start valves Lock Bar and removing the Lock Bar from valves DA-41 and DA-42.

Examiner's Cue: Locking pin from the Hand Start valves Lock Bar is removed and the Lock Bar from valves DA-41 and DA-42 is removed.

Comment:

* **Performance Step: 4** If the affected EDG did NOT start from the Engine Control Panel, Then perform the following at the EDG Hand Start valves:
Pull down and hold either of the EDG Hand Start valves until the EDG starts:

- DA-41
- DA-42

Standard: Candidate selects one of the Hand Start valves and simulates pulling down on the handle until the EDG starts.

Examiner's Cue: EDG "A" has started and is running at 900 RPM.

Comment:

PERFORMANCE INFORMATION

Performance Step: 5 If either EDG has started, Then Go To Step 11.

Standard: EDG "A" started and candidate proceeds to Step 11.

Examiner's Note:

Comment:

Performance Step: 6 Check either Emergency Bus E-1 or E-2 – ENERGIZED.

Standard: Candidate observes indication on the EDG "A" Generator Control Panel and notes that 480V Bus E-1 is NOT energized.

Examiner's Cue: **GENERATOR AC VOLTS indicates 480 Volts.**
EMERGENCY BUS AC VOLTS indicates 0 Volts.
NORMAL BUS AC VOLTS INDICATES 0 Volts.
GENERATOR HERTZ indicates 60 Hz.
If candidate requests information from the Control Room, inform him that neither Emergency Bus is energized.

Comment:

PERFORMANCE INFORMATION

Performance Step: 8 If either Emergency Bus is energized, Then Go To Step 12.

Standard: 480V Bus E-1 is energized at ~ 480 Volts with EDG "A" supplying the bus.

Examiner's Cue: **Inform the candidate that EMERGENCY BUS AC VOLTS indicates 480 Volts and that Emergency Bus E-1 is energized.**

Comment:

END OF TASK

Termination: EDG "A" started and 480V Bus E-1 energized.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC IP k

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- You are the Inside AO.
- The unit has experienced a total loss of onsite and offsite power.
- EPP-1, LOSS OF ALL AC POWER, has been implemented.
- Emergency Diesel Generator "B" is out of service for scheduled maintenance to replace the fuel oil filters.
- Emergency Diesel Generator "A" failed to start.

INITIATING CUE:

The CRSS has dispatched you to perform EPP-1, starting at Step 10.b. RNO.