

Facility: HB ROBINSON Task No.: 01006100101

Task Title: Fill a Safety Injection Accumulator IAW JPM No.: 2008 NRC JPM S1
OP-202.

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: _____

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.: 01000102805

Task Title: Perform a Post LOCA Cooldown and
Depressurization IAW EPP-8. JPM No.: 2008 NRC JPM S2

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

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.

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.

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.

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 JPM S2

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.: 01000101405

Task Title: Limit Radiation Exposure in Response to Radiation Alarm IAW AOP-005. JPM No.: 2008 NRC JPM S3

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.
- APP-036-D8, PROCESS MONITOR HI RAD, has just alarmed.

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 to respond to the Process monitor radiation alarm in accordance with APP-036-D8.

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.
4. Acknowledge RR-1 alarm on R-12 and APP-036-D8.

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 JPM S3

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.
 - APP-036-D8, PROCESS MONITOR HI RAD, has just alarmed.

INITIATING CUE: You are to respond to the Process monitor radiation alarm in accordance with APP-036-D8.

Facility: HB ROBINSON Task No.: 01003100201

Task Title: Start a Reactor Coolant Pump IAW OP-101. JPM No.: 2008 NRC JPM S4

K/A Reference: 003 K6.14 2.6/2.9
003 A4.02 2.9/2.9

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 in Mode 3 at 547 degrees F.
- Reactor Coolant Pump "B" was stopped 2 hours ago to replace the vibration probe on the shaft.
- Maintenance has been completed and RCP "B" is ready to be started.

Task Standard: RCP "B" started

Required Materials: OP-101, Section 8.1

General References: OP-101, Section 8.1

Handouts: OP-101, Section 8.1

Initiating Cue: You are directed by the CRSS to start RCP "B" IAW OP-101, Section 8.1.

Time Critical Task: NO

Validation Time: 25 minutes

SIMULATOR SETUP

1. IC # 614.
2. SCN: 006_JPM_S4.
3. OP-101 signed off through Step 8.1.1.2.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

START TIME: _____

- Performance Step: 1** Verify OPEN the No. 1 Seal leakoff valve for each RCP:
- CVC-303A, SEAL LKOFF
 - CVC-303B, SEAL LKOFF
 - CVC-303C, SEAL LKOFF

Standard: Seal leakoff valves CVC-303A/B/C verified open.

Comment:

- Performance Step: 2** Verify seal injection flow to each RCP is between 8 and 13 gpm.

Standard: Inside AO contacted to verify that seal injection flow to each RCP is between 8 and 13 gpm as indicated on FI-124, 127, 130.

Examiner's Note: FI-124, 127, 130 are located in the Charging Pump Room as local indications only.

Booth Operator Cue: **Using Remote Function CVC031, valve CVC-297B will have to be adjusted open to ensure that 8-13 GPM seal injection flow is established.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 Verify thermal barrier labyrinth seal differential pressure is greater than or equal to 5 inches water column.

Standard: Thermal barrier differential pressure is greater than 5 inches water column as indicated on PI-128A.

Examiner's Note:

Comment:

Performance Step: 4 If any No. 1 seal leakoff flow is less than 1 gpm and RCS pressure is between 100 and 1000 psig, Then open CVC-307, PRI SEAL BYP ISO.

Standard: Step will be N/A'd. RCS is at 547 degrees F and 2235 psig with all No. 1 seal leakoff flows greater than 1 gpm.

Examiner's Cue:

Comment:

Performance Step: 5 Check that the maximum starting limits of Section 5.2.2 will not be exceeded.

Standard: RCP has been secured for 2 hours and is within the starting duty limitations for the RCP to be started.

Comment:

PERFORMANCE INFORMATION

Performance Step: 6 Check the associated RCP STP HI and RCP STP LO alarms are not illuminated on the 2X2 Status Light Panel.

Standard: Candidate checks that none of the RCP standpipe level alarms are illuminated.

Examiner's Note: Any RCP Standpipe High or Low alarms will cause APP-001-C5 to actuate. Absence of this alarm supports that no standpipe alarms exist.

Comment:

Performance Step: 7 Check the status of the associated RCP Oil Reservoir level annunciator: APP-001-E8, RCP B OIL RESERV HI/LO LVL extinguished / alarmed.

Standard: APP-001-E8 is extinguished.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 8 If RCP Oil Reservoir level annunciator is NOT EXTINGUISHED, Then refer to the appropriate Annunciator Procedure while continuing with this procedure.

Standard: This step is N/A'd. APP-001-E8 is extinguished.

Examiner's Note:

Comment:

Performance Step: 9 Verify No. 1 seal differential pressure is greater than 210 psid.

Standard: Candidate determines that No. 1 seal differential pressure as indicated on PI-155A is greater than 400 psid (Indication on RTGB is pegged high).

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 10** Determine minimum acceptable No. 1 seal leakoff flow as follows:
- If No. 1 seal differential pressure is greater than 400 psid, Then calculate No. 1 seal differential pressure.
RCP "B" _____ - _____ = _____ psid.
RCS Press VCT Press Seal DP
 - If No. 1 seal differential pressure is an even multiple of 50, Then record the value.
RCP "B": _____ psid
 - If No. 1 seal pressure is NOT an even multiple of 50, then round the seal differential pressure up to the next highest multiple of 50 and record the value.
RCP "B" : _____ psid

Standard: Data obtained and calculated based on RTGB indications.

Examiner's Note: RCS pressure can be obtained from PT-402 indicator on the RTGB, PR-444 Pen #2 and should be read as ~ 2240 psig.
VCT Pressure can be obtained from PI-117 on the RTGB and should be read as ~ 29 psig.

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 11** Record the No. 1 seal minimum leakoff flow from Table 2 that corresponds to the No. 1 seal differential pressure recorded above.

- RCP "B" minimum leakoff flow: _____ gpm.

Standard: Table 2 should be read with a seal dp of ~ 2250 psid. This should correspond to a minimum seal leakoff flow of ~ 1.0 gpm.

Examiner's Note: All RCP seal leakoff flows are greater than 1.0 gpm.

Comment:

- Performance Step: 12** Check the indicated No. 1 seal leakoff flow is greater than or equal to the minimum value recorded above and less than or equal to 6 gpm.

Standard: RCP "B" seal leakoff flow meets all of the minimum flow requirements and is currently reading ~ 2.50 gpm.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 13** Verify VCT pressure is greater than 15 psig.

Standard: VCT pressure will be checked by observing PI-117 on the RTGB and determined to be at ~29 psig.

Examiner's Note:

Comment:

Performance Step: 14 If RCS pressure is less than 400 psig, then verify VCT pressure is less than 30 psig.

Standard: Step will be N/A'd. RCS pressure is at 2235 psig.

Examiner's Note:

Comment:

Performance Step: 15 If RCS temperature is greater than 400 degrees F, then verify VCT temperature is between 60 and 130 degrees F.

Standard: VCT temperature is observed on TI-116 and determined to be at 95 degrees F.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 16 If RCS temperature is less than or equal to 400 degrees F, then verify VCT temperature is between 60 and 150 degrees F.

Standard: Step will be N/A'd. RCS temperature is at 547 degrees F.

Examiner's Note:

Comment:

Performance Step: 17 Check CCW temperature within the required range as follows:

- If RCS Cold Leg temperature is less than or equal to 350 degrees F, Then verify CCW Heat Exchanger Outlet temperature is 44 to 125 degrees F

Standard: Step will be N/A'd. Determines that RCS Cold Leg temperature is 547 degrees F.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- Performance Step: 18** Check CCW temperature within the required range as follows:
- IF RCS Cold Leg temperature is greater than 350 degrees F and less than or equal to 475 degrees F, THEN verify CCW Heat Exchanger Outlet temperature is 44 to 105 degrees F

Standard: Step will be N/A'd. Determines that RCS Cold Leg temperature is 547 degrees F.

Examiner's Note:

Comment:

- * **Performance Step: 19** Check CCW temperature within the required range as follows:
- IF RCS Cold Leg temperature is greater than 475 degrees F, THEN verify CCW Heat Exchanger Outlet temperature is 45 to 105 degrees F

Standard: Determines that RCS Cold Leg temperature is 547 degrees F and CCW Heat Exchanger Outlet temperature on TI-607 is ~ 63 degrees F.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 20** Check the following bearing temperatures are within limits:
1. Upper Thrust Bearing – Less than 185 degrees F.
 2. Lower Thrust Bearing – Less than 185 degrees F.
 3. Upper Guide Bearing – Less than 185 degrees F.
 4. Lower Guide Bearing – Less than 185 degrees F.
 5. Pump Bearing – Less than 175 degrees F.

Standard: Determines that all RCP bearing temperatures are within the specified limits.

Examiner's Note: Bearing temperatures can be obtained from RCP Temperature Recorder TR-448, Points 9, 10, 11, 12 and 14 or from ERFIS GD RCP LOG.

All temperatures were noted between 65 – 95 degrees F.

Comment:

- * **Performance Step: 21** Check Stator Winding temperature less than 248 degrees F.

Standard: Determines that RCP stator winding temperature is within the specified limits.

Examiner's Note: Stator winding temperature for RCP "B" is obtained from RCP Temperature Recorder TR-448, Point #13 and was noted at 112 degrees F.

Comment:

PERFORMANCE INFORMATION

Performance Step: 22 If the RCP is going to be operated continuously, and the RCS is below 400 psig, Then verify the LPMS switch on the RTGB is in the NORM position and the system is aligned IAW OP-007.

Standard: Step will be N/A'd. Determines that RCS pressure is at 2235 psig.

Examiner's Note:

Comment:

Performance Step: 23 If this procedure has been directed by the EOP network, Then the following step is not required.

Standard: Step will be N/A'd. Procedure has not been directed by the EOP network.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 24** Verify personnel are stationed to monitor the Digital Metal Impact Monitoring System (Loose Parts Monitor).

Standard: Determines that personnel are stationed at the LPMS cabinet to monitor the system.

Examiner's Cue: **Personnel are stationed at the LPMS cabinet for monitoring the system.**

Comment:

- * **Performance Step: 25** Notify Security and I&C that a RCP will be started and that the Security UPS Inverter may trip. Also, notify Load Dispatcher that perturbation may be seen on the grid.

Notifies Security, I&C and Load Dispatcher.

Standard: Notification made to Security, I&C and Load Dispatcher.

Examiner's Cue: **Acknowledge candidate that notifications have been made to the appropriate personnel.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 26 If this procedure has been directed by the EOP network, Then the following step is not required.

Standard: Step will be N/A'd. This procedure has not been implemented by the EOP network.

Examiner's Note:

Comment:

Performance Step: 27 If the RCP is going to be operated continuously, Then place the RCP-SPACE HEATER-SW control switch in the OFF position.

Standard: Contacts Inside AO to place the RCP Space Heater control switch to the OFF position.

Examiner's Note: RCP Space Heater switch is located in the Rod Control Room.

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 28** If degraded grid protection is in service, Then defeat the degraded grid voltage protection as follows:
1. On the front of Bus E-1, Cubicle 18A, install key in the DEGRADED GRID VOLTAGE keylock switch and place in the DEFEAT position.
 2. Verify annunciator APP-010-F5, DEGRADED GRID E-1 PROT BYPD, is ILLUMINATED.
 3. On the front of Bus E-2, Cubicle 28A, install key in the DEGRADED GRID VOLTAGE keylock switch and place in the DEFEAT position.
 4. Verify annunciator APP-010-F6, DEGRADED GRID E-2 PROT BYPD, is ILLUMINATED.

Standard: Contacts Outside AO to obtain the keys and defeat Degraded Grid Voltage Protection on 480V Busses E-1 and E-2.

Candidate will acknowledge APP-010-F5 and F-6 as each of the emergency busses are defeated.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 29** Start the BRG LIFT PUMP and verify the LIFT PRESSURE light ILLUMINATES.

Standard: Candidate places the BRG LIFT PUMP B control switch for RCP "B" to start and observes RED operating light and WHITE LIFT PRESSURE light illuminated.

Examiner's Note: APP-001-D2 may flash in and out but does not have any bearing on the JPM.

Booth Operator:

Comment:

Performance Step: 30 If RCP Oil Reservoir level annunciator is not extinguished, Then refer to the appropriate Annunciator Procedure.

Standard: Determines that no RCP Oil Reservoir alarms are illuminated and NAs Step.

Examiner's Note:

Booth Operator:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 31** When the Brg Lift Pump has operated for a minimum of 2 minutes, then start the Reactor Coolant Pump.

Standard: Candidate determines that the Brg Lift Pump has operated for at least 2 minutes and starts RCP "B" by placing the control switch to START.

Examiner's Note: RCS Flow indicators FI-424, 425 and 426 will increase to ~ 100% flow and APP-003-B5, RC LOOP 3 LO FLOW will clear when RCP is started and comes up to speed.

Booth Operator:

Comment:

- * **Performance Step: 32** WHEN a minimum of 50 seconds has elapsed since the Reactor Coolant Pump was started, THEN stop the BRG LIFT PUMP.

Standard: Candidate determines that at least 50 seconds has elapsed since the RCP was started and stops the BRG LIFT PUMP by placing the control switch to STOP.

Examiner's Note:

Booth Operator:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 33** Contact Outside AO to restore degraded grid protection for 480V Busses E-1 and E-2 to NORMAL IAW OP-101 Steps 8.1.1.2.dd and 8.1.1.2.ee.

Standard: Contacts Outside AO to restore Degraded Grid Voltage Protection on 480V Busses E-1 and E-2.

Examiner's Cue: Inform the candidate that the degraded grid protection system for 480V Busses E-1 and E-2 has been restored to NORMAL and all targets are reset.

Booth Operator: Use Remote Function commands EPSL007 and EPSL008 to restore Degraded Grid Protection system to NORMAL when requested.

Comment:

- Performance Step: 34** Verify annunciator APP-010-F5, DEGRADED GRID E-1 PROT BYPD, is EXTINGUISHED.
Verify annunciator APP-010-F6, DEGRADED GRID E-2 PROT BYPD, is EXTINGUISHED.

Standard: Candidate observes that APP-010-F5 and F6 have extinguished.

Examiner's Cue:

Booth Operator:

Comment:

END OF TASK

PERFORMANCE INFORMATION

Terminating Cue: RCP "B" has been started IAW OP-101, Section 8.1

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC JPM S4

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 in Mode 3 at 547 degrees F.
- Reactor Coolant Pump "B" was stopped 2 hours ago to replace the vibration probe on the shaft.
- Maintenance has been completed and RCP "B" is ready to be started.

INITIATING CUE:

You are directed by the CRSS to start RCP "B" IAW OP-101, Section 8.1.

Facility: HB ROBINSON Task No.: 01026100101

Task Title: Manually Initiate Containment Spray IAW PATH-1. JPM No.: 2008 NRC JPM S5

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-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.**

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:

Comment:

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

Standard: Candidate places all RCP control switches to STOP.

Examiner's Note:

Comment:

- * **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 INFORMATION

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:

END OF TASK

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

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC JPM S5

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.

Facility: HB ROBINSON Task No.: 01015100501

Task Title: Place an Excore Nuclear Instrumentation Channel in and out of service IAW OWP-011. JPM No.: 2008 NRC JPM S6

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
Hagan Rack Key #10, NI Key #16

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: **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 Step: 2** Rod Control System: MANUAL

Standard: On the RTGB, the Rod Bank Selector switch is placed in MANUAL.

Examiner's Note: To prevent spurious rod motion, Rod Control must be in MANUAL when switch 1/QM-408 is manipulated.

Comment:

PERFORMANCE INFORMATION

Performance Step: 3 1/QM-408 Switch in Hagan Rack #28: **POWER MISMATCH DEFEATED**

Standard: 1/QM-408 Switch in Hagan Rack #28 selected to DEFEAT.

Examiner's Note: When operator has determined that Key #10 is required, Inform the candidate that Power Mismatch switch 1/QM-408 Has been defeated and verified.

Booth Operator: Initiate command IRF CRF007 f:DEFEATED

Comment:

* **Performance Step: 4** 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 INFORMATION

Performance Step: 5 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 Step: 6** 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 INFORMATION

* **Performance Step: 7** 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 Step: 8** ROD STOP BYASS 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 INFORMATION

- * **Performance Step: 9** 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 Step: 10** 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 INFORMATION

- * **Performance Step: 11** 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 Step: 12 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 INFORMATION

- * **Performance Step: 13** 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:

END OF TASK

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 JPM S6

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.: 01000108505

Task Title: Respond to a Partial Loss of Condenser Vacuum IAW AOP-012. JPM No.: 2008 NRC JPM S7

K/A Reference: 075 K4.01 2.5/2.8
075 A2.02 2.5/2.7

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 50% power.
- Circulating Water Pump "C" had been out of service for maintenance and has now been returned to "Standby."
- NO radioactive liquid batch releases are in progress.
- You are the BOP operator.

Task Standard: Ensure that Circulating Water Pump "A" discharge valve is closed and plant stable.

Required Materials: OP-904, Revision 22
APP-008-D4, Revision 36
AOP-012, Revision 21

General References: OP-904, Revision 22
APP-008-D4, Revision 36
AOP-012, Revision 21

Handouts: OP-904, Revision 22
AOP-012, Revision 21

Initiating Cue: You have been directed to start Circulating Water Pump "C" IAW OP-904.

Time Critical Task: NO

Validation Time: 12 minutes

SIMULATOR SETUP

1. IC # 617.
2. SCN: 006_JPM_S7.
3. Verify Circulating Water Pumps "A" and "B" are operating and Circulating Water Pump "C" is available to start.
4. OP-904 signed off through Step 8.1.1.2.

PERFORMANCE INFORMATION

(Denote Critical Steps with an asterisk)

Performance Step: 1 IF APP-008-E6, CW PMP "C" SEAL WTR LOST is illuminated, THEN perform the following:

- Close SW-489, CW PUMP "C" MOTOR SUPPLY.
- Check APP-008-E6 EXTINGUISHED.

Standard: APP-008-E6 is Extinguished. Step will be N/A'd.

Examiner's Note:

Comment:

* **Performance Step: 2** Start CW Pump "C".

Standard: Candidate starts CW Pump "C" by placing the pump discharge valve V6-50C control switch to the OPEN position.

Examiner's Note: CW Pump will start when the discharge valve has opened to 20% open.

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 3** Verify the pump started and the discharge valve opened.

Standard: Candidate verifies that CW Pump "C" starts by observing the RED indication for breaker on 4160V Bus 5.
Candidate verifies that the discharge valve is OPEN by observing the RED OPEN indication is illuminated and the CLOSED GREEN indication is extinguished for valve V6-50C.

Examiner's Note:

Comment:

Performance Step: 4 IF SW-489 was closed, THEN open SW-489.

Standard: SW-489 remained open. Step will be N/A'd.

Examiner's Note:

Comment:

Performance Step: 5 IF APP-008-E6 illuminates, THEN perform OP-903 Section 8.4.9.

Standard: APP-008-E6 is extinguished. Step will be N/A'd.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Booth Operator: When directed by the Chief Examiner, insert malfunction IMF CWS01A to trip Circulating Water Pump "A".

* **Performance Step: 6** **IMMEDIATE ACTIONS**

Recognize and report that Circulating Water Pump "A" has tripped and perform the immediate actions of AOP-012 from memory.

Standard: Report that Circulating Water Pump "A" has tripped and discharge valve V6-50A is closing.

Examiner's Note: Valve V6-50A does not close and operator will have to place the control switch for valve to the CLOSE position.
APP-008-D4, CW PMP A MOTOR / DISCH VLV TRIP / OVLD is received when pump trips.

Comment:

* **Performance Step: 7** Obtain copy of AOP-012 and verify that the immediate actions have been completed.

Standard: Candidate performs Steps 1 and 2 of AOP-012 to ensure that immediate actions have been performed properly.

Examiner's Note: When the immediate actions have been verbalized and the operator states that he will be entering AOP-012, provide him with a copy of the procedure.

Comment:

PERFORMANCE INFORMATION

Performance Step: 8 Start any available Circulating Water Pump.

Standard: No Circulating Water Pumps are available to start.

Examiner's Note:

Comment:

Performance Step: 9 Make a PA announcement for procedure entry into AOP-012 due to the tripping of a Circulating Water Pump.

Standard: Plant PA announcement is made to alert other personnel of the change in plant conditions.

Examiner's Cue:

Comment:

Performance Step: 10 Check liquid waste batch release in progress.

Standard: Candidate determines from the initial conditions that no liquid waste batch release is in progress.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

Performance Step: 11 Check Condenser vacuum previously established.

Standard: Determines that vacuum was previously established.

Examiner's Note: Unit was operating at 50% power when the Circulating Water Pump tripped.

Comment:

* **Performance Step: 12** Check Circulating Water Pump Discharge Valve (V6-50A) completed closing.

Standard: Checks valve V6-50A closed. (GREEN indication for valve)

Examiner's Note:

Comment:

Performance Step: 13 Check plant in MODE 1 OR 2.

Standard: Determine that plant is in MODE 1.

Examiner's Note:

Comment:

PERFORMANCE INFORMATION

- * **Performance Step: 14** Check Condenser backpressure on PI-1312 and PI-1313 Approaches Restricted Region of Attachment 3, Condenser Backpressure Limit Curve.

Standard: Checks Condenser backpressure on PI-1312 and PI-1313 and determines that backpressure is being maintained < 2 inches Hg. Abs.

Examiner's Note:

Comment:

- * **Performance Step: 15** IF Condenser backpressure approaches the Restricted Region of Attachment 3, Condenser Backpressure Limit Curve THEN Go To Step 11.
Go To Step 13.

Standard: Determines that Condenser backpressure is well below the limit of the curve and proceeds through the procedure.

Examiner's Note: **Backpressure limit for the current unit load is ~ 5.5 inches Hg. Abs. Typical backpressure readings for this event were 2.65 inches Hg. Abs at the peak reading.**

Comment:

PERFORMANCE INFORMATION

Performance Step: 16 Check Condenser backpressure on PI-1310 and PI-1311 stable or decreasing.

Standard: Determines Condenser backpressure < 2 inches Hg. Abs. and is stable.

Examiner's Note:

Comment:

END OF TASK

Termination: CW Pump "A" discharge valve is closed and plant stable.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC JPM S7

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 50% power.
- Circulating Water Pump "C" had been out of service for maintenance and has now been returned to "Standby."
- NO radioactive liquid batch releases are in progress.
- You are the BOP operator.

INITIATING CUE:

You have been directed to start Circulating Water Pump "C" IAW OP-904.

Facility: HB ROBINSON Task No.: 01001100302

Task Title: Perform Rod Cluster Exercise IAW OST-011. JPM No.: 2008 NRC JPM S8

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. (Step 8.1.2)

Standard: Steps 8.1.2.1 through 8.1.2.4 will not be performed during this surveillance and will be marked as N/A.

Examiner's Cue: Inform the candidate that the Shutdown Bank A Demand Position Indications System will not be tested during this surveillance.

Comment:

Performance Step: 4 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 INFORMATION

- * **Performance Step: 5** 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: 6** 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: 7** 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: 8 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: 9** 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: 10** 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: 11** Stop withdrawal of Shutdown Bank "A" rods.

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

Examiner's Note:

Comment:

- * **Performance Step: 12** 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 JPM S8

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.: 04064100901

Task Title: Restore AC Power To 480V Bus E-1 from EDG "A" JPM No.: 2008 NRC JPM P1

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: 7** Verify the following for any running EDG:
- EMERG GEN VOLTS – APPROXIMATELY 480 VOLTS.
AND
 - BRKR 52/17B, EMERG DG A TO BUS E1 – CLOSED.
- Standard:** Candidate observes that EDG “A” GENERATOR AC VOLTS indicates ~ 480 Volts.
Candidate closes EDG “A” Output breaker at the EDG Generator Control Panel by placing EDG OUTPUT BKR 52/17B control switch to the CLOSE position.
- Examiner’s Cue:** **Indications on the EDG Generator Control panel include Generator AC Volts, Emergency Bus AC Volts and Normal Bus AC Volts.**
Inform candidate that EDG Generator AC Volts is 480 Volts.
Inform candidate that breaker 52/17B indication has the GREEN OPEN light illuminated and the RED CLOSED light extinguished when the breaker control switch is located.
Inform candidate that breaker 52/17B indication has the RED CLOSED light illuminated and the GREEN OPEN light extinguished when the breaker control switch is placed in the closed position.
Generator AC KW indicates 400 KW.
- 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 JPM P1

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.: 01311100906

Task Title: Trip the Reactor from the Rod Drive MG Set Room JPM No.: 2008 NRC JPM P2

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: Reactor Trip Breakers "A" and "B" and 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 Cue: As Found position of the breaker is **CLOSED** with **RED CLOSED** flag in the breaker status window.

After locating and describing / simulating 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 and noise was heard as the breaker re-positioned.

Examiner's Note: EITHER Trip Bkr "A" or Trip Bkr "B" (Step 2) tripped locally is a success path for this JPM.

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 Cue: **As Found position of the breaker is CLOSED with RED CLOSED flag in the breaker status window.**

After locating and describing / simulating 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 and noise was heard as the breaker re-positioned.

Examiner's Note: EITHER Trip Bkr "A" (Step 1) or Trip Bkr "B" tripped locally is a success path for this JPM.

Comment:

PERFORMANCE INFORMATION

* **Performance Step: 3** Trip Motor Generator "A" Circuit Breaker.

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

Examiner's Cue: 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.

After locating and describing / simulating 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.

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

Comment:

PERFORMANCE INFORMATION

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

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

Examiner's Cue: 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.

After locating and describing / simulating 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.

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

Comment:

TIME CRITICAL STOP TIME: _____

PERFORMANCE INFORMATION

Performance Step: 5 Inform the Control Room that all breakers have been tripped.

Standard: Contacts the Control Room and reports that Reactor Trip Breakers "A" and "B" and Motor Generator "A" and "B" Circuit Breakers have all been tripped open.

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

Examiner's Note:

Comment:

END OF TASK

Termination: Reactor Trip Breakers "A" OR "B" AND/OR Rod Drive MG Set Circuit Breakers "A" and "B" are tripped open.

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2008 NRC JPM P2

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 JPM P3

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 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.

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 BUSES, Rev. 15.
Key # 69
Large Fuse Pullers

General References: EPP-21, ENERGIZING PRESSURIZER HEATERS FROM EMERGENCY BUSES, 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: Breaker initially closed and when tripped open will make a noise and the breaker position indicator will turn GREEN.

Examiner's Cue: **Noise of the breaker opening and GREEN OPEN indication.**

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: Breaker initially open and the position indicator will indicate GREEN.

Examiner's Cue: Breaker indicates OPEN with GREEN flag showing.

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: Breaker initially open and the position indicator will indicate GREEN.

Examiner's Cue: Breaker indicates OPEN with GREEN flag showing.

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: Breaker initially open and the position indicator will indicate GREEN.

Examiner's Cue: **Breaker indicates OPEN with GREEN flag showing.**

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:

PERFORMANCE INFORMATION

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

- * **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: Breaker initially closed and when opened will make a noise and the position indicator will turn GREEN.

Examiner's Cue: **Breaker has made a noise and GREEN OPEN indication is illuminated.**

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:**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. **When the fuses are identified, inform the candidate that they are removed.**

Comment:

PERFORMANCE INFORMATION

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: _____

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.