

SIMULATOR SETUP

- Initiate to IC-19 (Or any appropriate 100% power IC)
- Insert Malfunction ROD03–E7
- Set CVC72 (V109) to “0” (Close)
- Place simulator in RUN
- Trip Reactor, complete first 4 steps of E-0
- Transition to ES-0.1 and complete through step 3.
- Control AFW Flow to control cooldown.
- Place simulator in FREEZE
- Place simulator in RUN when directed by examiner

OR

- IC 175
- Place simulator in RUN
- Place simulator in FREEZE
- Place simulator in RUN when directed by examiner

 PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout ES-0.1 marked up through step 3.

START TIME: _____

✓ **Performance Step: 1** ES-0.1, Step 4
Verify MRPI Indicates all Control and Shutdown Rods on the Bottom.

Standard: Recognizes that MRPI indicates that all Control Bank control rods, except one (E-7) have dropped to the bottom of the Reactor Core.
Switches MRPI Screen to show Shutdown Bank rod position and recognizes that all shutdown bank control rods have dropped to the bottom of the Reactor Core.
Recognizes that the Step 4 Response Not Obtained (RNO) action must be completed.

Comment:

Performance Step: 2 ES-0.1, Step 4 RNO a
If one or more control rods NOT fully inserted, Then perform the following: Place RMW Mode Select Switch to Borate

Standard: Places RMW Mode Select Switch to the "Borate" position.

Comment:

PERFORMANCE INFORMATION

	ES-0.1, Step 4 RNO b
Performance Step: 3	Adjust Boric Acid Flow Control Valve, FCV-110A, for desired flowrate.
Standard:	Adjusts Boric Acid Flow Control Valve, FCV-110A, for desired flowrate (Controller output moves to "0" to Open Valve. Adjust in AUTO using Upper Knob. Adjust in Manual using Lower Knob).
Comment:	
	ES-0.1, Step 4 RNO c
Performance Step: 4	Set Boric acid integrator to desired amount (650 gallons for each control rod not fully inserted).
Standard:	Sets Boric acid integrator to 650 gallons by depressing +/- pushbuttons until "650" is displayed on integrator..
Comment:	
	ES-0.1, Step 4 RNO d
Performance Step: 5	Place RMW control to Start and verify flow. If flow cannot be established, Then refer to ER-CVCS.1, Reactor Makeup Control Malfunction.
Standard:	Place RMW control to "Start" position and recognizes that no flow condition exists. Refers to ER-CVCS.1.
Comment:	When it is apparent to the Examiner that the candidate is seeking to use ER-CVCS.1, provide candidate with copy of ER-CVCS.1. NOTE: The examinee may read through the precautions of Section 3.0 in ER-CVCS.1. NOTE: The examinee may start at step 4.1.1 (Initiate Normal Boration), however, these actions are the same actions as those in the ES-0.1 Step 4, RNO (JPM Steps 2-5).

PERFORMANCE INFORMATION

- Performance Step: 6** ER-CVCS.1, Step 4.1.2.1
If Makeup system does NOT operate properly in Borate, Then perform the following: Open Blender outlet to charging pump suction AOV-110B.
- Standard:** Opens Blender outlet to charging pump suction AOV-110B by taking Control Switch to Open (Red Status Light Lit).
- Comment:** **Note: The examinee may elect the success path of Step 4.1.3 rather than 4.1.2. This is acceptable. If this is examinee course of action move forward to Performance Step 9.**
- Performance Step: 7** ER-CVCS.1, Step 4.1.2.2
Start at least one Boric Acid Pump.
- Standard:** Starts at least one Boric Acid Pump by taking Control Switch to START (Red Status Light Lit/Green Status Light Off).
- Comment:** **NOTE: The Boric Acid Pump may be running in which case the candidate will verify that the pump is running by checking the Red Status Light is lit.**
- Performance Step: 8** ER-CVCS.1, Step 4.1.2.3
Place Boric Acid Flow Control valve, HCV-110A, in manual and open to establish desired flow.
- Standard:** Places the Boric Acid Flow Control valve (HCV-110A) in manual and use lower knob to adjust controller output to establish desired flow.
Recognizes that no flow condition exists and moves to step 4.1.3.
- Comment:**

PERFORMANCE INFORMATION

- ER-CVCS.1, Step 4.1.3.1
- √ **Performance Step: 9** Initiate Emergency Boration by performing the following: Close CCW return valves from RCP Thermal Barrier (RCP A – AOV754A, RCP B – AOV754B).
- Standard:** Closes CCW return valves from RCP Thermal Barrier (RCP A – AOV754A, RCP B – AOV754B) by taking Control Switches to CLOSE (Green Status Light Lit, Red Status Light Off).
- Comment:**
- ER-CVCS.1, Step 4.1.3.2
- √ **Performance Step: 10** Start at least one Boric Acid Pump
- Standard:** Starts at least one Boric Acid Pump by taking the Control Switch to Start (Red Status Light Lit, Green Status Light Off).
- Comment:** **NOTE: The Boric Acid Pump may be running in which case the candidate will verify that the pump is running by checking the Red Status Light is lit.**
- ER-CVCS.1, Step 4.1.3.3
- √ **Performance Step: 11** Manually open emergency Boric Acid supply valve, MOV-350.
- Standard:** Opens MOV-350 by taking the Control Switch to OPEN (Red Status Light Lit/Green Status Light Off)
Recognizes flow on FI-113
Records time of Emergency Boration Start
Determines that boration from this path must continue for ≈20 minutes.
- Comment:** **NOTE: Examiner Ask question on bottom of Page 7 if candidate does not offer that boration must continue for ≈20 minutes.**
- Terminating Cue:** Evaluation on this JPM is complete.

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM A

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

How long would emergency boration need to continue from time of start to stop, for the given conditions?

(650 gallons of BA / \approx 32.5 gallons BA/Minute = \approx 20 minutes)

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

- A Reactor Trip from 100% power has occurred.
- The crew entered E-0 and completed steps 1-4.
- The crew then transitioned to ES-0.1 and completed steps 1-3.

INITIATING CUE:

Beginning at Step 4, continue the performance of ES-0.1.

PERFORMANCE INFORMATION

Figure 1.0, Minimum Subcooling

Initiating Cue: Depressurize the RCS Using Przr PORV to Minimize Break Flow and Refill the Przr.

Time Critical Task: NO

Validation Time: 15 minutes

PERFORMANCE INFORMATION

SIMULATOR SETUP

- Initiate to any 100% IC.
- Establish OVR-RCS17C (8616A Open Signal Off) on Trigger #1.
- Establish OVR-RCS16C (8616B Open Signal Off) on Trigger #2.
- Place simulator in RUN.
- Insert 700 gpm SGTR (Malf. SGN04A).
- Complete E-0, Reactor Trip or Safety Injection, and transition to E-3, SGTR.
- After CI reset, Insert Malf. MIS05C (AOV 5392 Fails As-Is (Closed)).
- Complete E-3, SGTR, through Step 21.
- Place simulator in FREEZE.
- Pull up Panel Map PP8VW-39.
- Place simulator in RUN when directed by examiner.
- Operate Trigger #1 and #2.

OR

- IC176.
- Place simulator in RUN.
- Place simulator in FREEZE.
- Pull up Panel Map PP8VW-39.
- Place simulator in RUN when directed by examiner.
- Operate Trigger #1 and #2.

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout E-3 marked up through step 21.

START TIME: _____

- Performance Step: 1** E-3 Step 22a
Verify Instrument Air to Containment available
- Standard:** Checks Green Status Light Lit on AOV 5392
Recognizes that Instrument Air is NOT available to Containment requiring implementation of Step 22a RNO.
- Comment:** **NOTE: Candidate may review Step 21 of E-3 prior to performance of Step 22.**
- Performance Step: 2** E-3 Step 22a RNO
Refer to Attachment 12.0, Attachment N2 PORVs, to operate PORVs
- Standard:** Refers to Attachment 12.0, Attachment N2 PORVs
- Comment:** **When it is apparent to the Examiner that the candidate is seeking to use Attachment 12.0, provide candidate with copy of Attachment 12.0.**

PERFORMANCE INFORMATION

	Attachment 12.0 A. (E-3, Step 22b)
Performance Step: 3	Select a PORV with an operable block valve, obtain a key for the RCS Overpressurization System, and perform the appropriate step below. (Przr PORVs – At Least One Available)
Standard:	Selects PORV PCV-431C (PCV-430)
Comment:	Simulator Instructor Operate Trigger 2 (Trigger 1) BEFORE attempts to open SOV-8616B (SOV-8616A) NOTE: Candidate may review criteria for closing the PORV in E-3, Step 22c (Repeated in Step 6 of JPM).
	Attachment 12.0 A. 431C.a (E-3, Step 22b)
Performance Step: 4	Verify Block Valve MOV-515 (MOV-516) Open and Operable. (Przr PORVs – At Least One Available)
Standard:	Verifies Block Valve MOV-515 (MOV-516) Open and Operable by checking red status light lit.
Comment:	Simulator Instructor use Panel Map PP8VW-39 to determine which PORV the candidate intends to operate, THEN deactivate the Trigger for the other PORV. NOTE: Candidate may verify voltage on Bus 14 & 16 > 420 volts, and the power supply breakers to MCC C & D closed in order to verify the PORV Block Valves OPERABLE. NOTE: If candidate asks Examiner concerning PORV Block Valve operability, cue candidate that “Both PORV Block Valves are OPERABLE.”

PERFORMANCE INFORMATION

Performance Step: 5	Attachment 12.0 A. 431C.b (E-3, Step 22b) Place ACCUM TO SURGE TK VLV SOV-8616B (SOV-8616A) to Open . (Przr PORVs – At Least One Available)
Standard:	Obtains Overpressure Accumulators Key Switch Takes SOV-8616B (SOV8616A) Key Switch to Open position.
Comment:	Note: There are indicating lights associated with the switch, however these lights will not operate and indicate valve position.
Performance Step: 6	Attachment 12.0 B. 431C. (E-3, Step 22c) To Depressurize the RCS in accordance with the guidance provided by the EOP Step place overpressurization system arming switch, N2 ARMING VLV SOV-8619B (SOV-8619A) to ARM. <ul style="list-style-type: none">• Open the PORV until any of the following conditions exist:• Przr level > 75% or• RCS Pressure < Saturation using Figure 1.0, Figure Minimum Subcooling or both• RCS Pressure < Ruptured SG Pressure and Przr level > 10%
Standard:	Takes SOV-8619B (SOV8619A) Key Switch to “ARM” position. Recognizes that PORV did not open.
Comment:	NOTE: Upon recognizing that the PORV will not open, it is expected that the candidate will elect to use the other PORV. NOTE: If the candidate reports that the PORV did not open and seeks guidance, Examiner asks candidate for recommendation. <ol style="list-style-type: none">1. If candidate recommends use of other PORV, agree with the recommendation and continue.2. If candidate makes any other recommendation, terminate JPM.

PERFORMANCE INFORMATION

- Attachment 12.0 A. (E-3, Step 22b)
- √ **Performance Step: 7** Select the other PORV with an operable block valve, obtain a key for the RCS Overpressurization System, and perform the appropriate step below. (Przr PORVs – At Least One Available)
- Standard:** Selects PORV PCV-430 (PCV-431C)
- Comment:**
- Attachment 12.0 A. 430.a (E-3, Step 22b)
- √ **Performance Step: 8** Verify Block Valve MOV-516 (MOV-515) Open and Operable. (Przr PORVs – At Least One Available)
- Standard:** Verifies Block Valve MOV-516 (MOV-515) Open and Operable by checking red status light lit.
- Comment:**
- Attachment 12.0 A. 430.b (E-3, Step 22b)
- √ **Performance Step: 9** Place ACCUM TO SURGE TK VLV SOV-8616A (SOV-8616B) to Open . (Przr PORVs – At Least One Available)
- Standard:** Takes SOV-8616A (SOV-8616B) Key Switch to open position.
- Comment:** **Note: There are indicating lights associated with the switch, however these lights will not operate and indicate valve position.**

PERFORMANCE INFORMATION

- Attachment 12.0 B. 430. (E-3, Step 22c)
- √ **Performance Step: 10** To Depressurize the RCS in accordance with the guidance provided by the EOP Step place overpressurization system arming switch, N2 ARMING VLV SOV-8619A (SOV-8619B) to ARM.
- Open the PORV until any of the following conditions exist:
 - Przr level > 75% **or**
 - RCS Pressure < Saturation using Figure 1.0, Figure Minimum Subcooling **or both**
 - RCS Pressure < Ruptured SG Pressure and Przr level > 10%
- Standard:** Takes SOV-8619A (SOV8619B) Key Switch to "ARM" position. Recognizes PORV opens, and monitors RCS Pressure, Ruptured SG Pressure and Przr level.
- Comment:** **When it is apparent to the Examiner that the candidate is seeking to use Figure 1.0, provide candidate with copy of Figure 1.0.**
- Attachment 12.0 D. 430. (E-3, Step 22d)
- √ **Performance Step: 11** When depressurization is complete, then close the PORV by placing N2 ARMING VLV SOV-8619A (SOV-8619B) to Block, and placing the ACCUM TO SURGE TK VLV SOV-8616A (SOV-8616B) to Close. (Close Przr PORV)
- Standard:** Upon one of the three depressurization criteria being met, places N2 ARMING VLV SOV-8619A (SOV-8619B) to Block, and placing the ACCUM TO SURGE TK VLV SOV-8616A (SOV-8616B) to Close
- Verifies PORV Closed.
- Comment:** **Note: There are indicating lights associated with the SOV-8616A (SOV-8616B) switch, however these lights will not operate and indicate valve position.**
- Terminating Cue:** **Evaluation on this JPM is complete.**

STOP TIME: _____

2007 NRC JPM B

TIME CRITICAL STOP TIME: _____

NUREG 1021, Revision 9

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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: While operating at 100% power a Steam Generator Tube Rupture occurred in the A Steam Generator.
The crew entered E-0, Reactor Trip or Safety Injection, and transitioned to E-3, SGTR.
E-3, SGTR, was completed through step 21.
The Przr Spray Valves were not used because Instrument Air is not available to the Containment.

INITIATING CUE: Depressurize the RCS Using Przr PORV to Minimize Break Flow and Refill the Przr.

SIMULATOR SETUP

- Initiate to IC-15
- Place simulator in RUN
- Place LTOPS in service
- Substitute LTOP Alarm for F-29 in accordance with O-7, Alignment and Operation of the Reactor Vessel Overpressure Protection System
- Ensure MOV-857A, B, and C closed
- Place simulator in FREEZE
- Place simulator in RUN when directed by examiner

OR

- Initiate to IC-179
- Place simulator in RUN
- Place simulator in FREEZE
- Place simulator in RUN when directed by examiner

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout O-2.2 marked up through step 6.4.20.

START TIME: _____

- | | |
|------------------------------|--|
| Performance Step: 1 | O-2.2, Step 6.4.21 (1)
Notify Test Personnel to perform PT-2.4-1, RHR Motor Operated Valve Surveillance, in conjunction with RHR Valves 700 and 701 being opened. |
| Standard: | Recognizes that no valve stroke timing will occur during this evolution. |
| Comment: | |
| Performance Step: 2 | O-2.2, Step 6.4.21 (2)
Ensure Low Pressure LTDN Press, PCV 135, Controller setpoint is set to 300 psig. |
| Standard: | Verifies PCV-135 setpoint is 300 psig (Adjusts larger Black Knob with White Wheel). |
| Comment: | |
| √ Performance Step: 3 | O-2.2, Step 6.4.21 (3)
Open RHR HX Bypass, HCV-626, to 25% to ensure RHR System Pressure equalization. |
| Standard: | With controller in Manual control, Opens RHR HX Bypass, HCV-626, to 25% on output scale by adjusting lower Black Knob. |
| Comment: | |

PERFORMANCE INFORMATION

	O-2.2, Step 6.4.21 (4)
Performance Step: 4	Ensure an Auxiliary Operator is stationed at Residual Heat Removal Loop Pressure, PIC-629.
Standard:	Contacts AO and directs action.
Comment:	Simulator Operator acknowledges as "AO."
	O-2.2, Step 6.4.21 (5)
√ Performance Step: 5	Slowly open RHR Letdown to CVCS, HCV-133, to 100% to fill and pressurize the RHR System.
Standard:	Slowly adjusts HCV-133 controller to 100% by adjusting larger Black Knob on White Wheel. Observes PI-420 to maintain pressure stable at approximately 300 psig.
Comment:	
	O-2.2, Step 6.4.21 (6)
√ Performance Step: 6	Verify Residual Heat Removal Loop Pressure, PIC-629, is within 200 psig of RCS Pressure (P-420 or P-420A) and record indicated pressure.
Standard:	Contacts AO and requests PIC-629 reading. After receiving PIC-629 pressure from AO, compares pressure is within 200 psig of P-420 or P-420A. Records PIC-629 reading on O-2.2, Step 6.4.21.(6)
Comment:	Simulator Operator reports pressure as "AO," using PRHR629A.

PERFORMANCE INFORMATION

√	Performance Step: 7	O-2.2, Step 6.4.21 (7) Close RHR Pump Suction From Loop A Hot Leg MOV 700 Breaker and RHR Pump Suction From Loop A Hot Leg MOV 701 Breaker.
	Standard:	Contacts AO and directs action.
	Comment:	Simulator Operator closes breakers as "AO," using LOA EDS57 and 58 for MOV700, and LOA EDS39 and 40 for MOV 701.
√	Performance Step: 8	O-2.2, Step 6.4.21 (8) Open and perform valve stroke timing for MOV 700 and MOV 701 per PT 2.4-1.
	Standard:	Recognizes valve stroke timing will not be performed. Obtains MCB Valve Key. Opens MOV 701 by using MCB Valve Key and operating Key Switch. Red status light is lit, Green status light off (≈90 Seconds). Opens MOV 700 by taking control switch to OPEN and releasing to NEUTRAL. Red status light is lit, Green status light off (≈95 Seconds).
	Comment:	NOTE: Candidate may move to subsequent valve position steps of Step 6.4.21 (9) during Valve Stroking.
	Performance Step: 9	O-2.2, Step 6.4.21 (9) Ensure RHR HX Outlet 1B, HCV 624; RHR HX Outlet 1A, HCV 625; RHR HX Bypass, HCV 626 are closed.
	Standard:	Verifies that HCV 624, HCV 625 and HCV 626 are closed. Closes HCV 626 previously positioned to 25% open in Step 6.4.21 (3) (JPM Step 3). Checks valve controller outputs in closed position.
	Comment:	

PERFORMANCE INFORMATION

- O-2.2, Step 6.4.21 (10)
- √ **Performance Step: 10** Place LTDN Divert to DI or VCT, TCV 145, to the VCT position.
- Standard:** Places TCV 145 to VCT position (Red Status Light Lit, Green Status Light off).
Adjusts PCV 135 to restore Letdown flow to 40 gpm, if needed.
- Comment:**
- O-2.2, Step 6.4.21 (11)
- Performance Step: 11** Place Low Pressure LTDN Press, PCV135, controller in the manual position.
- Standard:** Places PCV135 controller in the manual position, after matching Manual controller signal with Automatic signal ensuring "bumpless" transfer.
Adjusts PCV 135 to restore Letdown flow to 40 gpm, if needed.
- Comment:** **NOTE: Adjustment of controller may take a substantial amount of time.**
- O-2.2, Step 6.4.21 (12)
- √ **Performance Step: 12** Start one RHR Pump.
- Standard:** Starts RHR Pump A (B) by taking the Control Switch from Pull Stop to Start and releasing to Auto (Red Status Light Lit).
Observe PI-135 rise to 100-140 psig above RCS pressure.
Adjusts PCV 135 to restore Letdown flow to 40 gpm, if needed.
Acknowledge MCB Annunciator A-20 as an expected alarm.
- Comment:**

PERFORMANCE INFORMATION

	O-2.2, Step 6.4.21 (13)
Performance Step: 13	Place the control switch for the RHR Pump not started in Auto After Stop position.
Standard:	Places RHR Pump B (A) control switch from Pull-Stop to Auto After Start (Green Status Light Lit).
Comment:	
	O-2.2, Step 6.4.21 (14)
√ Performance Step: 14	Adjust Low Press LTDN Press, PCV 135, to establish about 40 gpm of Letdown flow on FI-134.
Standard:	Adjusts PCV 135 to restore Letdown flow to 40 gpm. Acknowledge MCB Annunciator A-11 as an expected alarm.
Comment:	NOTE: Adjustment of controller may take a substantial amount of time.
	O-2.2, Step 6.4.21 (15)
Performance Step: 15	Place Low Press LTDN Press, PCV 135, controller in the Auto position.
Standard:	Places PCV 135 in auto position after matching Manual controller signal with Automatic signal ensuring "bumpless" transfer. Adjusts PCV 135 to restore Letdown flow to 40 gpm, if needed.
Comment:	NOTE: Adjustment of controller may take a substantial amount of time.

PERFORMANCE INFORMATION

- √ **Performance Step: 16** O-2.2, Step 6.4.21 (16)
Maintain flow at a minimum through HCV 624 and HCV 625 for five minutes to equalize the temperature of the RHR loops.
- Standard:** Adjusts PCV 135 to restore Letdown flow to 40 gpm, if needed.
- Comment:** **After 1 minute Examiner cue examinee that five minutes has elapsed, if necessary.**
- √ **Performance Step: 17** O-2.2, Step 6.4.21 (17)
Place LTDN Divert to DI or VCT, TCV 145, to the Auto position.
- Standard:** Places TCV 145 control switch to Auto position.
- Comment:**
- Performance Step: 18** O-2.2, Step 6.5.1 (1)
Notify Test Personnel to perform PT-2.4-1, RHR Motor Operated Valve Surveillance, in conjunction with RHR Valves 720 and 721 being opened.
- Standard:** Recognizes that no valve stroke timing will occur during this evolution.
- Comment:**
- √ **Performance Step: 19** O-2.2, Step 6.5.1 (2)
Notify I&C to jumper terminal block RR4, across terminals 4 and 9, in RA-3 rack; and terminal block RR4, across terminals 19 and 20, in RA-2 rack.
- Standard:** Contacts I&C and directs action.
- Comment:** **Simulator Operator installs jumpers as "I&C," using LOA FDW62 and FDW63.**

PERFORMANCE INFORMATION

	O-2.2, Step 6.5.1 (3)
Performance Step: 20	Ensure two CCW Pumps and two CCW Heat Exchangers are in service to prevent flashing in the CCW System.
Standard:	Verifies two CCW Pumps (Red Status Lights Lit) and two CCW Heat Exchangers are in service.
Comment:	Simulator Operator reports that two Heat Exchangers are in service.
	O-2.2, Step 6.5.1 (4)
√ Performance Step: 21	Close RHR Pump Discharge to Loop B Cold Leg MOV 720 Breaker and RHR Pump Discharge to Loop B Cold Leg MOV 721 Breaker.
Standard:	Contacts AO and directs action.
Comment:	Simulator Operator closes breakers as “AO,” using LOA EDS59 and 60 for MOV720, and LOA EDS41 and 42 for MOV 721.
	O-2.2, Step 6.5.1 Note prior to (5)
Performance Step: 22	Contact AO and direct to prepare to locally throttle CCW Inlet MOV to RHR HX A MOV 738A and CCW Inlet MOV to RHR HX B MOV 738B.
Standard:	Contacts AO and directs action.
Comment:	Simulator Operator acknowledges as “AO.” NOTE: Candidate may establish the Heatup/cool-down rates on the PPCS Screen to ensure that when MOV 720 and 721 are opened the cool-down rate can be monitored.

PERFORMANCE INFORMATION

- O-2.2, Step 6.5.1 (5)
- √ **Performance Step: 23** Open and perform valve stroke timing for MOV 720 and MOV 721 per PT 2.4-1.
- Standard:** Recognizes valve stroke timing will not be performed.
Opens MOV 720 by using MCB Valve Key and operating Key Switch. Red status light is lit, Green status light off (≈95 Seconds).
Opens MOV 721 by taking control switch to OPEN and releasing to NEUTRAL. Red status light is lit, Green status light off (≈95 Seconds).
- Comment:**
- Terminating Cue:** Evaluation on this JPM is complete.

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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: A plant cooldown from Hot Standby is in progress in preparation for a Refueling Outage.
The RCS is at approximately 340°F and 320 psig.
LTOPS are in service
The Przr Vent Rig will not be installed.
Valve Tests will NOT be performed.

Note: Obtain O-2.2, marked up through Step 6.4.20 from Examiner.

INITIATING CUE: Place the RHR System in service in accordance with O-2.2, Step 6.4.21.

Time Critical Task: NO

Validation Time: 15 minutes

SIMULATOR SETUP

- Initiate to any 100% IC.
- Align the B Instrument Bus to the Maintenance power supply in accordance with Section 4.2 of ER-INST.3.
- Establish Malfunction PZR04 at 100% on Trigger #1.
- Place simulator in RUN.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

OR

- IC 177
- Place simulator in RUN.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

NOTE: During the JPM performance, the Simulator Instructor should function as BOP operator silence any spurious alarms. This activity must not interfere with the activities of the examinee. The examinee has been made aware that this will be occurring.

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

START TIME: _____

Performance Step: 1 ER-INST.3, Step 4.3.1
Verify normal feed available by checking Annunciator E-14, "Loss B INSTR. Bus," extinguished.

Standard: Observes MCB Annunciator E-14 not lit.

Comment: **When it is apparent to the Examiner that the candidate is seeking to use ER-INST.3, provide candidate with copy of ER-INST.3.**

NOTE: The candidate may read through the Precautions section (3.0) prior to start. Examiner should cue as needed.

√ **Performance Step: 2** ER-INST.3, Step 4.3.2
Place Rod Control Bank Selector Switch to MANUAL.

Standard: Places Rod Control Bank Selector Switch to "M" (MANUAL) position.

Comment:

Performance Step: 3 ER-INST.3, Step 4.3.3
Refer to Attachment Instrument Bus B.

Standard: Refers to Attachment Instrument Bus B.

Comment:

PERFORMANCE INFORMATION

	ER-INST.3, Attachment Instrument Bus B, Step 1
Performance Step: 4	Verify that any failed or defeated protection channels will not conflict with the Instrument Bus transfer to cause a reactor trip. Refer to Appendix A.
Standard:	Recognizes that there are no failed or defeated protection channels at the present time.
Comment:	
	ER-INST.3, Attachment Instrument Bus B, Step 2a
√ Performance Step: 5	Place Charging Pump Speed controllers in Manual.
Standard:	Places controller mode select switch from AUTO to BALANCE. Balances controller output to "0" by adjusting manual control knob (Lower black knob). Places controller mode select switch in MANUAL.
Comment:	
	ER-INST.3, Attachment Instrument Bus B, Step 2b
√ Performance Step: 6	Place Przr Level Defeat Switch L/428A (PLP) in defeat-2.
Standard:	Obtains Protection Rack Key and opens PLP PRZR PRESS and LEVEL Cabinet Door. Places the Przr Level Defeat Switch L/428A (PLP) in defeat-2.
Comment:	
	ER-INST.3, Attachment Instrument Bus B, Step 2c
Performance Step: 7	Place one Charging Pump in Auto if desired.
Standard:	Places controller mode select switch from MANUAL to BALANCE. Balances controller output to "0" by adjusting manual control knob (Lower black knob). Places controller mode select switch in AUTO.
Comment:	

PERFORMANCE INFORMATION

- ER-INST.3, Attachment Instrument Bus B, Step 2d
- √ **Performance Step: 8** Place PRZR Press Controller 431K in Manual.
- Standard:** Places controller mode select switch from AUTO to BALANCE.
Balances controller output to "0" by adjusting manual control knob (Lower black knob).
Places controller mode select switch in MANUAL.
- Comment:**
- ER-INST.3, Attachment Instrument Bus B, Step 2e
- √ **Performance Step: 9** Place Pressurizer Pressure Defeat Switch P\429A in Defeat-2 (PLP).
- Standard:** Places Pressurizer Pressure Defeat Switch P\429A in Defeat-2.
Closes and locks cabinet door.
- Comment:**
- ER-INST.3, Attachment Instrument Bus B, Step 2f
- √ **Performance Step: 10** Place Przr Pressure Controller 431K in AUTO.
- Standard:** Places controller mode select switch from MANUAL to BALANCE.
Balances controller output to "0" by adjusting manual control knob (Lower black knob).
Places controller mode select switch in AUTO.
- Comment:**

PERFORMANCE INFORMATION

- ER-INST.3, Attachment Instrument Bus B, Step 3
- √ **Performance Step: 11** Transfer Instrument Bus power supply to NORMAL.
- Standard:** Obtains the Instrument Bus/DC Cabinet Key and opens the Instrument Bus B door.
- Push mechanically interlocked breakers from Maintenance closed/Normal open to Normal closed/Maintenance open.
- Comment:**
- ER-INST.3, Attachment Instrument Bus B, Step 4a
- √ **Performance Step: 12** Place Charging Pump Speed Controller in Manual.
- Standard:** Places controller mode select switch from AUTO to BALANCE.
Balances controller output to "0" by adjusting manual control knob (Lower black knob).
Places controller mode select switch in MANUAL.
- Comment:**
- ER-INST.3, Attachment Instrument Bus B, Step 4b
- √ **Performance Step: 13** Place Przr Level Defeat Switch, L/428A (PLP) in NORMAL.
- Standard:** Unlocks and opens PLP PRZR PRESS & LEVEL rack cabinet door.
Places Przr Level Defeat Switch, L/428A in NORMAL.
- Comment:**

PERFORMANCE INFORMATION

	ER-INST.3, Attachment Instrument Bus B, Step 4c
Performance Step: 14	Place one Charging Pump in Auto (MCB) if desired.
Standard:	Places controller mode select switch from MANUAL to BALANCE. Balances controller output to "0" by adjusting manual control knob (Lower black knob). Places controller mode select switch in AUTO.
Comment:	
	ER-INST.3, Attachment Instrument Bus B, Step 4d
√ Performance Step: 15	Place Przr Pressure Controller 431K (MCB) in Manual.
Standard:	Places controller mode select switch from AUTO to BALANCE. Balances controller output to "0" by adjusting manual control knob (Lower black knob). Places controller mode select switch in MANUAL.
Comment:	
	ER-INST.3, Attachment Instrument Bus B, Step 4e
√ Performance Step: 16	Place Pressurizer Pressure Defeat Switch P/429A (PLP) in Normal.
Standard:	Places Pressurizer Pressure Defeat Switch P/429A in Normal.
Comment:	Cue Simulator Instructor that Malfunction insertion is upcoming.

PERFORMANCE INFORMATION

	ER-INST.3, Attachment Instrument Bus B, Step 4f
Performance Step: 17	Place Przr Pressure Controller 431K in Auto.
Standard:	Places controller mode select switch from MANUAL to BALANCE. Balances controller output to "0" by adjusting manual control knob (Lower black knob). Places controller mode select switch in AUTO.
Comment:	Simulator Instructor operate Trigger #1 when candidate places controller in AUTO.
	OPS-SHIFT-RESP, Step 3.4.5, 4 th Bullet.
√ Performance Step: 18	Recognize failed controller, take manual control and adjust controller output manually to maintain Przr pressure within normal band.
Standard:	Returns 431K to manual, adjusts controller output so that Spray valves close terminating Przr Pressure decrease.
Comment:	
Terminating Cue:	Evaluation on this JPM is complete.
STOP TIME:	TIME CRITICAL STOP TIME:
_____	_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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: The B Instrument Bus has been on the Maintenance Power supply for the last four hours to allow completion of maintenance on the normal supply transformer.
Maintenance has been completed and the Hold Clearance has been removed.
It is now desired to restore the B Instrument Bus to its normal power supply.
There are no presently no failed or defeated protection channels.

INITIATING CUE: Transfer the "B" Instrument Bus from the Maintenance power supply to the normal power supply.

NOTE: Simulator instructor will function as BOP operator to ensure that spurious alarms are silenced.

SIMULATOR SETUP

- Initiate to any 100% IC.
- Place simulator in RUN.
- Insert 700 gpm SGTR (Malf. SGN04A).
- Complete E-0, Reactor Trip or Safety Injection, and transition to E-3, SGTR.
- Insert Malfunctions STM10A-H to 0% (Failure of all Steam Dumps to operate).
- Complete E-3, SGTR, through Step 9a.
- Determine RCS Target Temperature in accordance with Step 9a of E-3, SGTR, and record in appropriate block of JPM Cue Sheet.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

OR

- IC 171B.
- Place simulator in RUN.
- Determine RCS Target Temperature in accordance with Step 9a of E-3, SGTR, and record in appropriate block of JPM Cue Sheet.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout E-3 marked up through step 8.

START TIME: _____

E-3, Step 9a

√ **Performance Step: 1** Determine required core exit temperature from Table:

RUPTURED SG PRESSURE	REQUIRED CORE EXIT TEMPERATURE (°F)
1100 PSIG	525 [517 adverse CNMT]
1000 PSIG	512 [504 adverse CNMT]
900 PSIG	499 [490 adverse CNMT]
800 PSIG	484 [475 adverse CNMT]
700 PSIG	468 [457 adverse CNMT]
600 PSIG	449 [437 adverse CNMT]
500 PSIG	428 [413 adverse CNMT]
400 PSIG	402 [384 adverse CNMT]
300 PSIG	369 [344 adverse CNMT]

Standard:

Determines A Steam Generator Pressure to be ≈1050 psig.

Locates next lowest Ruptured SG Pressure on Table, using 1000 psig.

Determines that adverse CNMT does not exist.

Determines to cooldown the RCS to 512°F.

Comment:

PERFORMANCE INFORMATION

	E-3, Step 9b
Performance Step: 2	If A Steam Generator MSIV is Closed, Then initiate dumping steam to the condenser from the B Steam Generator at maximum rate.
Standard:	Determines that the A MSIV is closed, and initiates dumping steam using the steam dump system (HCV-484). Operates HCV-484 so controller output moves to 100%. Recognizes that the Steam Dump System valves remain closed (All eight Steam Dump Valve position lights have green status lights lit, Red status lights off). Determines that Steam Dump System will not operate and that the E-3 Step 9b RNO must be implemented.
Comment:	
	E-3, Step 9b RNO
√ Performance Step: 3	Manually initiates steam dump from the B Steam Generator at the maximum rate using the B Atmospheric Relief Valve (ARV).
Standard:	Fully opens the B ARV in Auto or Manual so that controller output is 100%.
Comment:	
	E-3, Step 9c
√ Performance Step: 4	Check Core Exit Thermocouples < Target Temperature.
Standard:	Monitors Core Exit Thermocouples on PPCS and notes when temperature is < 512°F.
Comment:	

PERFORMANCE INFORMATION

√ **Performance Step: 5** E-3, Step 9d
Stop RCS Cooldown and stabilize Core Exit Thermocouples < Target Temperature.

Standard: Closes ARV (Controller Output at 0%), RCS Core Exit Thermocouple Temperature is stabilized < 512°F.
Determines intact SG (B SG) pressure and sets B Atmospheric Relief Valve (AOV-3410) controller to open at this pressure (≈760 psig).

Comment:

Terminating Cue: Evaluation on this JPM is complete.

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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: While operating at 100% power a Steam Generator Tube Rupture occurred in the A Steam Generator.
The crew entered E-0, Reactor Trip or Safety Injection, and transitioned to E-3, SGTR.
E-3, SGTR, was completed through step 8.

INITIATING CUE: Cooldown the RCS in accordance with step 9 of E-3, Steam Generator Tube Rupture.

SIMULATOR SETUP

- Initiate to IC-2.
- Insert Malfunction CLG10 (Failure of the CCW Pump to Auto Start)
- Place simulator in RUN.
- Limit unnecessary CCW Loads.
- Remove B CCW Pump from service, and place in Standby.
- Insert Malfunction CLG02B (Trip B CCW Pump – will prevent manual start of B CCW Pump)
- Establish Malfunction GLG02A (Trip A CCW Pump) on Trigger #1
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.
- Once Examinee has control of plant, operate Trigger #1, then immediately remove malfunction CLG02A.

OR

- IC 180.
- Place simulator in RUN.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.
- Once Examinee has control of plant, operate Trigger #1, then immediately remove malfunction CLG02A.

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM).

START TIME: _____

Performance Step: 1 Recognize trip of A CCW Pump with a failure of B CCW Pump to auto start.

Standard: Uses MCB Annunciators and indications to recognize trip of A CCW Pump with a failure of B CCW Pump to auto start, and enters AP.CCW.3, Loss of CCW – Plant Shutdown.

Comment: **NOTE: After the A CCW Pump trip the Simulator Operator must remove malfunction CLG02A.**

Performance Step: 2 AP-CCW.3 Step 1
Check CCW Pump Status – Both CCW Pump Breaker white lights extinguished.

Standard: Determines that the white status lights are lit for the A CCW Pump, and that the Step RNO must be implemented.

Comment:

Performance Step: 3 AP-CCW.3 Step 1 RNO a
If a CCW Pump has tripped then ensure that the standby CCW Pump is running.

Standard: Recognizes that the B CCW Pump (Standby Pump) did not automatically start and attempts to start the B CCW Pump.

Comment:

PERFORMANCE INFORMATION

AP-CCW.3 Step 1 RNO b
√ **Performance Step: 4** If a CCW Pump has tripped then attempt to reset and start the affected CCW Pump if required for cooling.

Standard: Evaluates the need for RCS cooling. If time available calls for Electricians to verify that the pump breaker is operable, and responds accordingly. If there is a noticeable RCS heat-up, resets and starts the A CCW Pump.

Comment: **Note: If Electricians are contacted to verify A CCW Pump Breaker operability, call back within two minutes and indicate that the breaker is operable and the pump can be started.**

Terminating Cue: **Once CCW Pump is restored to operation indicate that Evaluation on this JPM is complete.**

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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 late in a Refueling Outage, and refueling has recently been completed.
RCS loop level is 84 inches with RCS temperature < 100°F.
You are the lone Licensed Operator in the Control Room.
There are no major maintenance activities occurring or planned for this shift.

INITIATING CUE: Monitor for stable plant conditions.

Validation Time: 10 minutes

SIMULATOR SETUP

- Initiate to any 100% IC.
- Insert Malfunction RPS08A/B (Failure of CS Automatic Actuation/No Manual)
- Insert Malfunction STM11A @ $1.7e^{+005}$ %. (Steam Line Break Inside Containment)
- Place simulator in RUN.
- Carry out action of E-0 and transition to E-2.
- Upon transition to E-2, increase malfunction STM11A to $1.7e^{+007}$ (Steam Rupture Inside Containment).
- Ensure Annunciator A-28 is lit, that Containment Pressure is > 28 psig, and that CS has NOT automatically actuated.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

OR

- IC 178
- Place simulator in RUN.
- Place simulator in FREEZE.
- Place simulator in RUN when directed by examiner.

 PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout FR-Z.1.

START TIME: _____

- Performance Step: 1** OPS-SHIFT-RESP Step 3.4.5 Bullet #6
Verify that the Containment Spray actuation setpoint has been exceeded, and that Containment Spray actuation has NOT occurred, and THEN manually actuate Containment Spray.
- Standard:** Observes Annunciator A-27, "Containment Spray 2/3 + 2/3 > 28 Psi," Lit.
Observes Containment Pressure indicators () and determines Containment Pressure is > 28 psig.
Observes Containment Spray Pumps not operating.
Simultaneously depresses two CS Actuation Pushbuttons.
- Comment:** **While the operator may take this action, and it is permitted by procedures, and expected; if the action is not taken the operator will still be successful by adherence to the procedure assigned.**
NOTE: Any attempt by the operator to actuate CS by depressing two MCB pushbuttons simultaneously will not be successful (pushbutton operation has failed).
- Performance Step: 2** FR-Z.1 Step 1
Verify all CI and CVI Valve Status Lights – Bright.
- Standard:** Observes white CI/CVI Valve Status lights and determines that CI/CVI has actuated.
- Comment:** **NOTE: Candidate may review Foldout Page prior to starting through procedure.**

PERFORMANCE INFORMATION

	FR-Z.1 Step 2a
Performance Step: 3	Verify RWST Outlet to SI and CNMT spray pumps -Open <ul style="list-style-type: none">• MOV-896A• MOV-896B
Standard:	Observes status lights for MOV-896A and B indicate that the valves are OPEN (Red Status Light Lit, Green Status Light Off).
Comment:	
	FR-Z.1 Step 2b
Performance Step: 4	Verify CNMT spray pumps – Running.
Standard:	Observes A CNMT spray pump OFF (Green Breaker Status light is lit, Red Breaker status light is off). Observes B CNMT spray pump OFF (Green Breaker Status light is lit, Red Breaker status light is off).
Comment:	
	FR-Z.1 Step 2b RNO
√ Performance Step: 5	Manually start pumps.
Standard:	Starts A CNMT spray pump by taking the Control Switch to the START position, observing the Red Breaker Status light lights, and the Green Breaker Status light extinguishes, and returns the Control Switch to AUTO (After Start). Starts A CNMT spray pump by taking the Control Switch to the START position, observing the Red Breaker Status light lights, and the Green Breaker Status light extinguishes, and returns the Control Switch to AUTO (After Start).
Comment:	

PERFORMANCE INFORMATION

	FR-Z.1 Step 2c
Performance Step: 6	Verify NaOH flow (FI-930)
Standard:	Observes FI-930 and notes flow at "0."
Comment:	
	FR-Z.1 Step 2c RNO
√ Performance Step: 7	If NaOH flow is not indicated, then places switches for NaOH tank outlet valves to OPEN. <ul style="list-style-type: none">• AOV-836A• AOV-836B
Standard:	Takes Control Switch for AOV-836A to OPEN position. Takes Control Switch for AOV-836B to OPEN position. Observes flow on FI-930.
Comment:	
	FR-Z.1 Step 2d
Performance Step: 8	Verify CNMT spray pump discharge valves -OPEN <ul style="list-style-type: none">• MOV-860A• MOV-860B• MOV-860C• MOV-860D
Standard:	Observes all four CNMT spray pump discharge valves are CLOSED (Green Status light is lit, Red status light is off).
Comment:	

PERFORMANCE INFORMATION

FR-Z.1 Step 2d RNO

- √ **Performance Step: 9** Ensure at least one in each set open.
- MOV-860A or MOV-860B
 - MOV-860C or MOV-860D

Standard: Opens at least one valve in each set by taking Control Switch to OPEN and releasing to AUTO, and observing Red status light lit, and green status light extinguished.

Comment:

Terminating Cue: Evaluation on this JPM is complete.

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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: While at 100% power, a small steam break in Containment requires a reactor trip and safety injection.
In response, the crew enters E-0, "Reactor Trip or Safety Injection," and then transitions to E-2, "Faulted Steam Generator Isolation."
Seconds ago, after transition to E-2 the small steam break degraded to a large Steam Line Rupture.
The crew is just now transitioning to FR-Z.1, "Response to High Containment Pressure."

INITIATING CUE: Perform the required actions of FR-Z.1.

PERFORMANCE INFORMATION

Initiating Cue: Start and control the A Charging Pump in accordance with procedure ER-FIRE.2, Attachment 4, Section 5.0. Continue until charging flow is verified to the RCS.
SIMULATE ONLY, do not manipulate any switches or valves.

Time Critical Task: NO

Validation Time: 8 minutes

PERFORMANCE INFORMATION

Discuss action to be performed with Shift Manager regarding:

- 1) Opening the Charging Pump Local Control Panel.
- 2) Opening the DC Throwover Enclosure on the back of Bus 14.

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout ER-FIRE.2.

START TIME: _____

- | | |
|------------------------------|---|
| | ER-FIRE.2 Attachment 4 Step 5a |
| √ Performance Step: 1 | Place the Local/Remote switch for A Charging Pump to LOCAL. |
| Standard: | Simulates Placing the Local/Remote switch for A Charging Pump to LOCAL. |
| Comment: | Examiner cue examinee that the switch is in LOCAL. |
| | ER-FIRE.2 Attachment 4 Step 5b |
| √ Performance Step: 2 | Place A Charging Pump alternate DC control power switch to LOCAL. |
| Standard: | Simulates Placing the A Charging Pump alternate DC control power switch to LOCAL. |
| Comment: | Examiner cue examinee that the switch is in LOCAL. |
| | ER-FIRE.2 Attachment 4 Step 5c |
| √ Performance Step: 3 | Close V-289, Charging Pump Discharge Isolation Valve to RCP Seal Injection. |
| Standard: | Simulates closing V-289 by turning handwheel in clockwise direction. |
| Comment: | Examiner cue examinee that the valve is closed. |

PERFORMANCE INFORMATION

- ✓ **Performance Step: 4** ER-FIRE.2 Attachment 4 Step 5d
Locally open V-358, RWST Makeup AOV Bypass Valve to Charging Pump Suction.
- Standard:** Simulates opening V-358 by turning handwheel in counter-clockwise direction.
- Comment:** **Examiner cue examinee that the valve handwheel is in horizontal position.**
- ✓ **Performance Step: 5** ER-FIRE.2 Attachment 4 Step 5e
Locally start A Charging Pump at the local cabinet.
- Standard:** Opens cabinet for "A" Charging Pump.
Simulates depressing pushbutton, verify red light on.
- Comment:** **Examiner cue examinee that the Charging Pump red light is lit, and he hears the pump running.**
- Performance Step: 6** ER-FIRE.2 Attachment 4 Step 5f
Notify Shift Manager that Charging Pump running.
- Standard:** Contacts Shift Manager on the radio and indicates that the "A" Charging Pump is running.
- Comment:** **Examiner cue examinee raise Przr level to 40%.**

PERFORMANCE INFORMATION

- ER-FIRE.2 Attachment 4 Step 5g
- √ **Performance Step: 7** Raise Charging Pump Speed Control Regulator to 10psi.
- Standard:** Simulates Raising Charging Pump Speed Control Regulator to 10psi by turning knob clockwise.
- Comment:** **Examiner cue examinee that the Charging Pump speed controller is at 10 psi.**
- ER-FIRE.2 Attachment 4 Step 5h
- √ **Performance Step: 8** Energize ABELIP by depressing the ON button located at the bottom of the cabinet.
- Standard:** Simulates energizing ABELIP by depressing the ON button located at the bottom of the cabinet.
(Blue ON button at bottom of panel, inside plexiglass door)
- Comment:** **Examiner cue examinee that both meters come on scale.**
- ER-FIRE.2 Attachment 4 Step 6
- √ **Performance Step: 9** In charging Pump Room, perform the following: Verify PRZR level greater than 5% and stable or increasing, adjust charging flow.
- Standard:** Simulates Raising Charging Pump speed controller output to increase charging flow.
- Comment:** **Examiner cue examinee that Przr Level indicates 4%.**
- Terminating Cue:** **Evaluation on this JPM is complete.**

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM 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:
- A fire in the Cable Tunnel requires evacuation of the Control Room, and ER-FIRE.2, "Alternate Shutdown for Cable Tunnel Fire," is being implemented.
 - Attachment 4 of ER-FIRE.2 has been performed up to Step 5.0.

INITIATING CUE: Start and control the A Charging Pump in accordance with procedure ER-FIRE.2, Attachment 4, Section 5.0.
Continue until charging flow is verified to the RCS.

SIMULATE ONLY, do not manipulate any switches or valves.

PERFORMANCE INFORMATION

Facility: Ginna Task No.: 039-008-01-04A

Task Title: Locally Operate the ARVs JPM No.: 2007 NRC JPM I

K/A Reference: 039 K1.02 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 Control Complex fire and the Shift Manager has implemented ER-FIRE.1, "Alternative Shutdown for Control Complex Fire."
 - The Reactor was tripped.
 - The MSIVs were closed.
 - The Turbine Generator was verified tripped.
 - The Reactor Coolant Pumps were tripped.

Task Standard: All critical tasks evaluated as satisfactory.

- Required Materials:
- Hard Hat
 - Hearing Protection
 - Safety Glasses
 - Safety shoes
 - Leather Gloves

General References: ER-FIRE.1
P-15.2 Dump Steam Through ARV's Locally

Handouts: P-15.2 Dump Steam Through ARV's Locally

PERFORMANCE INFORMATION

Initiating Cue: You, the HCO, have all the equipment from the Appendix "R" locker. You have completed all the steps of Att. 3, HCO in ER-FIRE.1. The Shift Manager directs you to locally operate the Atmospheric Relief Valve, V-3411, per Step 4.5.4 of ER-FIRE.1 and P-15.2, Dump Steam Through ARV's Locally. Simulate all actions; do not manipulate any valves. This is Time Critical with 20 minutes to complete.

Time Critical Task: YES

Validation Time: 20 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout P-15.2.

START TIME: _____

- Performance Step: 1** P-15.2, Step 2.1
Obtain radio and establish communications with the Control Room.
- Standard:** Establish radio communication with Shift Manager.
- Comment:** **Examiner cue examinee as Shift Manager, "Slowly Open valve 3 full turns."**
- Performance Step: 2** P-15.2, Step 2.2
Obtain Ladder if needed.
- Standard:** Obtains ladder if needed.
- Comment:**
- √ **Performance Step: 3** P-15.2, Step 2.3
Operate the handwheel on the "A" ARV (3411) to position valve to three full turns open.
- Standard:** Simulates turning the handwheel in the counter-clockwise direction on the "A" ARV (3411) to position valve to three full turns open.
- Comment:** **Examiner cue examinee that the handwheel turned as desired.**

PERFORMANCE INFORMATION

	P-15.2, Step 2.1
Performance Step: 4	Report action to Shift Manager.
Standard:	Leaves noisy area (IB Main Steam Area) to make report. Reports over radio to Shift Manager that ARV-3411 is three full handturns open.
Comment:	Examiner does not respond to call if radio call given from the Main Steam Area. Examiner cue examinee as Shift Manager, "Slowly throttle closed the valve 1 full turn."
	P-15.2, Step 2.3
Performance Step: 5	Operate the handwheel on the "A" ARV (3411) to position valve to two full turns open.
Standard:	Simulates turning the handwheel in the clockwise direction on the "A" ARV (3411) to position valve to two full turns open.
Comment:	Examiner cue examinee that the handwheel will <u>NOT</u> turn as desired.
	P-15.2, Note prior to Step 2.3
√ Performance Step: 6	If the ARV will not close, isolate the ARV with its root isolation.
Standard:	Proceeds to "A" ARV Root Isolation Valve (V3507) and Simulates closing the valve fully by rotating the handwheel in the clockwise direction.
Comment:	Examiner cue examinee that the handwheel turned as desired.

PERFORMANCE INFORMATION

Performance Step: 7 P-15.2, Step 2.1
Report action to Shift Manager.

Standard: Leaves noisy area (IB Main Steam Area) to make report.
Reports over radio to Shift Manager that ARV-3411 is three full handturns open, however, because it would not close, its Root isolation valve (V3507) was closed.

Comment: **Examiner does not respond to call if radio call given from the Main Steam Area.**

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____**TIME CRITICAL STOP TIME:** _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM I

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 has experienced a Control Complex fire and the Shift Manager has implemented ER-FIRE.1, "Alternative Shutdown for Control Complex Fire."
- The Reactor was tripped.
- The MSIVs were closed.
- The Turbine Generator was verified tripped.
- The Reactor Coolant Pumps were tripped.

INITIATING CUE:

You, the HCO, have all the equipment from the Appendix "R" locker. You have completed all the steps of Att. 3, HCO in ER-FIRE.1. The Shift Manager directs you to locally operate the Atmospheric Relief Valve, V-3411, per Step 4.5.4 of ER-FIRE.1 and P-15.2, Dump Steam Through ARV's Locally.

Simulate all actions; do not manipulate any valves.

This is Time Critical with 20 minutes to complete.

PERFORMANCE INFORMATION

Attachment 16.0, Attachment Ruptured S\G

Handouts: E-0, Reactor Trip or Safety Injection (Page 14 of 23, Step 21)
Attachment 16.0, Attachment Ruptured S\G

Initiating Cue: Take action in accordance with Step 21 of E-0.

Time Critical Task: NO

Validation Time: 30 minutes

PERFORMANCE INFORMATION

(Denote Critical Steps with a check mark)

Proceed to Control Room, and provide Candidate with Initial Conditions/Cue (Last Page of this JPM), and Handout E-0 (Page 14 of 23 Step 21).

START TIME: _____

- Performance Step: 1** E-0, Step 21, 1st Bullet
Checks Secondary Radiation Levels - Normal
- Steamline Radiation Monitor
- Standard:** Observes R-31 and R-32 and determines that the radiation monitors are reading normal.
- Comment:**
- Performance Step: 2** E-0, Step 21, 2nd Bullet
Checks Secondary Radiation Levels - Normal
- Dispatch AO to locally check steamline radiation
- Standard:** Determines to dispatch AO to monitor steamline radiation levels.
- Comment:** **IF candidate employs the 3rd Bullet prior to dispatching the AO, Examiner cue candidate that RP/Chemistry acknowledges and reports that the sampling activities will take approximately an hour.**
Cue candidate to locally monitor steamline radiation levels.
- √ **Performance Step: 3** E-0, Step 21, 2nd Bullet
Proceed to the Shift Manager's Office or the Access Control Area and obtain an RO-20.
- Standard:** Proceeds to Shift Manager's Office (Control Room) or the Access Control Area and obtains an RO-20 from the Shift Manager or the Duty RP Technician.
- Comment:**

PERFORMANCE INFORMATION

E-0, Step 21, 2nd Bullet

Performance Step: 4 Perform an operability check on the RO-20.

Standard:

Observes the physical condition of the instrument and determines that it is usable (probe is connected, no visible damage to unit).

Observes calibration sticker and determines that the instrument is in calibration (Date due is not in past).

Observes source check sign off sticker and determines that the instrument has been properly source checked.

Takes Range Select Switch to Battery 1 or Battery 2 Position and observes needle deflection to the Green "Battery Check" region.

Determines that the instrument can be used, places the Range Select Switch on one of the usable range settings (50 R/hr, 5 R/hr, 500 mR/hr, 50 mR/hr, 5 mR/hr).

Comment:

PERFORMANCE INFORMATION

E-0, Step 21, 2nd Bullet√ **Performance Step: 5**

Proceed to Intermediate Building, in the vicinity of the "A" Steam Line, and using the RO-20, check the Steam Line for Radiation in the vicinity of R-31.

Standard:

Places the RO-20 Range Select Switch on one of the usable range settings and holds probe adjacent to Steam Line in vicinity of the associated process monitor.

Determines the "A" Steam Line is reading .2 mR/hr (Normal).

Comment:

Examiner cue examinee as follows:

Using a grease pencil, mark the position on the Scale where the Needle is:

Range Select Switch Position	Cue
OFF	No needle deflection (0)
Battery 1	Needle is in Green region
Battery 2	Needle is in Green region
Zero	Needle at or near 0
50 R/hr	As is (or "0")
5 R/hr	As is (or "0")
500 mR/hr	As is (or "0")
50 mR/hr	As is (or "0")
5 mR/hr	As is (or Needle at 0.2)

PERFORMANCE INFORMATION

E-0, Step 21, 2nd Bullet√ **Performance Step: 6**

Proceed to Intermediate Building, in the vicinity of the "A" Steam Line, and using the RO-20, check the Steam Line for Radiation in the vicinity of R-32.

Standard:

Places the RO-20 Range Select Switch on one of the usable range settings and holds probe adjacent to Steam Line in vicinity of the associated process monitor.

Determines the "B" Steam Line is reading 4.2 mR/hr.

Comment:

Examiner cue examinee as follows:

Using a grease pencil, mark the position on the Scale where the Needle is:

Range Select Switch Position	Cue
OFF	No needle deflection (0)
Battery 1	Needle is in Green region
Battery 2	Needle is in Green region
Zero	Needle at or near 0
50 R/hr	As is (or "0")
5 R/hr	As is (or "0")
500 mR/hr	As is (or "0")
50 mR/hr	Needle near .4 (4 mR/hr)
5 mR/hr	Needle at 4.2 (4 mR/hr)

PERFORMANCE INFORMATION

- Performance Step: 7** E-0, Step 21, 2nd Bullet
Report findings to Control Room supervision.
- Standard:** Reports to Control Room Supervision that the "A" Steam Line reads .2 mRr/hr, and the "B" Steam Line reads 4.2 mR/hr.
Identify that the ruptured Steam Generator is the "B" Steam Generator.
- Comment:** **Examiner cue examinee:**
- **Based on his report the Control Room crew is transitioning to E-3.**
 - **Hand the candidate a locked valve Key and Attachment 16.0 and direct that the candidate to Isolate the Ruptured Steam Generator in accordance with Part A of ATT-16.0.**
 - **SIMULATE ALL Actions. Do NOT Operate any plant equipment.**
 - **Indicate that the "B" MSIV is closed.**
- Performance Step: 8** Attachment 16.0, Part A, Step 1
Check closed the ruptured S\G MSIV (V-3516).
- Standard:** Recognizes that the Control Room crew has reported the B MSIV is closed.
- Comment:**

PERFORMANCE INFORMATION

- Attachment 16.0, Part A, Step 2
- √ **Performance Step: 9** Ensure both S/G MSIV bypass valves closed.
- S/G A, V-3615.
 - S/G B, V-3614.
- Standard:** Simulates moving valve handwheel for V-3615 in the clockwise position.
Simulates moving valve handwheel for V-3614 in the clockwise position.
- Comment:** **Examiner cue candidate that the valve handwheel will not turn (Valve is shut).**
- Attachment 16.0, Part A, Caution prior to Step 4
- Performance Step: 10** Notify Control Room that you are about to isolate Steam Flow from the "B" SG to the TDAFW Pump.
- Standard:** Calls control room and notified Control Room crew.
- Comment:** **Examiner cue candidate that Shift Manager acknowledges.**
- Attachment 16.0, Part A, Step 4
- √ **Performance Step: 11** Locally close TDAFW Pump Steam root valve.
- S/G B, V-3504.
- Standard:** Simulates moving valve handwheel for V-3504 in the clockwise position several turns until movement stops.
- Comment:** **Examiner cue candidate that the valve handwheel turns several turns and then stops (Valve is shut).**

PERFORMANCE INFORMATION

- ✓ **Performance Step: 12** Attachment 16.0, Part A, Step 5, 1st bullet
Locally close the "B" S/G Steam to Sampling System Valve (V-3412A).
- Standard:** Simulates moving valve handwheel for V-3412A in the clockwise position several turns until movement stops.
- Comment:** **Examiner cue candidate that the valve handwheel turns several turns and then stops (Valve is shut).**
- ✓ **Performance Step: 13** Attachment 16.0, Part A, Step 5, 2nd bullet
Locally close the "B" S/G Support heating System Valve (V-3668).
- Standard:** Simulates moving valve handwheel for V-3668 in the clockwise position several turns until movement stops.
- Comment:** **Examiner cue candidate that the valve handwheel turns several turns and then stops (Valve is shut).**
- ✓ **Performance Step: 14** Attachment 16.0, Part A, Step 5, 3rd bullet
Locally close the "B" S/G Upstream trap isolation valve (V-3520).
- Standard:** Simulates moving valve handwheel for V-3520 in the clockwise position several turns until movement stops.
- Comment:** **Examiner cue candidate that the valve handwheel turns several turns and then stops (Valve is shut).**

PERFORMANCE INFORMATION

	Attachment 16.0, Part A, Caution prior to Step 6
Performance Step: 15	Notify Control Room that you are about to isolate Feed Flow from the "B" SG to the TDAFW Pump.
Standard:	Calls control room and notified Control Room crew.
Comment:	Examiner cue candidate that Shift Manager acknowledges.
	Attachment 16.0, Part A, Step 6
√ Performance Step: 16	Locally close the "B" S/G TDAFW pump manual feedwater isolation valve (V-4006).
Standard:	Simulates moving valve handwheel for V-4006 in the clockwise position several turns until movement stops.
Comment:	Examiner cue candidate that the valve handwheel turns several turns and then stops (Valve is shut).
	Attachment 16.0, Part A, Step 7a
Performance Step: 17	Bypass Condensate Demineralizer by placing AVT bypass valve controller in Manual.
Standard:	Simulates placing AVT bypass valve controller in Manual.
Comment:	Examiner cue candidate that there are no demineralizers in service. NOTE: Candidate may still take actions in accordance with Step 7 substeps.

PERFORMANCE INFORMATION

Performance Step: 18 Attachment 16.0, Part A, Step 8
Locally place TURB RM WALL EXH Fan switches to CLOSE.

Standard: Simulates placing TURB RM WALL EXH Fan switches to CLOSE.

Comment: **Examiner cue candidate that the TURB RM WALL EXH Fan switches are in CLOSE.**

Performance Step: 19 Attachment 16.0, Part A, Step 9
Locally place TURB RM ROOF VENT switches to CLOSE.

Standard: Simulates placing TURB RM ROOF VENT switches to CLOSE.

Comment: **Examiner cue candidate that the TURB RM ROOF VENT switches are in CLOSE.**

Terminating Cue: **Evaluation on this JPM is complete.**

STOP TIME: _____

TIME CRITICAL STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007 NRC JPM J

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 experienced a reactor trip and SI.
- E-0, Reactor Trip or Safety Injection was entered.
- A Steam Generator Tube Rupture is suspected, however, at Step 16 of E-0, Air Ejector, Blowdown and Steam Line radiation were normal, and transition to E-3, "Steam Generator Tube Rupture," could not be made.
- The Crew is now at step 21 of E-0, and still suspects a Steam Generator Tube Rupture.

INITIATING CUE:

Take action in accordance with Step 21 of E-0.