Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: _____

Task Title: 2-ES-0.1 actions (alternate path)

K/A Reference: 004A2.14 (3.8/3.9) Job Performance Measure No: 2007-NRC-S-1

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: Five minutes ago, the reactor was manually tripped from 250 MWe per POP-3.1. Required actions of E-0 steps 1-4 are complete with a transition to ES-0.1 Reactor Trip Response. The CRS has directed you to perform ES-0.1 Starting at step 1 through step 7 (i.e. including step 7)

Task Standard: Required actions of ES-0.1 step 1 through 7 complete.

Required Materials:
ES-0.1 with attachments (two copies one for candidate and one for examiner)
2-SOP-3.2 (may be request by candidate but is not required for performance)

General References: Reactivity summary sheet for IC

Initiating Cue: Perform ES-0.1 Steps 1 through step 7 (inclusive)

Time Critical Task: No

Validation Time: 20 min.

SIMULATOR SET-UP

Simulator Setup

Reset simulator to IC-162. No other simulator setup is required

IC will contain MAL-CRF001AE, MAL-CRF002AC, MAL-CRF001AV and XMT-SGN037A (1050psig)

Performance Information

(* prior to step, denotes critical step(s))

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1. Performance Step: Check S/G levels greater than 10%

Standard: Verifies Narrow range levels greater than 10% and less then 50%
-If <10% in all SG's ensure AFW flow is >400 gpm
-If >50% in any SG stop feed to that SG.
No action should be necessary.

Note: Applicant may adjust AFW flow at this step if levels are low or high. This could become a critical step if the adjustments made cause a CFST status to degrade.

Comments:

***2. Performance Step: Check RCS temperature and close 21 ADV.**

Standard: Observes RCS temperature indication and observes that Tave is <547°F and decreasing, transitions to RNO column of Step 1 and **shuts the 21 Atmospheric Dump valve.**

Note: First action for step 1 RNO is to "stop dumping steam" at which point the student should take action to shut the 21 Atmospheric Dump. This may be accomplished by either adjusting the set point up or placing the controller in manual and shutting it. Either of these actions will close the malfunctioning valve.

Comments: Applicant may close MSIV's depending on temperature trend.

Performance Information

(* prior to step, denotes critical step(s))

3. Performance Step: Check 345 KV MO Disc Switch F7-9 open

Standard: Candidate verifies 345 KV MO Disc Switch F7-9 open.

Note: No manipulation required.

Comments:

4. Performance Step: Verify the all 480V buses are energized from off-site
Standard: Candidate verifies the all 480V buses are energized from off-site.

Note: No manipulation required.

Comments:

5. Performance Step: Check PRZR Level Control
Standard: Candidate verifies:

- PRZR level is > 18% and trending toward 37%
- Charging and letdown are in-service.
- Any CCW pump is running.

Note: No manipulation may be required. If at this step PRZR level is <18% then the applicant will verify L/D is isolated and adjust charging to restore PRZR level. This is a possibility due to the cooldown that has occurred.

Comments:

Performance Information

(* prior to step, denotes critical step(s))

6. Performance Step: Check PRZR Pressure Control

Standard: Candidate verifies:

- PRZR Pressure stable at or trending to 2235psig (and > 1840 psig)

Note: No manipulation required.

Comment:

7.a & b Performance Step: Check all control rods Fully Inserted.

Standard: Observes IRPI indications for all control rods and notes that three control rod IRPI's (N-11, D-12, P-6) indicate greater than 7.5 steps and transitions to RNO column of step 6.b.

Note: No manipulation required.

Comments:

Performance Information

(* prior to step, denotes critical step(s))

*** 7.b. RNO Performance Step: Check all control rods <12 steps and determine required boration.**

Standard: Observes PICS indications for all control rods and notes that three control rod IRPI's (N-11, D-12, P-6) indicate greater than 12 steps and continues on to next step. Candidate may require reference to 2-ES-0.1 attachment 2, for getting the data from PICS. Once this is determined the student will continue on to start an emergency boration.

Note: The candidate should determine with 3 rods are > 12 steps and that boration of 230ppm/rod x 3rods = 690 ppm is required. Student may not verbalize the PPM change required. If so, follow up question will need to be asked.

Comments:

***7.b.1)a). Performance Step: Open emergency boration valve MOV-333**

Standard: Places control switch on panel SFF to open. Observes that valve does open.

Comments:

Performance Information

(* prior to step, denotes critical step(s))

***7.b.1) b). Performance Step: Place both Boric Acid pumps is high speed mode.**

Standard: Boric Acid Trans Pump No. 21 Speed in FAST on panel FCF
Boric Acid Trans Pump No. 22 Speed in FAST on panel FCF

Comments:

*** 7.b.1)c) Performance Step: Place charging pump control in MAN.**

Standard: On panel FBF places AUTO-BAL-MAN switch to MAN.

Comments:

Performance Information

(* prior to step, denotes critical step(s))

*** 7.b.1)d) Performance Step: Establish a minimum charging flow of 75 GPM.**

Standard: On panel FBF adjusts charging flow to ensure flow rate of > 75gpm.

Note: Charging flow indication does not include seal injection flow, consequently, total flow may be >75 gpm without charging flow indicating >75 gpm. If charging flow indicates <75 gpm then record seal injection flows to assess after the JPM.
- Applicant may start a second charging pump.

Comments:

7.b.1)e) Performance Step: When boration is complete, Then secure the boration per 2-SOP-3.2....

Cue: The CRS requests how many PPM change is required if not previously verbalized and prompt the candidate to continue with the EOP while boration continues.
At this point the JPM is terminated

Standard: Candidate should report 690 ppm additional.

Note: No manipulation required.

Terminating Cue: After the required boration is reported the JPM is complete.

Comments:

VERIFICATION OF COMPLETION

Job Performance Measure No. 2007-NRC-S-1, Perform actions of 2-ES-0.1 steps 1-7

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Initial Conditions:

- Five minutes ago, the reactor was manually tripped from 250 MWe per POP-3.1.
- Required actions of E-0 steps 1-4 are complete with a transition to ES-0.1 Reactor Trip Response.
- The CRS has directed you to perform ES-0.1 steps 1-7.

Initiating Cue:

- Perform 2-ES-0.1 Steps 1-7.

RETURN THIS TO THE EVALUATOR WHEN THE TASK IS COMPLETE

2007-NRC-S-2(All)
JOB PERFORMANCE MEASURE (Alt. Path)

Perform E-0 Attachment 1 verification with:

- **failure of Phase A to actuate and**
- **failure 21 Spray pump to start and**
- **failure of 22 Spray pump discharge valve to open.**

Applicant's Name: _____

Examiner: _____

Date: _____ **SAT** **UNSAT**

This JPM was administered for qualification? YES

DIRECTIONS TO OPERATOR:

When I tell you to begin, you are to perform E-0, Reactor Trip or Safety Injection, Attachment 1.

I will describe the general system conditions. Before you start, I will state the Task Standard and Initiating Cues, and answer any questions. Utilize all reference material appropriate for this task.

INITIATING CUES:

1. An event occurred a short time ago that resulted in a Reactor Trip and a Safety Injection.

2. The CRS has directed you to perform E-0, Attachment 1.

TASK STANDARD:

E-0, Attachment 1, completed with all required actions performed.

SIMULATOR SET-UP

-Reset to IC-161. No other setup required. IC will contain:

- **failure of Phase A to actuate and**
- **failure 21 Spray pump to start and**
- **failure of 22 Spray pump discharge valve to open.**

-Provide two copies of 2-E-0 with attachments (one for applicant and one for examiner). Examiner will utilize Attachment 2 for a list of Phase "A" valves.

Booth Operator:
-Take out of freeze when the JPM begins.
- MCC 24A, 27Aand 29A lighting will need to be reset during this JPM when requested by operator.

✸ **Denotes Critical Step**

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
1	Obtain correct procedure	E-0, Attachment 1, Step 1	
2	Review Note prior to step 1 and	Note Reviewed	
3	Evaluate containment conditions a) determine that Adverse Containment Conditions exist.	Determine that Adverse Containment applies and continue in left column.	
✸4	**Start at least 1 Charging Pump**	At least 1 Charging Pump running in Manual at Max Speed	
✸5	**Align Charging Pump Suction to RWST**	LCV-112B Open, LCV-112C Closed	
6	Place RCS makeup control switch to STOP	M/U control switch in STOP	
7	Check 345 KV MO Disc Switch F7-9 position	Verify Disc Switch F7-9 Open	
✸8	Check Status of 480V Buses **Booth CUE:** Acknowledge NPO dispatched and after appropriate time delay reset lighting. **NOTE: Stopping Pumps is Critical**	Verify all 480V buses energized by offsite power Dispatch NPO to reset All Lighting, MCCs 24A, 27A and 29A **Stop All condensate pumps**	
9	Check FW Isolation Status	Verify MBFPs tripped; Discharge vlvs	

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
		Closed; Reg Vlvs Closed, FW stop vlvs Closed; SG B/D isolation vlvs Closed	
10	Check if Main Steamlines should be Isolated	Verifies VC pressure was >24 psig and MSIVs Closed	
11	Verify Proper Service Water System Operation	Verify 3 Essential Service Water Pumps Running Verify SW valves from EDGs open	
12	Verify SI System Pumps Running	Verify 3 SI Pumps Running Verify MOV-851A/B Open Verify 2 RHR Pumps Running	
13	Verify Proper SI System Valve Alignment	Verify 822A/B Open Verify 746/747 Open	
14	Verify Containment Fan Coolers in Service	Verify 5 FCUs Running Verify Norm Out Valves Open Verify TCV-1104/1105 Open	
15	Verify AFW Flow to SGs	Verify AFW Flow to ALL SGs	

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
16	Verify Containment Ventilation Isolation	Verify FCV-1170s and PCV-1190s Closed	
17	Review Note prior to step 12	Note Reviewed	
●18	Verify Phase A Note: **Manual Actuation of Phase A is critical Complete list of valves is contained in Attachment #2 which is provided to the examiner.** **Booth CUE:** Acknowledge NPO dispatched and report back after ~1 minute that IVSW tank level >92%, press >57 psig and WCP press >52 psig	Verify Phase A **NOT** Actuated and initiate Manual Phase A Verify Phase A Valves Closed Verify IVSW and WCP Valves Open Place personnel and equipment hatch solenoid control switches to Incident Direct NPO to check IVSW tank level >92%, press >57 psig and WCP press >52 psig	
19	Review Note prior to step 13	Note Reviewed	
●20	Check if Containment Spray should be actuated and note that: **-21 Spray pump did not start and must be manually started and** **-22 Spray pump discharge valves are closed and must be opened**	Verify: Spray Pumps Running; 21 Spray pump will need to be manually started. **This is critical.** Discharge Valves Open, MOV-866C and MOV-866D will need to be opened. **This is critical.**	

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
	Booth CUE: Acknowledge NPO dispatched and report back after ~1 minute that IVSW valves are Open	Phase B Actuated RCP secured IVSW valves Open	
20	Verify CCR Air Conditioner Running. Note: no action is required but applicant may place switch in "Mode 2" which will start a second fan and is an acceptable action.	Verify CCR Vent running in Incident Mode 2	
22	Notify CRS that Attachment 1 is Complete **Terminating CUE:** Acknowledge as CRS and terminate JPM.	Notify CRS	

Description of problem area:

Description of reviewed information:

INITIATING CUES:

1. An event occurred a short time ago that resulted in a Reactor Trip and a Safety Injection.

2. The CRS has directed you to perform E-0, Attachment 1.

RETURN THIS TO INSTRUCTOR WHEN YOU HAVE COMPLETED

Facility:	Indian Point Unit 2	Task No.:	300 040 05 01
Task Title:	Align the SI System Recirculation During Transfer to Cold Leg Recirculation with NO Recirc Pumps Available (Alt. Path)	JPM No.:	2007-NRC-S-3(R,I)
K/A Reference:	006 A4.05 (3.9/3.8)		

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. The booth operator will perform all field activities when requested.

Initial Conditions:
1. A large break LOCA has occurred approximately 30 minutes ago.
2. The RWST level has decreased to 9.24 feet.
3. Safety Injection is RESET.
4. Containment Spray is RESET.
5. Phase A & B are RESET.
6. CS pumps have been stopped per procedure
7. Service Water is in three-header operation.

Task Standard: The SI system is aligned for cold leg recirculation.

Required Materials: ES-1.3

General References: ES-1.3

Handouts: NONE

Initiating Cue: The SRO has directed you to transfer to cold leg recirculation in accordance with ES-1.3.

Time Critical Task: NO

Validation Time: 30 Minutes

Simulator Setup

Reset to IC-166

Booth Operator:
-Take out of freeze when the JPM begins.
- Fully open SWN-35 & SWN-35-1 when requested in JPM step 4.
-MOV-882, MCC 26B, will need to be energized during this JPM when requested by operator at JPM step 13.
-MOV-1810, MCC 26A, will need to be energized during this JPM when requested by operator at JPM step 26

(Denote Critical Steps with an asterisk)

Performance Step: 1 Give the applicant the procedure and unfreeze the simulator.
Standard: ES-1.3

Comment:

Performance Step: 2 Determine if Transfer to Cold Leg Recirculation is required:
Standard: Verifies both RWST Low-Low Level alarms lit
Determines VC sump level trending upward.

Comment:

Performance Step: 3 Reset SI.
Standard: Verify SI reset.

Comment: Note: Applicant may elect to verify reset in racks E & F

Performance Step: 4 Establish full SW flow to CCW heat exchangers.
Standard: Direct NPO to fully open SWN-35 & SWN-35-1.
Booth /examiner CUE: **Acknowledge as NPO. NPO reports SWN-35, SWN-35-1 open when requested (time compression used).**

Comment:

Performance Step: 5 Reduce AC 480V loads.
Standard: Verify Charging pump(s) stopped and PRZR heaters to off.

Comment: Charging pumps secured at 15 feet in RWST

Performance Step: 6 Reset Containment Spray.

Standard: Verify Containment Spray Reset.

Comment: Note: Applicant may elect to verify reset in racks E & F

Performance Step: Caution and Note prior to step 7

IF RWST LEVEL DECREASES TO 3.0 FT., THEN SI PUMPS TAKING SUCTION FROM RWST SHALL BE STOPPED. If RWST DECREASES TO 2.0 FT., THEN SPRAY PUMPS TAKING SUCTION FROM RWST SHALL BE STOPPED.

WHEN 3.0 FT. is reached in the RWST, then trainee should stop all SIS pumps and RHR pumps.

WHEN 2.0 FT. is reached in the RWST, then candidate should stop Spray Pumps

* **Standard:** Observes caution, **stops** SIS and RHR pumps when 3 ft. is reached. **Stops** Spray pumps when 2.0 feet is reached.

(Note: Spray pumps would have been secured previously)

* **Performance Step: 7** Perform No. 1 and 3 Recirc Switch Sequence.

Standard: Recirc SW #1 and #3 **turned to on**, verifies following stopped:

22 SI pump

21 Spray pump

21 and 22 RHR pumps

Performance Step: 8 Check Service Water System aligned for three header operation.

Standard: Request NPO to check SWN-4 & 5 Closed.

Booth CUE: **NPO reports SWN-4, SWN-5 closed when requested (time compression used).**

NOTE: Operator may request status of 3 header valves from RNO – report all closed.

Comment:

* **Performance Step: 9** Perform No. 2 Recirc Switch Sequence.

Standard: Recirc SW #2 turned to on.
Verifies 1 non-ess SW pump running,
Verifies three CCW pumps running,
Stops 23 CCW pump,
Checks function complete light lit.

Comment:

Performance Step: 10 Perform No. 4 Recirc Switch Sequence.

Standard: Recirc SW #4 turned to on. Manual start of 21/22 Recirc Pump attempted.

Comment:

NOTE: Procedure steps corresponding to JPM Steps 11 through 21 below are performed using attachment 2 of ES-1.3.

Performance Step: 11 Verify FSB ventilation is shutdown.

Standard: Verify FSB ventilation is shutdown.

Comment:

Performance Step: 12 Check 885A and 885B energized.

Standard: Verify 885A/B energized by light indication.

Comment:

Performance Step: 13 Energize MOV-882.

Standard: Direct NPO to energize 882 on MCC 26B.

Booth CUE: **Acknowledge as NPO. NPO reports 882 on MCC 26B energized as soon as booth action is complete (time compression used).**

Comment:

* **Performance Step: 14** **Ensure Recirc SWs 3, 4 & 5 OFF.**

Standard: Place Recirc SWs 3 & 4 to OFF and verify SW 5 in OFF.

Comment:

Performance Step: 15 Ensure both RHR Pumps stopped.

Standard: Verify both RHR Pumps STOPPED.

Comment:

Performance Step: 16 Ensure both Recirc Pumps stopped.

Standard: Verify both Recirc Pumps STOPPED.

Comment:

Performance Step: 17 Close 1802A and 1802B.

Standard: CLOSE both 1802A and 1802B.

Comment:

* **Performance Step: 18** **Close RHR suction valve from RWST.**

Standard: CLOSE MOV 882.

Comment:

Performance Step: 19 Check RHR pump discharge valve Open.

Standard: Verify MOV 744 OPEN by Two-is-True.

Note **Operator may request MOV 744 to be energized.**

Comment:

* **Performance Step: 20** **Ensure RHR pump suction valves from containment are Open.**

Standard: Verify 1805 Open and **OPEN MOV-885A/B.**

Comment:

* **Performance Step: 21** **Start 22 RHR Pump.**

Standard: 22 RHR Pump running by Red light indication.

Comment:

NOTE: Trainee should return to PROCEDURE ES-1.3 STEP 9.a.2) and continue with step 11 of procedure.

Performance Step: 22 Verify adequate Low Head Recirculation flow established.

Standard: Verifies 2nd highest flow indicator > 470 gpm or 2 middle >780 or sum of three lowest flow indicators verified to be > 1020 gpm from flow indicators 946A-D.

Comment:

* **Performance Step: 23** **Perform No. 7 Recirc Switch Sequence.**

Standard: Recirc SW #7 turned to on.

Checks SI pumps all stopped, function complete light lit.

Comment:

* **Performance Step: 24** **Perform No. 8 Recirc Switch Sequence.**

Standard: Recirc Switch #8 turned to on, checks containment spray pump test line valve 1813 closed.

Comment:

* **Performance Step: 25** **Close SI test Line Valves to RWST.**

Standard: Place 842/843 interlock switches to OFF and CLOSE valves.

Comment:

Performance Step: 26 Verify Recirc Pump Status.

Standard: Verify NO recirc pump running. Dispatch NPO to energize MOV-1810 on MCC-26A.

Booth CUE: **NPO Acknowledges order to energize MOV-1810. Acknowledge as NPO. NPO reports MOV-1810 energized as soon as booth action is complete (time compression used).**

Comment:

Terminating Cue: **<u>After request to energize MOV-1810</u>, the evaluation for this JPM is complete**

Job Performance Measure No.: 2007-NRC-S-3(R,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:

1. **A large break LOCA has occurred approximately 30 minutes ago.**
2. **The RWST level has decreased to 9.24 feet.**
3. **Safety Injection is RESET.**
4. **Containment Spray is RESET.**
5. **Phase A & B are RESET.**
6. **CS pumps have been stopped per procedure**
7. **Service Water is in three-header operation.**

INITIATING CUE:

The SRO has directed you to transfer to cold leg recirculation in accordance with ES-1.3.

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Respond to a bearing failure of 22 RCP with reactor 16-17% power and with a failure of the turbine to trip after the reactor is tripped. (Alt. Path)	JPM No.:	2007-NRC-S-4(R, I)
K/A Reference:	003 A2.02 (3.7/3.9)		

Examinee: NRC Examiner:

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 at 16-17% power with the main turbine on-line and power ascension in progress.
Task Standard:	Respond to 22 RCP bearing failure by tripping the Reactor, 22 RCP and shutting the MSIV's.
Required Materials:	2-AOP-RCP-1, 2-ARP-SCF, 2-E-0
General References:	2-AOP-RCP-1, 2-ARP-SCF, 2-E-0
Handouts:	NONE
Initiating Cue:	You have just relieved the Reactor Operator and should respond to indications and alarms as required.
Time Critical Task:	NO
Validation Time	5 min.

SIMULATOR SETUP

Reset simulator to IC-168

IC will be 16-17% power with main turbine on line. A malfunction of the main turbine to trip manually or automatically will be inserted into the IC. A lower radial bearing failure of 22 RCP will be inserted on a trigger (XMT-RCP022A ramp 180 to 233 over 5 minutes)

(Denote Critical Steps with an asterisk)

Performance Step: 1 ARP STEPs 3.1 & 3.2 CHECK bearing temperature on PICS to DETERMINE which pump is affected.

Standard: Using available indication (PISC computer primarily) determine the affected RCP is 22

Comment:

Performance Step: 2 ARP STEP 3.3 Evaluate the bearing temperatures of 22 RCP.

Standard: Determine that they are >200F and require a reactor trip.

Comment:

* **Performance Step: 3** **ARP STEP 3.3.1 TRIP the Reactor**

Standard: Reactor tripped.

Comment:

* **Performance Step: 4** **ARP STEP 3.3.2 Trip the 22 RCP**

Standard: 22 RCP tripped after reactor tripped

Comment: **The immediate actions of E-0 should be performed at this point.**

Performance Step: 5 Verify the Reactor Trip.

Standard: Verifies:

- trip breakers open
- flux decreasing
- Rod Bottom lights lit.
- RPI's < 7.5 inches

Cue:

Comment: May have already performed after initial trip and continue on with step 2 of E-0.

*	**Performance Step: 6**	**Verify Turbine trip**
	Standard:	Checks All turbine stop valves closed. The turbine will not have tripped at this point and the actions per the RNO column attempt to trip the turbine (this will not work) and close the MSIV's
	Cue:	
	Comment:	
	Performance Step: 7	Verify power to the 480V buses.
	Standard:	Checks 480V buses and determines all are energized
	Comment:	
	Performance Step: 8	Checks SI Status
	Standard:	-Determines SI has not actuated and verifies the parameters in RNO column to determine that an SI is not required -Starts AFW pumps and establishes >760 gpm feedflow
	Comment:	**If the timing of the MSIV closure causes an SI then both trains of SI will be verified at this point and then transition to attachment 1. Either path would be acceptable as long as poor performance did not lead to the SI (i.e. delay in actions up to MSIV closure)**
	Terminating Cue:	When the reactor and 22 RCP are tripped, the MSIV's closed, and the immediate actions (steps 1-4) of E-0 are complete the evaluation for this JPM is complete.

Job Performance Measure No.: 2007-NRC-S-4 (R, I)

Examinee's Name:

Date Performed:

Examiner:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: Plant at 16-17% power with the main turbine on-line and power ascension in progress.

INITIATING CUE: You have just relieved the Reactor Operator and should respond to indications and alarms as required.

Return this to Examiner at the completion of the JPM.

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Response to High Containment Radiation (alt. path)	JPM No.:	2007-NRC-S-5(R,U)
K/A Reference:	022/027 A4.01 (3.6/3.3)		

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: An RCS leak has occurred inside containment. Failed fuel has resulted in elevated radiation levels. RCS pressure and level are stable with two charging pumps and minimum letdown. The team is implementing ES-0.1 and the CRS has directed the performance of FR-Z.3.
A Critical Safety Function Status Tree Yellow Path exists on Containment due to high radiation levels.

Task Standard: All available Iodine Filter Units and FCU's are operating with cooling aligned.

Required Materials: FR-Z.3

General References: FR-Z.3

Handouts: NONE

Initiating Cue: The CRS has directed you to perform the actions of FR-Z.3.

Time Critical Task: NO

Validation Time: 10 Minutes

SIMULATOR SETUP

Reset to IC- 167, no other setup required.

Contains:

- RCS leak within the capacity of two charging pumps and not requiring an SI
- 21 & 23 FCU not running
- 21 FCU outlet valve failed closed
- R-25 set at 9.5 R/hr
- R-26 set at 6 R/hr

(Denote Critical Steps with an asterisk)

Performance Step: 1 Verify Containment Ventilation Isolation:

a. Containment purge valves – CLOSED:

- FCV-1170
- FCV-1171
- FCV-1172
- FCV-1173

Standard: Verifies valves indicate closed.

Performance Step: 2 b. Containment pressure relief valves – CLOSED:

- PCV-1190
- PCV-1191
- PCV-1192

Standard: Verifies valves indicate closed.

Comment:

* **Performance Step: 3** **Place Iodine Filter Fans in service.**

Standard: Start 21 & 22 Iodine Filter fans.

Comment:

* **Performance Step: 4** **Verify containment fan coolers are –IN SERVICE.**

Standard: Recognizes that 21 and 23 FCU's are <u>not</u> running and attempts to start them both. Both fans will start and run.

Comment:

Performance Step: 5 Verify NORM OUT valves -OPEN

	Standard:	Determines 21 FCU NORM OUT valve not open. Attempts to manually open valve. When valve will not open, continues with actions in "response not obtained" column and calls TSC.
	Booth Cue:	Acknowledge the communication as the TSC.
	Comment:	Student may secure the 21 FCU due to improper line-up but this action is not required for this JPM. Only the attempt to manually open the outlet valve is critical.
*	**Performance Step: 6**	Verify TCV-1104 and TCV-1105 both open
	Standard:	Opens TCV 1104 and 1105 manually.
	Comment:	**These valves open on an SI and are closed normally**
	Performance Step: 7	Notify TSC of radiation levels to obtain recommended actions
	Standard:	Calls TSC with current radiation readings and requests recommendations.
	Booth Cue:	TCS will evaluate repair options and recommend continuing. *After communication terminate the JPM.*
	Comment:	**R-25 ~9.5 R/hr and R-26 ~6 R/hr**

Terminating Cue: When the lineup of fans, filters and cooling is complete and The TSC is called with radiations levels, the evaluation for this JPM is complete

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2007-NRC-S-5(R)

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: An RCS leak has occurred inside containment. Failed fuel has resulted in elevated radiation levels. RCS pressure and level are stable with two charging pumps and minimum letdown. The team is implementing ES-0.1 and the CRS has directed the performance of FR-Z.3.

A Critical Safety Function Status Tree Yellow Path exists on Containment due to high radiation levels.

INITIATING CUE: The CRS has directed you to perform the actions of FR-Z.3.

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Transfer 6.9KV Buses 1 Through 4 To Buses 5 And 6 (Station Aux Transformer)	JPM No.:	2007-NRC-S-6
K/A Reference:	062 A4.01 (3.3/3.1)		

Examinee: NRC Examiner:

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 shutdown is in progress. Load has been stabilized at ~ 35 MWe. Buses 5 and 6 are energized from the Station Auxiliary Transformer. Busses 1-4 are energized from the Unit Auxiliary Transformer.
Task Standard:	Busses 1-4 are energized from the Station Auxiliary Transformer.
Required Materials:	SOP-27.1.4 and blank 2-DRS-1
General References:	SOP-27.1.4
Handouts:	NONE
Initiating Cue:	You are directed to transfer 6.9KV buses 1, 2, 3 and 4 to the Station Aux Transformer in accordance with SOP 27.1.4. All applicable prerequisites per SOP 27.1.4 have been met.
Time Critical Task:	NO
Validation Time:	10 Minutes

SIMULATOR SETUP

Reset to IC-163. No other simulator setup required.

(Denote Critical Steps with an asterisk)

Performance Step: 1 Obtain and review SOP-27.1.4

Standard: Locates and reviews procedure

Comment:

Performance Step: 2 Ensure LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers by placing Station or Unit Auxiliary Transformers Tap Changers in MANUAL and adjusting.

Standard: LESS THAN 50 volt difference between Station and Unit Auxiliary Transformer.

Note: **This step is critical if voltage difference is > 50V**

Comment:

* **Performance Step: 3** **Place 6900V Bus No. 1 Synchroscope in Bus 1-Bus 5 position.**

Standard: Synchroscope in Bus 1-Bus 5 position.

Comment:

* **Performance Step: 4** **If Synchroscope is at 12 o'clock then CLOSE Bus No. 1-5 tie breaker UT1-ST5.**

Standard: Red light ON and green light OFF.

Comment:

* **Performance Step: 5** **OPEN 6900 Bus No. 1 Normal Feed Breaker UT-1.**

Standard: Green light ON and red light OFF.

Comment:

Performance Step: 6 Place 6900V Bus No. 1 Synchroscope in OFF.

Standard: Synchroscope is in OFF position.

Comment:

Performance Step: 7 Ensure UAT and SAT supplying voltage at 7.050 – 7.2 KV

Standard: Verifies voltage 7.050 – 7.2 KV

Comment: 2-DSR-1 may be referenced at this point but is not required

Performance Step: 8 Ensure LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers by placing Station or Unit Auxiliary Transformers Tap Changers in MANUAL and adjusting voltage.

Standard: LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers.

Note: **This step is critical if voltage difference is > 50V**

Comment:

* **Performance Step: 9** **Place 6900V Bus No. 2 Synchroscope in Bus 2-Bus 5.**

Standard: Synchroscope in Bus 2-Bus 5 position.

Comment:

* **Performance Step: 10** **If Synchroscope is at 12 o'clock then CLOSE 6900V Bus No. UT2-ST5 tie breaker.**

Standard: Red light ON green light OFF.

Comment:

* **Performance Step: 11** **OPEN 6900V Bus No. 2 Normal Feed Breaker UT-2.**

Standard: Green light ON and red light OFF.

Comment:

Performance Step: 12 Place 6900V Bus No. 2 Synchroscope in OFF.

Standard: Synchroscope in OFF.

Comment:

Performance Step: 13 Ensure UAT and SAT supplying voltage at 7.050 – 7.2 KV

Standard: Verifies voltage 7.050 – 7.2 KV

Comment: 2-DSR-1 may be referenced at this point but is not required

Performance Step: 14 Ensure LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers by placing Station or Unit Auxiliary Transformer Tap Changers in Manual and adjusting voltage.

Standard: LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers.

Note: **This step is critical if voltage difference is > 50V**

Comment:

* **Performance Step: 15** **Place 6900V Bus No. 3 Synchroscope in Bus 3-Bus 6.**

Standard: Synchroscope in Bus 3-Bus 6 position.

Comment:

* **Performance Step: 16** **If Synchroscope is at 12 o'clock then CLOSE 6900V Bus No. 3-6 Tie Breaker UT3-ST6.**

Standard: Red light ON and green light OFF.

Comment:

* **Performance Step: 17** **OPEN 6900V Bus No. 3 Normal Feed Breaker UT3.**

Standard: Green light ON and red light OFF.

Comment:

Performance Step: 18 Place 6900V Bus No. 3 Synchroscope in OFF.

Standard: Synchroscope in OFF.

Comment:

Performance Step: 19 Ensure UAT and SAT supplying voltage at 7.050 – 7.2 KV

Standard: Verifies voltage 7.050 – 7.2 KV

Comment: 2-DSR-1 may be referenced at this point but is not required

Performance Step: 20 Ensure LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers by placing Station or Unit Auxiliary Transformer Tap Changers in Manual and adjusting voltage.

Standard: LESS THAN 50 volt difference between Station and Unit Auxiliary Transformers.

Note: **This step is critical if voltage difference is > 50V**

Comment:

* **Performance Step: 21** **Place 6900V Bus No. 4 Synchroscope in Bus 4-Bus 6.**

Standard: Synchroscope in Bus 4 position.

Comment:

* **Performance Step: 22** If Synchroscope is at 12 o'clock then CLOSE 6900V Bus No. 4-6 Tie Breaker UT4-ST6.

Standard: Red light ON and green light OFF.

Comment:

* **Performance Step: 22** OPEN 6900V Bus No. 4 Normal Feed Breaker UT4.

Standard: Green light ON and red light OFF.

Comment:

Performance Step: 23 PLACE 6900V Bus No. 4 Synchroscope in OFF.

Standard: Synchroscope in OFF.

Comment:

Terminating Cue: When Busses 1-4 are energized from the Station Auxiliary Transformer, the evaluation for this JPM is complete

Job Performance Measure No.: 2007-NRC-S-6(R, I)

Examinee's Name:

Date Performed:

Examiner Name:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS:

Plant shutdown is in progress. Load has been stabilized at ~ 35 MWe.

Buses 5 and 6 are energized from the Station Auxiliary Transformer. Busses 1-4 are energized from the Unit Auxiliary Transformer.

INITIATING CUE:

You are directed to transfer 6.9KV buses 1, 2, 3 and 4 to the Station Aux Transformer in accordance with SOP 27.1.4. All applicable prerequisites per SOP 27.1.4 have been met.

NRC EXAM 2007-NRC-S-7(ALL) *SIMULATOR*

TASK BEING PERFORMED: Perform the Required Actions for a Failure of Intermediate Range Channel N35 (with Control Power Fuses Removed)

TIME: 10 Minutes

PARENT TASK: 015 002 04 01

PROCEDURE: SOP 13.1 (Rev.23)

STARTING STEP: 4.7

ENDING STEP: 4.7.4

OPERATOR PERFORMING JPM _____

PERFORMANCE: **PASS** ☐ **FAIL** ☐

Examiner: _____ _____
Name DATE

CRITICAL STEP(S): 2, 7, 8, 12

COMMENTS:

SIMULATOR SET-UP:

Reset simulator to IC-164

This JPM will require the Relays for N-35, NC35FX(A) and NC35FX(B) to be blocked prior to pulling Control Power Fuses. Do not Block Relays unless requested by operator. Actuate Trigger 1 to block relays.

DIRECTIONS TO OPERATOR:

When I tell you to begin, you are to remove Intermediate Range Channel N35 from service in accordance with the SOP due to its failure.

I will describe the general system conditions. Before you start, I will state the Task Standard and Initiating Cues, and answer any questions. Utilize all reference material appropriate for this task.

INITIATING CUES:

1. The plant is at 4-5% power.

2. The plant is stable.

3. The SRO has directed you to remove Intermediate Range Channel N35 from service per the SOP.

4. All precautions and limitations have been reviewed as well as the initial conditions verified.

TASK STANDARD:

Plant stable with appropriate procedure completed.

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
1	Obtain correct procedure and section 4.7	SOP 13.1	
*2	**Place Level Trip Switch for selected channel to BYPASS**	**Level Trip Switch for N35 to BYPASS**	
3	Verify Level Trip Bypass lamp illuminated on IR drawer	Operator verifies N35 drawer lamp lit	
4	Verify Intermediate Range Trip Bypass lamp illuminated on FBF	Operator verifies Intermediate Range Bypass light lit on FBF	
5	Verify NIS TRIP BYPASS alarm has annunciated	Operator verifies alarm can lit on FCF	
6	Determine if control power is to be removed from affected channel CUE: Inform operator that control power will be removed from the affected channel	N/A	
*7	Place blocking strips across Trip and Rod Stop relays NOTE: Operator should direct I & C to perform **Booth CUE: As I & C, acknowledge, activate trigger 1 and report that blocking strips installed as soon as trigger 1 is actuated (time compression used).**	**Operator directs** that NC 35FX in red rack E6 and F6 and NC 35EAX in Rack G4 rear be blocked	
*8	Deenergize the affected channel as directed by SM **CUE: Inform operator as SM to deenergize the affected channel**	**Instrument Power fuses for N35 removed**	
9	Verify INTERMEDIATE RANGE 3X LOSS OF COMPENSATE VOLTAGE alarm has annunciated	Operator verifies alarm can lit on FCF	
10	Verify NIS INTERMEDIATE RANGE LOSS OF DETECTOR VOLTAGE alarm has annunciated	Operator verifies alarm can lit on FCF	
11	Verify "LOW POWER PERMISSIVE BLOCK NOT ENGAGED" alarm has annunciated. **CUE: Tell applicant that "LOW POWER PERMISSIVE BLOCK NOT ENGAGED" alarm came in and cleared.**	Operator verifies alarm can came in and cleared on FBF via cue.	

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
***12**	Remove control power fuses **CUE: Inform operator, as SM, to remove control power fuses for affected channel.**	**Control Power fuses for N35 removed**	
13	Verify "NIS TRIP BYPASS" alarm is clear **CUE: JPM complete.**	Verifies alarm is clear.	

Description of problem area:

Description of reviewed information:

INITIATING CUES:

1. The plant is at 4-5% power.

2. The plant is stable.

3. The SRO has directed you to remove Intermediate Range Channel N35 from service per the SOP.

4. All precautions and limitations have been reviewed as well as the initial conditions verified.

RETURN THIS TO INSTRUCTOR WHEN YOU HAVE COMPLETED

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Implementation of 2-AOP-LICCW-1 to address indications of leakage into the CCW system with malfunctions. (Alt. Path)	JPM No.:	2007-NRC-S-8(R, I)
K/A Reference:	008 A2.02(3.2/3.5) &A2.04 (3.3/3.5)		

Examinee: NRC Examiner:

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 at 100% power. A series of related alarms have annunciated and the CRS has directed the implementation of 2-AOP-LICCW-1 to address indications of leakage into the CCW system.
Task Standard:	Perform the actions of 2-AOP-LICCW-1 to stabilize plant conditions.
Required Materials:	2-AOP-LICCW-1 (provide applicant after initiating cue)
General References:	2-AOP-LICCW-1
Handouts:	NONE
Initiating Cue:	There is a leak into the CCW system. Perform actions in accordance with 2-AOP-LICCW-1.
Time Critical Task:	NO
Validation Time:	20 min.

SIMULATOR SETUP

Reset simulator to IC-165. No other simulator setup required.

-Booth to unfreeze simulator when applicant has taken the watch on cue from Examiner.

-IC has a moderate sized leak into the CCW system. Large enough to provide indications of high thermal barrier flow, low seal D/P, R-47 alarm, etc. Leak rate is not to be so great that additional automatic actions take place during the predicted (reasonable) period that it will take to address the event I.A.W the AOP. The following automatic actions will be disabled: RCV-017 will not close after R-47 alarm, FCV 625 & 789 do not auto close on high flow.

The IC will have a trigger to closed MOV-781A when requested ((LOA-CCW038 (value 0) on trigger #1)

(Denote Critical Steps with an asterisk)

	Performance Step: 1	Provide the applicant a copy of 2-AOP-LICCW-1
	Standard:	Reviews procedure
	Comment:	**Take simulator out of freeze after applicant reviews procedure.**
	Performance Step: 2	Step 4.1 stop M/U to CCW
	Standard:	Asks CRS
	CUE:	As CRS report that no M/U is in progress.
	Comment:	
	Performance Step: 3	Step 4.2 Check if either the R-47 is in alarm or CCW surge tank level is rising.
	Standard:	Checks indications and determines one or both conditions exist.
	Comment:	Both conditions will exist.
*	**Performance Step: 4**	**Step 4.3 Check RCV-017 closed**
	Standard:	Determines it is NOT closed and **closes RCV-017**
	Comment:	
	Performance Step: 5	Step 4.4/4.5 Check for indications of increased CCW activity
	Standard:	Determine that there **is** indication of increased activity and make notifications to Health Physics
	Cue:	CRS will make notifications to Health Physics.
	Comment:	
	Performance Step: 6	4.6 If SM desires to drain the CCW surge tank initiate 2-SOP-4.1.2
	Standard:	Asks CRS for SM's direction.
	Cue:	Do not drain the CCW surge tank at this point.
	Comment:	

	Performance Step: 7	4.7 Perform attachments one at a time as determined by SM/CRS
	Standard:	Asks for direction or recommends Attachment 1
	Cue:	If asked for direction, ask "what attachment they recommend?" It should be attachment 1. If not direct attachment 1 be implemented.
	Comment:	
	Performance Step: 8	Att. 1 step 1.1, Is FCV 625/FCV-789 closed?
	Standard:	Determine that they are not and transition to step 1.6
	Comment:	**Candidate may determine at this point or an earlier point that the mentioned valve should have shut and shut them in which case he may continue on to steps 1.2-1.5. This should not affect completion of the critical steps which are mirrored in steps 1.6-1.10. The steps from here on assume completion of steps 1.6-1.10 although similar actions are completed with 1.2-1.5 and is an acceptable alternate path.**
	Performance Step: 9	Att. 1 step 1.9 Evaluate RCP thermal barrier D/P's
	Standard:	Determine that 21 RCP has low D/P
	Comment:	
*	**Performance Step: 10**	**Closed FCV-625 & FCV-789**
	Standard:	Valves closed manually from CCR
	Comment:	

*	**Performance Step: 11**	**Att. 1 step 1.8 request that 21 RCP thermal barrier return stop be closed (781A)**
	Standard:	Based on board indications determine that 21 RCP needs to be isolated and request correct valve (781A) from the table in step 1.8.
	Cue:	**-Acknowledge request and inform applicant that the Shift Manager will arrange for a containment entry. Direct the booth operator to close MOV-781A (trigger 1).** **-Once the booth operator has closed 781A, inform applicant that time compression has been used and that 781A is closed.**
	Comment:	Although this is critical there is an opportunity in step 1.9 to self correct.
*	**Performance Step: 12**	**Open FCV-625 & FCV-789**
	Standard:	Valves open and observe indications that the leak is isolated.
	Comment:	**If thermal barrier leak restarts due to previous error the valve could be re-closed and steps 1.7-1.9 re-performed to recover.**
	Performance Step: 13	After FCV-625 & FCV-789 are open and the attachment is exited at step 1.10 the JPM is complete
	Standard:	Reads step 1.10 and reports the attachment complete.
	Cue:	**When told the attachment is complete tell the operator that the JPM is complete.**
	Comment:	
	Terminating Cue:	When 21 RCP seal has been isolated and thermal barrier cooling restored to other three RCP's, the evaluation for this JPM is complete

Job Performance Measure No.: 2007-NRC-S-8 (R, I)

Examinee's Name:

Date Performed:

Examiner:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: Plant at 100% power.

A series of related alarms have annunciated and the CRS has directed the implementation of 2-AOP-LICCW-1 to address indications of leakage into the CCW system.

INITIATING CUE: There is a leak into the CCW system. Perform actions in accordance with 2-AOP-LICCW-1.

Perform the Required Actions to Locally isolate RCP Seals per 2-ECA-0.0

2007-NRC-P-1(R, I)
JOB PERFORMANCE MEASURE

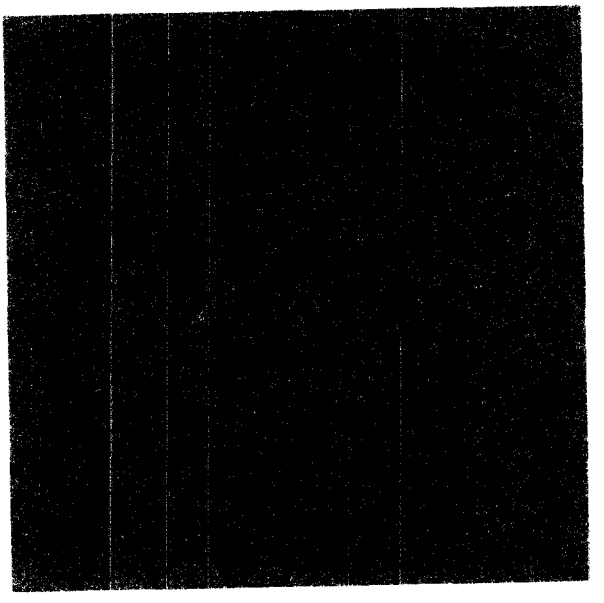
Operator Name: _____

Employee ID #: _____

Evaluator: _____

Date: _____ **SAT** **UNSAT**

K/A: 004A4.11 Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) A4.11 RCP seal injection 3.4/3.3



Perform the Required Actions to Locally isolate RCP Seals per 2-ECA-0.0

DIRECTIONS TO OPERATOR:

When I tell you to begin, you are to *simulate* locally isolating RCP seals per 2-ECA-0.0 step 8

I will describe the general system conditions. Before you start, I will state the Task Standard and Initiating Cues, and answer any questions. Utilize all reference material appropriate for this task.

INITIATING CUES:

1. A loss of All AC power has occurred and 2-ECA-0.0 has been implemented.
2. The CRS has directed you to isolate RCP seals locally in accordance with 2-ECA-0.0 step 8. The first valve in this sequence (MOV-222) has already been positioned along with its' control switch by a previous operator and does not need to be verified.

TASK STANDARD:

All Unit 2 RCP Seals have been (simulated) isolated locally per 2-ECA-0.0 step 8.

✸ **Denotes Critical Step**

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
	NOTE: • Remind operator to NOT change any switch or valve positions. For each valve the candidate will need to describe the proper method of operating an MOV (i.e engage clutch and rotate hand wheel) prior to giving cue for proper valve operation. • This JPM is in the RCA and proper RCA/ALARA behaviors should be observed. • With the sexception of step 1, the following steps may be performed **in any order** as long as critical steps are performed prior to completion on JPM.		
1	Obtains correct procedure and step from Examiner. CUE: give the applicant a copy of the EOP step to be performed.		
✸2	Locates and simulates manual closure of MOV-250A RCP seal injection isolation valve **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper clutch operation and handwheel direction to CLOSE MOV-250A	
✸3	Locates and simulates manual closure of MOV-250B seal injection isolation valve **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper clutch operation and handwheel direction to CLOSE MOV-250B	
✸4	Locates and simulates manual closure of MOV-250C seal injection isolation valve **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper clutch operation and handwheel direction to CLOSE MOV-250C	

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
*5	Locates and simulates manual closure of MOV-250D seal injection isolation valve **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper clutch operation and handwheel direction to CLOSE MOV-250D	
*6	Locates general area of MOV-789 RCP thermal barrier CCW return isolation valve and verbally describes entry to HRA and valve closure. **CUE:** After valve is located from walkway, actions to close it are described and prior to entering HRA provide cue that valve is CLOSED. Request requirements for applicant to enter HRA?	Locates MOV-789 from walkway. Indicates actions to close without entering HRA and discusses requirements to enter HRA; which are: (1) Self Monitoring qualified, (2) Briefed by RP tech. and (3) dose estimate made by RP by either a recent or real time survey of area.	
*7	Locates and simulates placing the control switches for MOV-250A,B,C & D in closed position on MCC- 26 **CUE:** After valve switches are located and simulated movement, cue that switch is in closed position.	Locates and indicates placement to "closed" for MOV-250A,B,C & D switches.	
*8	Request the CCR place the control switch for MOV-789 in closed position. **CUE:** as CCR report the MOV-789 switch is in the closed position.	Simulates calling the CCR and make request.	
9	**Terminating Cue:** After student has completed step 8 and reports his completion the JPM is complete	Reports completion of the directed step (2-ECA-0.0 step 8)	

Perform the Required Actions to Locally isolate RCP Seals per 2-ECA-0.0

Description of problem area:

INITIATING CUES:

1. A loss of All AC power has occurred and 2-ECA-0.0 has been implemented.
2. The CRS has directed you to isolate RCP seals locally in accordance with 2-ECA-0.0 step 8. The first valve in this sequence (MOV-222) has already been positioned along with its' control switch by a previous operator and does not need to be verified.

TASK STANDARD:

All Unit 2 RCP Seals have been (simulated) isolated locally per 2-ECA-0.0 step 8.

RETURN THIS TO INSTRUCTOR WHEN YOU HAVE COMPLETED

2007-NRC-P-2(All)
Local Closure of 21 MSIV
JOB PERFORMANCE MEASURE

Operator Name: _____

Evaluator: _____

Date: _____ **SAT** **UNSAT**

K/A: 039 A4.01 Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) A4.01 Main steam supply. valves 2.9* 2.8*

DIRECTIONS TO OPERATOR:

When I tell you to begin, you are to *simulate* closing 21 Main Steam Isolation Valve

I will describe the general system conditions. Before you start, I will state the Initiating Cues, and answer any questions. Locate and utilize all reference material appropriate for this task.

INITIATING CUES:

1. The CCR has been evacuated due to a fire and 2-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, has been implemented.

2. 21 MSIV could not be closed from the Control Room.

3. The CRS has directed you to close 21 Main Steam Isolation Valve from the Auxiliary Feed Building per 2-AOP-SSD-1, Attachment 3.

TASK STANDARD:

21 Main Steam Isolation Valve has been closed locally.

✸ **Denotes Critical Step**

STEP	DESCRIPTIONS / CUES & NOTES	STANDARD	S/U
	NOTE: Remind operator to NOT change any switch or valve positions		
1	Obtains correct procedure from locker outside West door of CCR. Note: the locker would be open in the event of CCR evacuation.	2-AOP-SSD-1, Attachment 3, Step 3.2	
✸2	Close the Instrument Air supply stop to the MSIV **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper direction to CLOSE IA-792 for 21 MSIV	
✸3	Close the MSIV accumulator outlet stop **CUE:** After valve is located and simulated movement, cue that valve is CLOSED	Locates and indicates proper direction to CLOSE IA-793 for 21 MSIV	
4	Check OPEN the gauge stop **CUE:** After valve is located and simulated movement, cue that valve is OPEN	Locates and indicates proper direction to check OPEN IA-960 for 21 MSIV	
✸5	OPEN the instrument air supply header vent on the header side of the accumulator outlet **CUE:** After valve is located and simulated movement, cue that valve is OPEN, air has vented and MSIV CLOSED NOTE: If IA stop not closed in step 2, cue that air continues to vent and MSIV is open.	Locates and indicates proper direction to OPEN IA-791 for 21 MSIV	

Description of problem area:

INITIATING CUES

1. The CCR has been evacuated due to a fire and 2-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, has been implemented.

2. 21 MSIV could not be closed from the Control Room.

3. The CRS has directed you to close 21 Main Steam Isolation Valve from the Auxiliary Feed Building per 2-AOP-SSD-1, Attachment 3.

TASK STANDARD:

21 Main Steam Isolation Valve has been closed locally.

RETURN THIS TO INSTRUCTOR WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 0710011604

Task Title: Align 24 Large Gas Decay Tank for start of discharge

K/A Reference: 071A4.05 (2.6/2.6) Job Performance Measure No: 2007-NRC-P-3(All)

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: System is aligned in accordance with COL 5.2.1. The SM has directed 24 Large Gas Decay Tank is to be released. 24 Large Gas Decay Tank has been isolated, sampled, and the sample has been analyzed. Release Permit has been completed and approved to release 24 LGDT in accordance with SOP-5.2.1. Radiation monitor R-44 is in service. R_{TA} for the release permit is 3.525 E-06 µCi/cc

Task Standard: 24 LGDT Release has been started

Required Materials: SOP-5.2.1 Rev. 27, Gaseous Waste Disposal System Operation

General References: SOP-5.2.1 Rev. 27, Gaseous Waste Disposal System Operation

Initiating Cue: You have been directed to *simulate* lining up and starting a release on 24 Large Gas Decay Tank in accordance with SOP-5.2.1.

Time Critical Task: NO

Validation Time: 30 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Obtain correct procedure

CUE: Provide candidate SOP 5.2.1.

Standard: SOP 5.2.1 section 4.4 and Attachment 4.

Comment:

2. Performance Step: Verify RCV-014 Plant Stack Discharge Valve CLOSED

CUE: After locating Valve indication on waste Disposal Panel, state valve is closed.

Standard: Valve indication on WDP located and position checked closed.

Comment:

√ 3. Performance Step: CLOSE 1644D, PCV-1039A Inlet Stop

CUE: After valve located and position indication checked, cue valve closed.

Standard: Valve located and position checked.

Comment: Attachment 4 should be used for the next sequence of steps.

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 4. Performance Step: CLOSE 1632, 24 LGDT Reuse Outlet

CUE: After valve located and position indication checked, cue valve closed.

Standard: Valve located on WDP.

Comment:

√ 5. Performance Step: CLOSE PCV-1039B, Gas Analyzer Sample Inlet

CUE: After valve located, question candidate on method to determine its position. If candidate states that he would use the print, allow the candidate to use print 9321-2730. After appropriate discussion, cue that valve is CLOSED.

NOTE: Drawing indicates that the valve fails closed. Air supply is from under the diaphragm. Therefore, air to open, spring to close. Closed would be stem in the "down" position.

Standard: Valve located and methods for position verification discussed.

Comment:

√ 6. Performance Step: CLOSE 1617, 21 LGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 7. Performance Step: CLOSE 1618, 22 LGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 8. Performance Step: CLOSE 1619, 23 LGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 9. Performance Step: CLOSE 1652F, 21 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 10. Performance Step: CLOSE 1652E, 22 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 11. Performance Step: CLOSE 1652D, 23 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 12. Performance Step: CLOSE 1652C, 24 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 13. Performance Step: CLOSE 1652B, 25 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 14. Performance Step: CLOSE 1652A, 26 SGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve closed.

Standard: Valve located and hand wheel turned clockwise until closed.

Comment:

√ 15. Performance Step: OPEN 1620, 24 LGDT Outlet Stop

CUE: After valve located and proper motion simulated, cue valve open.

Standard: Valve located and hand wheel turned counter clockwise until open.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 16. Performance Step: OPEN 1643D, 24 LGDT Stop (Inlet and PT)

CUE: After valve located and proper motion simulated, cue valve open.

Standard: Valve located and hand wheel turned counter clockwise until open.

Comment:

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17. Performance Step: Manually select Waste Gas Release Line on Gas Analyzer per SOP-5.2.3

CUE: After Waste Gas Analyzer is located, cue Analyzer is in manual with WG RELEASE Switch in SAMPLE position.

Standard: Place Gas Analyzer in manual and select WG RELEASE SW to SAMPLE position.

Comment: DO NOT have operator perform SOP-5.2.3. Locating the Waste Gas Analyzer is sufficient.

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18. Performance Step: Prepare release permit

CUE: CCR has prepared the release. State that the permit number is 07-5

Standard: Check that a permit has been prepared and number recorded on attachment 1.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

19. Performance Step: Verify Iodine and Particulate Composite Collection device in service

CUE: Device is in service.

Standard: Checks device operating by calling the CCR (or duty chemist)

Comment:

20. Performance Step: Verify PAB exhaust fan running

CUE: If necessary, cue that the fan is running.

Standard: Checks fan running on 80' Fn room control panel

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ 21. Performance Step: Commence Release

CUE: When CCR asked, direct the operator to commence the release.

CUE: When RCV-014 is simulated to be open, indicate that R-44 is slowly increasing but never gets to the Release Target Activity setpoint. (3.525 e-6)

Standard: Determine release target value
Record on checkoff
Open RCV-014 to indicated point.

Comment: RCV-014 is operated by air from a hand operated control valve. The valve will be turned CLOCKWISE to open. As the valve is turned clockwise the air signal will increase and RCV-014 will open. There would be a time delay between opening/closing the valve and the response of the R-44 due to transit time consequently the applicant should adjust and wait for R-44 response etc.

Terminating Cue: 24 LGDT release has been started.

VERIFICATION OF COMPLETION

Job Performance Measure No. 2007-NRC-P-3(All), Align 24 Large Gas Decay Tank for start of discharge

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIAL CONDITIONS:

1. System is aligned in accordance with COL 5.2.1.
2. The SM has directed 24 Large Gas Decay Tank is to be released.
3. 24 Large Gas Decay Tank has been isolated, sampled, and the sample has been analyzed.
4. Release Permit has been completed and approved to release 24 LGDT in accordance with SOP-5.2.1.
5. Radiation monitor R-44 is in service.
6. R_{TA} for the release permit is 3.525 E-06 µCi/cc

INITIATING CUE:

You have been directed to *simulate* lining up and starting a release on 24 Large Gas Decay Tank in accordance with SOP-5.2.1.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED