

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-1

TITLE: Perform Required Actions for Startup of the MG Set and Recirculating Pump

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Perform Required Actions for Startup of the MG Set and Recirculating Pump

JPM NUMBER: 2009 NRC JPM S-1 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 12.01 / Startup Lube Oil / Mini-Purge / MG Set

K/A NUMBERS: 202001 A4.01 **K/A VALUE:** 3.7 / 3.7

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 30 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-1, Perform Required Actions for Startup of the
MG Set and Recirculating Pump, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel Date

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2009 NRC JPM S-1, Perform Required Actions for Startup of the
MG Set and Recirculating Pump, Rev. 0

SIMULATOR SET UP:

- 1) Restore the IC for J-S-1_ic.000 from the "Thumb Drive" that it is stored on. This Thumb Drive also has the malfunction and override files on it.
 - a) Log onto one of the Computer Terminals using the logon from Lowell
 - i) If the malfunction file is the "exam" file, go to c), otherwise:
 - ii) With a file manager, go to the [\\greg\c\\$\opensim](#) directory, and copy the "Malfunc-New.dat" file into that directory.
 - iii) Rename the "Malfunc.dat" file to "Malfunc-OLD.dat"
 - iv) Rename the "Malfunc-NEW.dat" file to "Malfunc.dat"
 - v) Make a copy of the exam scenario IC file and rename it as "d_ic.000"
 - vi) Copy the IC file from the thumb drive to the [\\greg\ryandev\opslic](#) directory. This makes the exam IC number 000.
 - b) Reset to IC 000.
 - c) Verify Malfunctions
 - d) Verify Overrides
 - e) Verify Remote functions
 - f) Verify Trigger Definitions and accept all Triggers
 - g) Have copy of STP 3.4.9-03 available for the operator to record pump start temperatures.
 - h) Have copy of OI 264 with Section 3.3, Steps (1) thru (6) complete and annotated
- 2) If the Thumb Drive is not available, then reset to IC 02 and perform the following:
 - Place Mode Switch in SHUTDOWN
 - Stop B Recirc Pump
 - Stabilize plant conditions with RPV level at about 190"

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
SETUP	AN 1C04B(10)	1C04B (B-1) annunciator			OFF		OFF

SIMULATOR OVERRIDES: - None

SIMULATOR REMOTE FUNCTIONS: - None

Required Materials:

1. OI 264, Reactor Recirculation System
2. STP 3.4.9-03, Recirc Pump Start Temperature Recording.

General References:

1. OI 264, Rev. 112
2. STP 3.4.9-03, Rev. 8

Task Standards:

1. Close "B" Recirc. Pump discharge valve MO-4628
2. Start "B" MG Set
3. Open "B" recirc. pump discharge valve MO-4628

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is shutdown.
- 1P-201A recirc pump is operating at minimum speed.
- 1P-201B recirc pump mini-purge and MG set lube oil system have been started.
- 1P-201B mechanical/seals have been vented.

INITIATING CUES (IF APPLICABLE):

- Start up 1P-201B recirc pump IAW OI 264, Section 3.3 beginning at Step (7)

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

2009 NRC JPM S-1, Perform Required Actions for Startup of the
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I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is shutdown.
- 1P-201A recirc pump is operating at minimum speed.
- 1P-201B recirc pump mini-purge and MG set lube oil system have been started.
- 1P-201B mechanical/seals have been vented.

INITIATING CUES (IF APPLICABLE):

- Start up 1P-201B recirc pump IAW OI 264, Section 3.3 beginning at Step (7)

**NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}**

2009 NRC JPM S-1, Perform Required Actions for Startup of the
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JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Verify B MG SET SPEED CONTROL SIC-9245B is set at startup demand.
Critical N

Procedure Step 3.3(7)(a)

Standard: The candidate verifies that “B” MG set speed control is set at startup demand.

Performance: **SATISFACTORY UNSATISFACTORY** _____

Comments: _____

Performance Step: 2 Verify MO-4602, B RECIRC PUMP SUCTION and MO-4630, B RECIRC PUMP
Critical N DISCH BYP valves OPEN.

Procedure Step 3.3(7)(b)

Standard: The candidate verifies that MO-4602 and MO-4630 are open.

Performance: **SATISFACTORY UNSATISFACTORY** _____

Comments: _____

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Performance Step: 3 Critical <u>N</u>	Verify Reactor water level above 186 inches as indicated on available 1C05 indications.
<u>Procedure Step 3.3(7)(c)</u>	
Standard:	The candidate verifies that reactor water level is greater than 186" as indicated on LI-4559, 4560, 4561 (A, B, C, GEMAC) on 1C-05.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical <u>N</u>	Verify closed RPT circuit breakers 1A502 on panel 1C15 and 1A602 on panel 1C17.
<u>Procedure Step 3.3(7)(d)</u>	
Standard:	The candidate checks 1A502 on panel 1C15 in the ON position and 1A602 on panel 1C17 in the ON position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical <u>N</u>	Verify Deviation Logic is cleared by performing the following: (If performing a restart following a loss of both Reactor Recirc Pumps and the scoop tube was unlocked prior to the trip then, N/A this Step). (i) At B MG SET SPEED CONTROLLER SIC9245B press "Enter/Exit Conf" button. (ii) With LOOP selected, press "Alarm/Step Down" button. (iii) With EDIT selected, press "Alarm/Step Down" button. (iv) With VIEW selected, press "Alarm/Step Down" button. (v) Use the pulsar knob to select CMP03.O1. (vi) If CMP03.O1 equals 1, press "Enter/Exit Conf", and skip Steps (vii) and (viii).
<u>Procedure Step 3.3(7)(e)</u>	
Standard:	Performs steps (i) thru (vi) using controller key pad and skips steps (vii) and (viii).
Evaluator Cue:	If candidate asks if starting after a loss of both Reactor Recirc pumps, state that both RR pumps were <u>NOT</u> lost.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

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Performance Step: 6 Critical <u>N</u>	Prior to taking the RPV bottom head drain temperatures per STP 3.4.9-03, verify that RWCU is in-service.
<u>Procedure Step 3.3(8)</u>	
Standard:	Verifies that RWCU is in service.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical <u>Y</u>	Record temperatures at the following points per STP 3.4.9-03, Recirc Pump Start Temperature Recording:
<div style="margin-left: 100px;"> Recirc Pump Suction Temperature Reactor Vessel Dome Saturation Temperature Reactor Vessel Bottom Head Drain Temperature </div>	
<u>Procedure Step 3.3(9)</u>	
Standard:	The candidate records the following temperatures: recirc. pump suction – TR-4603 (black and red pen) and verifies $\Delta T < 50$; Vessel Dome temp (Steam tables-if hot) or TI-4569 (if cold) and Bottom head drain – TR-2713 (RWCU drain) $\Delta T < 145^\circ$.
Evaluator Note:	<p>If the “B” Recirc Pump is NOT started within 15 minutes of taking the temperature data, the candidate should retake the temperature data. If the Recirc Pump is started after the 15 minute time period, the candidate fails this step.</p> <p>Time temperatures were recorded _____.</p> <p>Time Pump Started at Step 9 _____.</p>
Evaluator Cue:	<p>When asked, PROVIDE operator with STP 3.4.9-03</p> <p>If the candidate states that STP 3.4.2-01 needs to be completed after the pump start, inform him that the STP will be signed in and available.</p>
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

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Performance Step: 8	Close MO-4628, B RECIRC PUMP DISCHARGE with the handswitch at Panel 1C04.
Critical <u>Y</u>	
<u>Procedure Step 3.3(10)</u>	
Standard:	The candidate closes MO-4628.
Evaluator Note:	Candidate may make announcement for starting the MG Set here. PA (Page) use should be simulated.
Performance:	SATISFACTORY <u>UNSATISFACTORY</u> _____
Comments:	_____

Performance Step: 9	START MG Set B by momentarily placing B RECIRC MG SET MOTOR BREAKER 1A204 handswitch on Panel 1C04 to the START position.
Critical <u>Y</u>	
<u>Procedure Step 3.3(11)</u>	
Standard:	The candidate starts the "B" recirc MG set by placing the "B" MG set handswitch on 1C04 to the start position.
Evaluator Note:	IF asked, respond as field operator that you are standing by for start of "B" MG and will inspect MG after start.
	Record Time Pump Started at Step 7 _____.
Performance:	SATISFACTORY <u>UNSATISFACTORY</u> _____
Comments:	_____

Performance Step: 10	Open B RECIRC PUMP DISCHARGE MO-4628 with handswitch HS-4627[4628] at Panel 1C04.
Critical <u>Y</u>	
<u>Procedure Step 3.3(12)</u>	
Standard:	The candidate opens MO-4628 with HS-4628 on 1C04.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

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Performance Step: 11 Critical <u>N</u>	Verify that the oil level in the MG set fluid coupler sight glass is visible between Min/Max lines once the MG Set is put in service.
<u>Procedure Step 3.3(13)</u>	
Standard:	Contacts field operator to verify that the oil level in the MG set fluid coupler sight glass is visible between Min/Max lines once the MG Set is put in service.
Evaluator Cue:	As the field operator, inform the candidate that the MG set fluid coupler sight glass is visible between Min/Max lines and MG is running normally.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 12 Critical <u>N</u>	If Recirc pump mechanical seal venting is not necessary, proceed to Step (21); if venting required, continue to next step.
<u>Procedure Step 3.3(14)</u>	
Standard:	Proceeds to step 21.
Evaluator Cue:	If asked, mechanical seal venting is not required (it was given in the turnover that it was already performed.)
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 13 Critical <u>N</u>	Perform the applicable surveillances for jet pump operability.
<u>Procedure Step 3.3(21)</u>	
Standard:	Candidate states that surveillances for jet pump operability must be performed.
Evaluator Cue:	When the candidate states that the applicable jet pump operability surveillances need to be completed, inform the candidate that the JPM is complete.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Terminating Cues:

1. "B" recirculation pump running at 20% speed.
2. "B" recirculation pump suction, discharge, and discharge bypass valves are open.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

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MG Set and Recirculating Pump, Rev. 0

Examinee:

Evaluator:

☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ ILT RO ☐ ILT SRO

PERFORMANCE RESULTS:

SAT: UNSAT:

Remediation required:

YES NO

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

**EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES
CLEANED, AS APPROPRIATE.****EVALUATOR'S SIGNATURE:** _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-2

**TITLE: Manually Inject into the RPV with Core Spray to Achieve Alternate
Shutdown Cooling**

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Manually Inject into the RPV with Core Spray to Achieve Alternate Shutdown Cooling

JPM NUMBER: 2009 NRC JPM S-2 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 4.03 / Perform Manual Initiation of Core Spray

K/A NUMBERS: 209001 A4.05 **K/A VALUE:** 3.8/3.6

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Re-Validation Personnel	Date
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Re-Validation Personnel	Date
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Re-Validation Personnel	Date
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2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

SIMULATOR SET UP:

- 1) Restore the IC for J-S-2_ic.000 from the "Thumb Drive" that it is stored on. This Thumb Drive also has the malfunction and override files on it.
 - a) Log onto one of the Computer Terminals using the logon from Lowell
 - i) If the malfunction file is the "exam" file, go to c), otherwise:
 - ii) With a file manager, go to the [\\greg\c\\$\opensim](#) directory, and copy the "Malfunc-New.dat" file into that directory.
 - iii) Rename the "Malfunc.dat" file to "Malfunc-OLD.dat"
 - iv) Rename the "Malfunc-NEW.dat" file to "Malfunc.dat"
 - v) Make a copy of the exam scenario IC file and rename it as "d_ic.000"
 - vi) Copy the IC file from the thumb drive to the [\\greg\ryandev\ops\ic](#) directory. This makes the exam IC number 000.
 - b) Reset to IC 000.
 - c) Verify Malfunctions
 - d) Verify Overrides
 - e) Verify Remote functions
 - f) Verify Trigger Definitions and accept all Triggers
- 2) The reactor must be shutdown.
- 3) RWCU dump flow secured
- 4) The ideal condition is to have the plant in SDC, have SDC be lost, then have the crew inject.

EVENT TRIGGER DEFINITIONS:

Trigger No.	Trigger Logic Statement	Trigger Word Description
1	ADVPRLF(1) .GE. 0.2	PSV 4400 valve position open 20%
2	ADVPRLF(2) .GE. 0.2	PSV4401 valve position open 20%
3	ADVPRLF(3) .GE. 0.2	PSV4402 valve position open 20%
4	ADVPRLF(4) .GE. 0.2	PSV4405 valve position open 20%
5	ADVPRLF(5) .GE. 0.2	PSV4406 valve position open 20%
6	ADVPRLF(6) .GE. 0.2	PSV4407 valve position open 20%

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
SETUP	AN 1C06A(12)	1C06A (A-12)			ON		ON
SETUP	AN 1C06A(13)	1C06A (A-13)			ON		ON
SETUP	STCS04	Core Spray Min Flow Valve Fails Open			TRUE		TRUE

SIMULATOR OVERRIDES:

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP
As Dir	LO AD PSV-4400	PSV 4400 Valve Position Amber Light	1		ON	
As Dir	LO	PSV 4401 Valve	2		ON	

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
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	AD PSV-4401	Position Amber Light				
As Dir	LO AD PSV-4402	PSV 4402 Valve Position Amber Light	3		ON	
As Dir	LO AD PSV-4405	PSV 4405 Valve Position Amber Light	4		ON	
As Dir	LO AD PSV-4406	PSV 4406 Valve Position Amber Light	5		ON	
As Dir	LO AD PSV-4407	PSV 4407 Valve Position Amber Light	6		ON	

SIMULATOR REMOTE FUNCTIONS:

TIME	REMOTE FUNCTION #	REMOTE FUNCTION TITLE	VALUE	RAMP

Required Materials: Simulator

General References:

1. OI 151, QRC
2. AOP 149, Rev. 31

Task Standards:

1. Candidate closes either CV-4412 or CV-4413 to isolate Main Steam Line A.
2. Candidate closes either CV-4415 or CV-4416 to isolate Main Steam Line B.
3. Candidate closes either CV-4418 or CV-4419 to isolate Main Steam Line C.
4. Candidate closes either CV-4420 or CV-4421 to isolate Main Steam Line D.
5. Closing either MO-4423 or MO-4424 isolates steam Line Drains.
6. Candidate places the handswitch for one SRV in the OPEN position.
7. B CORE SPRAY PUMP 1P-211B started.
8. Candidate verifies that RPV pressure is <450 and opens MO-2137.
9. Candidate notes that B Core Spray min flow MO-2124 fails to activate and takes action to manually close it.
10. As necessary throttle MO-2137 to maintain <3100 gpm on the CS system.
11. Injects until SRV is open and either >290" or RPV pressure is 50 psig, but as low as possible.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup; assume that the conditions that I read you are **the correct** plant conditions.

The plant has undergone a transient and the following has occurred:

- The plant was shutdown 5 days ago for a refueling outage.
- Shutdown cooling was lost due to a malfunction of MO 1908, INBD SHUTDOWN CLG ISOL. The valve went closed and will not open. Shutdown cooling tags have been removed.
- AOP 149, LOSS OF DECAY HEAT REMOVAL, was entered. It has been determined that, with the current conditions, the time to boil has been calculated to be 45 minutes.
- The RPV head is on and tensioned.
- RHR will be started and placed in Torus cooling by another operator.
- People have been evacuated from the Torus and Drywell.
- Based on system availability and plant configuration, it has been determined that the "B" Core Spray will be used to establish alternate shutdown cooling per AOP 149 Step 4.2, Feed and Bleed to the Torus via Safety/Relief Valves.
- The CRS has determined that TS Figure 3.4.9-1 will not be violated.

INITIATING CUES (IF APPLICABLE):

- Establish the required conditions of feed and bleed to the torus via the SRVs IAW AOP 149 Step 4.2. Use the "B" Core Spray Pump to feed IAW QRC 1 of OI 151.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup; assume that the conditions that I read you are **the correct** plant conditions.

The plant has undergone a transient and the following has occurred:

- The plant was shutdown 5 days ago for a refueling outage.
- Shutdown cooling was lost due to a malfunction of MO 1908, INBD SHUTDOWN CLG ISOL. The valve went closed and will not open. Shutdown cooling tags have been removed.
- AOP 149, LOSS OF DECAY HEAT REMOVAL, was entered. It has been determined that, with the current conditions, the time to boil has been calculated to be 45 minutes.
- The RPV head is on and tensioned.
- RHR will be started and placed in Torus cooling by another operator.
- People have been evacuated from the Torus and Drywell.
- Based on system availability and plant configuration, it has been determined that the "B" Core Spray will be used to establish alternate shutdown cooling per AOP 149 Step 4.2, Feed and Bleed to the Torus via Safety/Relief Valves.
- The CRS has determined that TS Figure 3.4.9-1 will not be violated.

INITIATING CUES (IF APPLICABLE):

- Establish the required conditions of feed and bleed to the torus via the SRVs IAW AOP 149 Step 4.2. Use the "B" Core Spray Pump to feed IAW QRC 1 of OI 151.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	Verify the reactor head is on and tensioned
Critical N	
Procedure Step: AOP149 4.2(b)	
Standard:	The reactor head is on and tensioned (given in the turnover.)
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 2	Verify head vents closed.
Critical Y	
Procedure Step: AOP149 4.2(c)	
Standard:	Closes Head Vents (CV-4429 & CV4428)
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 3 Critical N	Verify at least one SRV with N ₂ supply is available.
Procedure Step: AOP149 4.2(d)	
Standard:	N ₂ press either at PI 4390 in Green Band verified OR CV 4371A "Containment N ₂ Supply Isol Vlv" open.
Evaluator Note:	Student verified N ₂ is available.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical N	Evacuate all personnel from the Drywell and Torus areas except personnel assigned to monitor for leakage and/or increased airborne radioactivity levels.
Procedure Step: AOP149 4.2(e)	
Standard:	Determine that this is a turnover item.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical Y	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • Main Steam Line A CV-4412 or CV-4413
Procedure Step: AOP149 4.2(f)	
Standard:	Candidate closes either CV-4412 and/or CV-4413 to isolate Main Steam Line A.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 6 Critical Y	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • Main Steam Line B CV-4415 or CV-4416
Procedure Step: AOP149 4.2(f)	
Standard:	Candidate closes either CV-4415 and/or CV-4416 to isolate Main Steam Line B.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical Y	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • Main Steam Line C CV-4418 or CV-4419
Procedure Step: AOP149 4.2(f)	
Standard:	Candidate closes either CV-4418 and/or CV-4419 to isolate Main Steam Line C.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 8 Critical Y	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • Main Steam Line D CV-4420 or CV-4421
Procedure Step: AOP149 4.2(f)	
Standard:	Candidate closes either CV-4420 and/or CV-4421 to isolate Main Steam Line D.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 9 Critical N	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • HPCI Steam Line MO-2238 or MO-2239
Procedure Step: AOP149 4.2(f)	
Standard:	Verifies either MO-2238 and/or MO-2239 HPCI Steam Line isolations are closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 10 Critical N	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • RCIC Steam Line MO-2400 or MO-2401
Procedure Step: AOP149 4.2(f)	
Standard:	Verifies either MO-2400 and/or MO-2401 RCIC Steam Isolations are closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 11 Critical Y	To prevent flow down the main steam lines, verify at least one valve in each steam line is closed: <ul style="list-style-type: none"> • Steam Line Drains MO-4423 or MO-4424
Procedure Step: AOP149 4.2(f)	
Standard:	Closing either MO-4423 and/or MO-4424 isolates Steam Line Drains.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 12	Place handswitch for one SRV in the open position.
Critical Y	
Procedure Step: AOP149 4.2(g)	
Standard:	Candidate places the handswitch for one SRV in the OPEN position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 13	If available, place RHR in Torus Cooling per OI 149.
Critical N	
Procedure Step: AOP149 4.2(h)	
Standard:	States that this is a turnover item and that another operator will place RHR in Torus Cooling.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 14	Secure RWCU Dump Flow.
Critical N	
Procedure Step: AOP149 4.2(i)	
Standard:	Verifies RWCU flow is secured.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 15	Commence and raise injection into the RPV with either a Condensate, Core Spray or RHR pump until the SRV is open AND either:
Critical N	RPV pressure is 50 psig above Torus pressure but as low as practical.
Procedure Step:	OR
AOP149 4.2(j)	RPV level is maintained greater than 290" on the floodup indication.
Standard:	Candidate will determine that here is where he will align CS to inject into the RPV IAW the Core Spray Rapid Start QRC.
	The actual steps to complete the task begin at the next step.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 16	Start 1P-99B, ESW Pumps B.
Critical N	
Procedure Step:	
OI 151 QRC 1 – Immediate	
Action Step (1)	
Standard:	ESW pumps verified running.
Evaluator Cue:	The Core Spray Rapid Start QRC shall be used to start the Core Spray pump.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 17	Start 1P-211B, Core Spray Pump B.
Critical Y	
Procedure Step:	
OI 151 QRC 1 – Immediate	
Action Step (2)	
Standard:	B CORE SPRAY PUMP 1P-211B started.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 18 Critical Y	OPEN MO-2137, Core Spray Inboard Injection Valve, when reactor pressure is <450 psig.
Procedure Step: OI 151 QRC 1 – Immediate Action Step (3)	
Standard:	Candidate verifies that RPV pressure is <450 and opens MO-2137.
Evaluator Note:	To meet this step, the valve can either be throttled or fully opened.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 19 Critical Y	Verify MO-2124, Core Spray Min Flow Bypass Valve, closes when system flow is >600 gpm.
Procedure Step: OI 151 QRC 1 – Immediate Action Step (4)	
Standard:	Diagnoses that MO-2124 does not auto close and takes manual action to close the valve once flow is >600 gpm.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 20 Critical N	Throttle MO-2137, Core Spray Inboard Injection Valve, to maintain system flow <3100 gpm.
Procedure Step: OI 151 QRC 1 – Followup Action Step (1)	
Standard:	As necessary throttle MO-2137 to maintain <3100 gpm on the CS system.
Evaluator Cue:	If Torus low level alarm is received (1C03B D-9), inform the candidate that the CRS will address the alarm
Evaluator Note:	This is a follow-up action and is not critical at this time
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 21 Critical N	Verify RHR/CS Pump Room Cooling Units operating: • For 1P-211B: 1V-AC-11.
Procedure Step: OI 151 QRC 1 – Followup Action Step (2)	
Standard:	B RHR/CS RM CLG UNIT, 1V-AC-11 is verified running.
Evaluator Note:	<ul style="list-style-type: none"> This is a follow-up action that is not critical The Candidate may take the handswitch for 1V-AC-11 to the start position. This is acceptable but not required for the step. If the candidate feels that he must stay and continue to monitor Core Spray flows and adjust to maintain below 3100 gpm.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-2, Manually Inject into the RPV with Core Spray to
Achieve Alternate Shutdown Cooling, Rev. 0

Performance Step: 22 Verify operating Core Spray Pump motors <95 amps.
Critical N

Procedure Step:
OI 151 QRC 1 –
Followup Action Step (3)

Standard: B Core Spray amps verified lower than 95 amps.

Evaluator Note: This is a follow-up action and is not critical at this time

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 23 Continue to inject until SRV is open AND:
Critical Y

RPV pressure is 50 psig above Torus pressure but as low as practical.

OR

Procedure Step:
AOP149 4.2(j)

RPV level is maintained greater than 290" on the floodup indication.

Standard: SRV is open **AND**
RPV pressure is 50 psig above Torus pressure but as low as practical.
OR

RPV level is maintained greater than 290" on the floodup indication.

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Terminating Cues: **The JPM is complete when the candidate has established** reactor pressure 50 psig above Torus pressure OR RPV level >290" on the floodup indication with the SRV open.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-3

**TITLE: Perform Required Actions for Shifting Feed Flow Control from Startup
Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV**

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Perform Required Actions for Shifting Feed Flow Control From Startup Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV

JPM NUMBER: 2009 NRC JPM S-3 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 45.04 Shift From Startup Control Valve to A/B Feed Regulator Valve

K/A NUMBERS: 259002 A4.01 **K/A VALUE:** 3.8 / 3.6

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 30 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

 Re-Validation Personnel Date

 Re-Validation Personnel Date

 Re-Validation Personnel Date

 Re-Validation Personnel Date

SIMULATOR SET UP:

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

- 1) Restore the IC for J-S-3 _ic.000 from the "Thumb Drive" that it is stored on. This Thumb Drive also has the malfunction and override files on it.
 - a) Log onto one of the Computer Terminals using the logon from Lowell
 - i) If the malfunction file is the "exam" file, go to c), otherwise:
 - ii) With a file manager, go to the [\\greg\c\\$\opensim](#) directory, and copy the "Malfunc-New.dat" file into that directory.
 - iii) Rename the "Malfunc.dat" file to "Malfunc-OLD.dat"
 - iv) Rename the "Malfunc-NEW.dat" file to "Malfunc.dat"
 - v) Make a copy of the exam scenario IC file and rename it as "d_ic.000"
 - vi) Copy the IC file from the thumb drive to the [\\greg\ryandev\ops\ic](#) directory. This makes the exam IC number 000.
 - b) Reset to IC 000.
 - c) Verify Malfunctions
 - d) Verify Overrides
 - e) Verify Remote functions
 - f) Verify Trigger Definitions and accept all Triggers
- 2) Reset to IC 11 or any startup IC.
- 3) Verify the following:
 - a) Reactor power is approximately 10-15%.
 - b) Feedwater total flowrate is below 1.4×10^6 lbm/hr.
 - c) STARTUP FEED REG VALVE CV-1622 is lined up to the B side of FW.
 - d) MASTER FEED REG VALVE CONTROLLER LC-4577 is in AUTO.
 - e) STARTUP FEED REG VALVE CONTROLLER LC-1622 is in AUTO.
 - f) B FEED REG VALVE CONTROLLER HC-1621 is in manual with zero output.

EVENT TRIGGER DEFINITIONS:

Trigger No.	Trigger Logic Statement	Trigger Word Description
1	zdifwhic1622(2) .ge. 1	When Startup FRV is taken to manual

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
AS DIR	FW12C	FW REG Valve Controller Failure (AUTO) – Master CTRLR	1		0	10.00 (600 secs)	AS IS

SIMULATOR OVERRIDES: - None

SIMULATOR REMOTE FUNCTIONS: - None

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2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

Required Materials: OI-644, Condensate and Feedwater System

General References: OI-644, Condensate and Feedwater System, Rev. 108

Task Standards:

1. RPV level is maintained between 170 and 211 inches.
2. B FEED REG VALVE CONTROLLER HC-1621 in automatic.
3. STARTUP FEED REG VALVE CONTROLLER HC-1622 in manual.
4. Takes manual control of B FRV OR SU FRV when Master Controller fails

TURNOVER SHEET

INITIAL CONDITIONS:

- A plant startup is in progress; power is between 10-15% with REACTOR FEED PUMP 1P-1B running.
- Reactor water level is being maintained by STARTUP FEED REG VALVE CV-1622.

INITIATING CUES (IF APPLICABLE):

- Shift feed flow from the STARTUP FEED REG VALVE CV-1622 to the B FEED REG VALVE CV-1621 IAW OI 644, Section 3.6.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- A plant startup is in progress; power is between 10-15% with REACTOR FEED PUMP 1P-1B running.
- Reactor water level is being maintained by STARTUP FEED REG VALVE CV-1622.

INITIATING CUES (IF APPLICABLE):

- Shift feed flow from the STARTUP FEED REG VALVE CV-1622 to the B FEED REG VALVE CV-1621 IAW OI 644, Section 3.6.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical <u>Y</u>	Verify the MASTER FEED REG VALVE CONTROLLER, LC-4577, is in AUTO and select ‘V’ with the D pushbutton on the display.
Procedure Step OI 644 3.6 (1)(a)	
Standard:	Operator verifies LC-4577 is in AUTO and selects the V display.
Evaluator Note:	Section 3.6 (1) (a)
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 2 Critical <u>N</u>	Verify the STARTUP FEED REG VALVE CONTROLLER, HC-1622, is in AUTO.
Procedure Step OI 644 3.6 (1)(b)	
Standard:	Operator verifies HC-1622 is in automatic (A is selected on the A/M pushbutton).
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed
Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

Performance Step: 3	Verify the B FEED REG VALVE CONTROLLER HC-1621 is in MANUAL.
Critical <u>N</u>	
Procedure Step OI 644 3.6 (1)(c)	
Standard:	The operator verifies HC-1621 is in MANUAL (M is selected on the A/M pushbutton).
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 4	Select 'V' on the display for the B FEED REG VALVE CONTROLLER, HC-1621.
Critical <u>N</u>	
Procedure Step OI 644 3.6 (1)(d)	
Standard:	Operator selects the V display.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 5	Slowly open B FEED REG VALVE CV-1621 using the potentiometer on HC-1621.
Critical <u>Y</u>	
Procedure Step OI 644 3.6 (1)(e)	
Standard:	The operator slowly opens CV-1621 using the potentiometer on B FEED REG VALVE CONTROLLER HC-1621.
Evaluator Note:	May adjust this throughout rest of JPM. MASTER FEED REG VALVE CONTROLLER LC-4577 setpoint may be adjusted, as necessary, to maintain vessel level in the normal operating band during this evolution.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed
Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

Performance Step: 6 Critical <u>N</u>	Monitor reactor water level closely and confirm auto operation of FEEDWATER STARTUP FEED REG VALVE CV-1622.
Procedure Step OI 644 3.6 (1)(f)	
Standard:	Operator monitors reactor water level closely while adjusting B FEED REG VALVE CV-1621. Using ZI-1622, operator verifies STARTUP FEED REG VALVE CV-1622 closes while opening the B FEED REG VALVE CV-1621.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical <u>Y</u>	When the display (top meter) on CV-1621 is matching the display (top meter) on LC-4577, select AUTO on HC-1621.
Procedure Step OI 644 3.6 (1)(g)	
Standard:	When the displayed value of V on both controllers (LC-4577, HC-1621) is the same ($\Delta \leq 0.4$), the operator places B FEED REG VALVE CONTROLLER HC-1621 in automatic.
Evaluator Note:	This can be a dynamic transfer. It is not necessary to stabilize the V values on both controllers to make the transfer to automatic mode on the B FEED REG VALVE CONTROLLER HC-1621.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed
Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

Performance Step: 8	Select MANUAL on STARTUP FEED REG VALVE CONTROLLER HC-1622.
Critical <u>Y</u>	
Procedure Step OI 644 3.6 (1)(h)	
Standard:	The operator selects MANUAL (M on the A/M pushbutton) on STARTUP FEED REG VALVE CONTROLLER HC-1622.
EVALUATOR NOTE:	EVALUATOR NOTE: Malfunction will be active when operator begins closing the Startup FRV.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Performance Step: 9	Slowly close STARTUP FEED REG VALVE CV-1622 using the potentiometer on HC-1622.
Critical <u>N</u>	
Procedure Step OI 644 3.6 (1)(i)	
Standard:	The operator closes STARTUP FEED REG VALVE CV-1622 using manual potentiometer on STARTUP FEED REG VALVE CONTROLLER HC-1622.
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-3, Perform Required Actions for Shifting Feed Flow Control From Startup Feed
Reg Valve CV-1622 S/U RFV to B Feed Reg Valve CV-1621B FRV, Rev. 0

Performance Step: 10	Monitor reactor water level closely and verify auto operation of B FEED REG VALVE CV-1621.
Critical <u>Y</u>	
Procedure Step OI 644 3.6 (1)(j)	
Standard:	<p>Operator recognizes level control failure and must perform either of the following actions to control RPV level:</p> <p>Place the MASTER Level Controller in MANUAL OR Place the "B" FRV in Manual to control RPV level</p> <p>Once actions are taken due to failure, RPV level must be maintained in the GREEN Band.</p>
Evaluator Note:	The failure that occurred is the master level controller failing downscale in AUTO
Performance:	SATISFACTORY UNSATISFACTORY _____
Comments:	_____

Terminating Cues: MASTER Level Controller in MANUAL **OR** Startup FRV in Manual to control RPV level with level controlled in the GREEN Band

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee:

Evaluator:☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ **ILT RO** ☐ **ILT SRO**

PERFORMANCE RESULTS:

SAT:

--

UNSAT:

Remediation required:

YES ☐

NO ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-4

**TITLE: Containment Venting Irrespective of Radioactive Release
(Alternate Path, Hard Pipe Vent)**

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Containment Venting Irrespective of Radioactive Release (Alternate Path, Hard Pipe Vent)

JPM NUMBER: 2009 NRC JPM S-4 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 95.30, Containment Venting Irrespective of Radioactive Release (Alternate Path, Hard Pipe Vent)

K/A NUMBERS: 295024 EA1.19 **K/A VALUE:** 3.3 / 3.4

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
 Simulator: ☒ Other: ☐
 Lab: ☐

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-4, Containment Venting Irrespective of Radioactive Release
(Alternate Path, Hard Pipe Vent), Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

Re-Validation Personnel Date

SIMULATOR SET UP:

2009 NRC JPM S-4, Containment Venting Irrespective of Radioactive Release
(Alternate Path, Hard Pipe Vent), Rev. 0

- 1) Restore the IC for J-S-4_ic.000 from the "Thumb Drive" that it is stored on. This Thumb Drive also has the malfunction and override files on it.
 - a) Log onto one of the Computer Terminals using the logon from Lowell
 - i) If the malfunction file is the "exam" file, go to c), otherwise:
 - ii) With a file manager, go to the [\\greg\c\\$\opensim](#) directory, and copy the "Malfunc-New.dat" file into that directory.
 - iii) Rename the "Malfunc.dat" file to "Malfunc-OLD.dat"
 - iv) Rename the "Malfunc-NEW.dat" file to "Malfunc.dat"
 - v) Make a copy of the exam scenario IC file and rename it as "d_ic.000"
 - vi) Copy the IC file from the thumb drive to the [\\greg\ryandev\ops\ic](#) directory. This makes the exam IC number 000.
 - b) Reset to IC 000.
 - c) Verify Malfunctions
 - d) Verify Overrides
 - e) Verify Remote functions
 - f) Verify Trigger Definitions and accept all Triggers
- 2) If the Thumb Drive file is unavailable:
 - a) Reset to IC-20, or equivalent.
 - b) Insert malfunction file JPM295024-06.
 - c) Insert override file JPM295024-06.
 - d) Set event trigger 1 definition as follows: ZDIPCHS4356A .ge. 1
 - e) AD01D malfunction @ 70% causes a slow increase of DW pressure during the JPM. This prevents DW pressure from lowering). When venting is started delete any AD01 malfunctions
 - f) Place the simulator in **RUN**, controllers in AUTO and perform the following:
 - i) Activate ET2
 - ii) Place the mode switch to SHUTDOWN
 - iii) Place HS-2001C and HS-1903C to the MANUAL position.
 - iv) Secure the Core Spray pumps.
 - v) Allow drywell pressure to rise to 50 psig.
 - vi) Open four ADS SRV to depressurize the RPV.
 - vii) When drywell pressure reaches approximately 70 psig: Delete malfunctions AD01D, AD01H.
 - viii) Reinsert AD01D as necessary to maintain DW pressure high until the venting starts.
 - g) Freeze the simulator.
- 3) Turn off the simulator out of bounds alarm at the instructor station.
- 4) If this JPM will be used more than once in a session, snap the setup to an available IC.
- 5) Read the initial conditions and the initiating cue to the candidate.
- 6) When the candidate begins, place the simulator in **RUN**.

SIMULATOR MALFUNCTIONS:

TIME	MALFUNCTION	MALFUNCTION	ET	DELAY	F. SEV.	RAMP	I. SEV.
------	-------------	-------------	----	-------	---------	------	---------

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	#	TITLE					
0	AD01D	Reac Pres Rlf or Safety Vlv Leak - PSV4403 (VI)	2	0	100	180	0
0	PC13F	Break – Disch Pip of PSV4407 into Torus Air Space. Adjust as necessary to get drywell pressure >53 psig.	2	0	80	0	0
0	AD01H	Reac Pres Rlf or Safety Vlv Leak- PSV4407 (VI) set the malfunction as necessary to keep the drywell pressure >53 psig.	2	0	100	60	0
0	RP02A	RPS EPA Breaker Trip - RPS A EPA Bkr	1	40	True	N/A	False
0	AN 1C35B(15)	1C35B (D-03) Simulator Out of Bounds Annunciator		N/A	OFF	N/A	As Is
0	AN 1C35B(16)	1C35B (D-04) Simulator Out of Bounds Annunciator		N/A	OFF	N/A	As Is
0	RH09D	RHR MO-1905 Thermal Overload Breaker Trip	2	N/A	True	N/A	False

SIMULATOR OVERRIDES:

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP
0	DI RH HS-1903C	Cont Spray Valve Ctrl			RESET	
0	DI RH HS-2001C	Cont Spray Valve Ctrl			RESET	

SIMULATOR REMOTE FUNCTIONS: - None

- Required Materials:**
1. SEP 301.1
 2. SEP 301.3

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3. Defeat 10
4. Keys: (2) GE-75, (2) #TEM 30 (2) #2235
5. 125 VDC Fuses for CV-4357 (In EOP Tool Box)

General References:

1. Defeat 10, Rev. 3
2. SEP 301.1, Rev. 5
3. SEP 301.3, Rev. 5

Task Standards:

1. Based on plant conditions, the Candidate determines that "A" RPS power is lost.
2. Determines that the Hard Pipe Vent per SEP 301.3 must be used to vent the containment.
3. Remove or verify removed Defeat 10.
4. Fuses RR-F2 and RR-F3 installed.
5. CV-4301 and CV-4309 closed.
6. HS 4300A in override.
7. CV-4300 and CV-4357 open.

TURNOVER SHEET

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- EOP-2 has been entered on high drywell pressure and temperatures due to SRV-4403, Safety Valve leaking.
- HS-1903C and HS-2001C, ENABLE CONTAINMENT SPRAY VALVES HANDSWITCHES, will not energize to allow spray valve control.
- MO-1905, RHR Inboard Inject Valve won't open.
- Torus and drywell pressures are approximately 75 psig and rising.
- Emergency Depressurization has been performed based on drywell temperatures and pressures.
- There are currently no indications of fuel damage.
- The ERO is not yet operational.
- All unnecessary personnel have been evacuated from Reactor Building and Turbine Building.

INITIATING CUES (IF APPLICABLE):

- Vent the Torus Irrespective of Radioactive Release, per SEP 301.1, TORUS VENT VIA SBT, for containment pressure control.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

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I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

The initial conditions that I read may not **exactly** match the simulator setup, assume that the conditions that I read you are **the correct** plant conditions.

- EOP-2 has been entered on high drywell pressure and temperatures due to SRV-4403, Safety Valve leaking.
- HS-1903C and HS-2001C, ENABLE CONTAINMENT SPRAY VALVES HANDSWITCHES, will not energize to allow spray valve control.
- MO-1905, RHR Inboard Inject Valve won't open.
- Torus and drywell pressures are approximately 75 psig and rising.
- Emergency Depressurization has been performed based on drywell temperatures and pressures.
- There are currently no indications of fuel damage.
- The ERO is not yet operational.
- All unnecessary personnel have been evacuated from Reactor Building and Turbine Building.

INITIATING CUES (IF APPLICABLE):

- Vent the Torus Irrespective of Radioactive Release, per SEP 301.1, TORUS VENT VIA SBT, for containment pressure control.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical <u>N</u> Procedure Step SEP 301.1 Step (1) Standard: Performance: Comments:	Verify torus water level is below 16 feet. Candidate verifies torus water level less than 16 feet. SATISFACTORY_UNSATISFACTORY _____
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Performance Step: 2 Critical <u>N</u> Procedure Step SEP 301.1 Step (2)(a) Standard: Performance: Comments:	Install Defeats as permitted by the EOPs/SAGs. If venting irrespective of the radioactivity release rate in EOPs/SAGs, install DEFEAT 10, Drywell/Torus Vent and Purge Isolation Defeat. If DEFEAT 10 cannot be installed, exit this procedure and use the Hard Pipe Vent per SEP 301.3. Candidate determines that Defeat 10 must be used and transitions to the Defeat 10 procedure. SATISFACTORY_UNSATISFACTORY _____
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2009 NRC JPM S-4, Containment Venting Irrespective of Radioactive Release
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Performance Step: 3 Critical <u>N</u>	IF RPS power was lost, verify that RPS power has been restored.
Procedure Step Defeat 10 Step (1)	
Standard:	Verifies status of RPS power (energized).
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	Candidate may check back panel 1C15/1C17 for RPS status

Performance Step: 4 Critical <u>N</u>	Verify handswitches for the following Drywell and Torus valves are in the CLOSED position.
Procedure Step Defeat 10 Step (2)	
Standard:	Handswitches for CV-4300, CV-4301, CV-4309, CV-4302, CV-4303, and CV-4310 are all verified in the CLOSED position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical <u>N</u>	At 1C15, place GROUP 3 CHANNEL A ALL SIGNALS OVERRIDE keylock switch HS-4356A in OVERRIDE position and confirm amber light is ON.
Procedure Step Defeat 10 Step (3)	
Standard:	Keylock switch HS-4356A placed in OVERRIDE and amber light verified ON.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Booth Instructor: Verify ET 1 goes active.

Booth Instructor: Monitor drywell pressure to ensure it remains above 60 psig. Re-insert AD01H or AD01D as necessary to maintain drywell pressure.

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Performance Step: 6 Critical <u>N</u>	At 1C17, place GROUP 3 CHANNEL B ALL SIGNALS OVERRIDE keylock switch HS-4356B in OVERRIDE position and confirm amber light is ON.
Procedure Step Defeat 10 Step (4)	
Standard:	Keylock switch HS-4356B placed in OVERRIDE and amber light verified ON.
Evaluator Note:	May recognize loss of RPS before this step. At this point (approximately) "A" RPS power will be lost. The examinee will have to re-evaluate Defeat 10, step #1.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical <u>Y</u>	IF RPS power was lost, verify that RPS power has been restored.
Procedure Step Defeat 10 Step (1)	
Standard:	Recognizes "A" RPS is de-energized.
Evaluator Cue:	When the examinee has demonstrated an understanding that power to RPS Bus A has been lost: Inform the Examinee that power to "A" RPS bus will not be restored for several hours. IF ASKED: Inform the examinee that venting the primary containment is still required.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Per SEP 301.1 Step #2 transition to the Hard Pipe Vent is required.

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Performance Step: 8 Critical <u>Y</u>	If DEFEAT 10 cannot be installed, exit this procedure and use the Hard Pipe Vent per SEP 301.3.
Procedure Step SEP 301.1 Step (2)(a)	
Standard:	Determines that the Hard Pipe Vent per SEP 301.3 must be used to vent the containment.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Per SEP 301.3

Performance Step: 9 Critical <u>Y</u>	Verify Defeat 10 is not installed.
Procedure Step SEP 301.3 Step (1)	
Standard:	<ul style="list-style-type: none"> • CRITICAL - Removes Defeat 10 overrides by placing keylock handswitch HS-4356B in the NORMAL position. • <i>NOT CRITICAL</i> - Places keylock handswitch HS-4356A in the NORMAL position.
Evaluator Note:	Due to the loss of RPS power, it is not critical to place HS-4356A in the normal position, however, failing to so, results in a configuration control issue and should be noted as a competency.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 10	Verify torus water level is below 16 feet.
Critical <u>N</u>	
Procedure Step	
SEP 301.3 Step (2)	
Standard:	Previously performed.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 11	Shutdown and isolate the Steam Packing Exhauster as follows:
Critical <u>Y</u>	At 1C07, place STEAM PACKING EXHAUSTER BLOWER 1K-6A[B] handswitches HS-5205[6201] in the PULL-TO-LOCK position.
Procedure Step	
SEP 301.3 Step (3)(a)	
Standard:	Candidate places HS-5205 or HS-6201 in the PULL-TO-LOCK position.
Evaluator Note:	<p>The Critical part of this step is to place the running STEAM PACKING EXHAUSTER BLOWER 1K-6B in P-T-L. and to close its associated discharge valve in the step below.</p> <p>The other blower is not running and its discharge valve is already closed.</p> <p>This ensures no ground release during the venting.</p>
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 12 Critical <u>Y</u> Procedure Step SEP 301.3 Step (3)(b)	Shutdown and isolate the Steam Packing Exhauster as follows: At 1C07, close MO-1178 and MO-1180, 1K-6A[B] DISCHARGE valves. If power is unavailable, manually close the valves in the Condenser Bay.
Examiner Note: The Critical portion of this step is closure of MO-1180	<ul style="list-style-type: none"> CRITICAL - Places MO-1180 to the CLOSE position. <i>NOT Critical</i> - Places MO-1178 to the CLOSE position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 13 Critical <u>N</u> Procedure Step SEP 301.3 Step (3)(c)	Shutdown and isolate the Steam Packing Exhauster as follows: Close V-04-84, STEAM PACKING EXHAUSTER LOOP SEAL ISOLATION. (Condenser Bay, west wall, mezzanine - 745' level.)
Standard:	Candidate directs the auxiliary operator (or any in plant operator) to CLOSE V-04-84.
Evaluator Cue:	Contact the Examinee as the auxiliary operator and inform him that V-04-84 is CLOSED.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 14 Critical <u>N</u> Procedure Step SEP 301.3 Step (4)	Verify that Condenser Vacuum Pump 1P-32 is shutdown.
Standard:	1P-32 verified shutdown.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 15 Close V-05-97, 1T-15 OUTLET ISOLATION, in the Hogger Room.
Critical N

Procedure Step
SEP 301.3 Step (5)

Standard: An operator is sent to CLOSE V-05-97.

Evaluator Cue: **CRS will send another operator to verify V-05-97 CLOSED.**

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 16 Install the fuses for CV-4357 as follows:

Critical N

Obtain two 125 VDC fuses from the Hard Pipe Vent Package in the EOP Tool Box.

Procedure Step
SEP 301.3 Step (6)(a)

Standard: Two 125 VDC fuses are obtained from the Hard Pipe Vent Package in the EOP Tool Box.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 17 Install the fuses for CV-4357 as follows:

Critical Y

At 1C03 back panel, install fuses at RR-F2 and RR-F3.

Procedure Step
SEP 301.3 Step (6)(b)

Standard: Candidate removes the cage and fuses RR-F2 and RR-F3 are installed.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

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Performance Step: 18 Critical <u>N</u>	At 1C03, close the following valves:
Procedure Step SEP 301.3 Step (7)	<ul style="list-style-type: none"> CV-4301 OUTBD TORUS VENT ISOL CV-4309 INBD TORUS VENT BYPASS ISOL
Standard:	CV-4301 and CV-4309 closed.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 19 Critical <u>Y</u>	Place HS-4300A, CV-4300 HARD PIPE VENT ALT PWR/PCIS OVERRIDE, in the OVERRIDE position at 1C32.
Procedure Step SEP 301.3 Step (8)	
Standard:	HS-4300A is in OVERRIDE position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

BOOTH INSTRUCTOR: When venting is started delete any AD01 malfunctions

Performance Step: 20 Critical <u>Y</u>	Open the following valves at 1C03 to establish the hard pipe vent path:
Procedure Step SEP 301.3 Step (9)	<ul style="list-style-type: none"> CV-4300, INBD TORUS VENT ISOL. CV-4357, HARD PIPE VENT
Standard:	CV-4300 and CV-4357 are opened.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 21 Critical <u>N</u>	Monitor containment parameters and confirm actuation of rupture disc PSE-4357 on 1C03.
Procedure Step SEP 301.3 Step (10)	
Standard:	Candidate verifies lowering drywell pressure on 1C03.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 22 Critical <u>N</u>	Monitor and control containment venting as follows:
Procedure Step SEP 301.3 Step (11)(a)	If venting for containment pressure control only, vent as necessary to maintain pressure below the Primary Containment Pressure Limit (53 psig). Establish a pressure band for venting between 45 psig and 53 psig, unless otherwise directed by the TSC.
Standard:	Candidate monitors containment venting and establishes a pressure band 45 psig to 53 psig.
Evaluator CUE:	Inform the applicant that "using time compression" assume that pressure is 47 psig and the venting must be secured
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 23 Critical <u>N</u>	Close the following valves to secure venting:
Procedure Step SEP 301.3 Step (12)	<ul style="list-style-type: none"> • CV-4300, INBD TORUS VENT ISOL. • CV-4357, HARD PIPE VENT
Standard:	Closes CV-4300 and CV-4357
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Terminating Cues: Candidate establishes and controls in a 45 psig to 53 psig pressure band and secures venting when directed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

2009 NRC JPM S-4, Containment Venting Irrespective of Radioactive Release
(Alternate Path, Hard Pipe Vent), Rev. 0

Examinee:

Evaluator:

☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ ILT RO ☐ ILT SRO

PERFORMANCE RESULTS:

SAT: UNSAT:

Remediation required:

YES NO **COMMENTS/FEEDBACK:** (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.**EVALUATOR'S SIGNATURE:** _____*NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.*

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-5

**TITLE: Perform the Required Actions to Re-Energize a De-Energized
Non-Essential 4160V Bus from the Startup Transformer**

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Perform the Required Actions to Re-Energize a De-Energized Non-Essential 4160V Bus from the Startup Transformer

JPM NUMBER: 2009 NRC JPM S-5 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 15.05 / Re-Energize a Dead 4160V Bus from the Startup Transformer

K/A NUMBERS: 262001 A4.01 **K/A VALUE:** 3.4 / 3.7

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION:

In-Plant:	<input type="checkbox"/>	Control Room:	<input type="checkbox"/>
Simulator:	<input checked="" type="checkbox"/>	Other:	<input type="checkbox"/>
Lab:	<input type="checkbox"/>		

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:	Instructor	Date
Validated by:	Validation Instructor	Date
Reviewed by:	Plant Reviewer	Date
Approved by:	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

Re-Validation Personnel	Date	Re-Validation Personnel	Date
Re-Validation Personnel	Date	Re-Validation Personnel	Date

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0
SIMULATOR SET UP:

Simulator Setup Instructions:

Normal Setup

1. Reset to any at-power IC with the Main Generator in service.
2. Manually scram the reactor.
3. Open the "J" and the "K" OCBs.
4. Place 2 Well Water pumps in service and adjust flows and pressure.
5. Leave both Non-Essential Auto/Man switches in AUTO.

SIMULATOR MALFUNCTIONS: - None

SIMULATOR OVERRIDES: - None

SIMULATOR REMOTE FUNCTIONS: - None

Required Materials: AOP 304.1, Section for RESTORATION OF POWER TO NON-ESSENTIAL
4160V BUSES (Step 2)

General References: AOP 304.1, Rev. 43

Task Standards:

1. Take 4KV BREAKER 1A102 STARTUP XFMR TO BUS 1A1 to the
CLOSE POSITION
2. Place the BUS 1A1 TRANSFER breaker mode selector switch in the
AUTO position

TURNOVER SHEET

INITIAL CONDITIONS:

- DAEC has scrambled from full power. The startup transformer locked out due to a failed relay.
- AOP 304.1, Loss of Both Non-Essential 4160v Buses, has been entered for the loss of both non-essential buses and the immediate actions are complete.
- Maintenance has replaced and retested the relay and the startup transformer is ready to be placed back in service.

INITIATING CUES (IF APPLICABLE):

- Verify the followup actions in the AOP for the Loss Of Both Non-Essential Buses

AND

- Re-energize bus 1A1 from the STARTUP transformer IAW AOP 304.1 using the S/U XFMR "J" Breaker.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- DAEC has scrambled from full power. The startup transformer locked out due to a failed relay.
- AOP 304.1, Loss of Both Non-Essential 4160v Buses, has been entered for the loss of both non-essential buses and the immediate actions are complete.
- Maintenance has replaced and retested the relay and the startup transformer is ready to be placed back in service.

INITIATING CUES (IF APPLICABLE):

- Verify the followup actions in the AOP for the Loss Of Both Non-Essential Buses

AND

- Re-energize bus 1A1 from the STARTUP transformer IAW AOP 304.1 using the S/U XFMR "J" Breaker.

**NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}**

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1	Verify two Well Water Pumps are in service.
Critical <u>N</u>	
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (1)	
Standard:	Verifies two Well Water Pumps are in service.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 2	Verify Well Water Pump 1P-58D secured. In AUTO, verify FC-4414D demand is zero. In HAND, verify speed adjust at 1C373 is zero.
Critical <u>N</u>	
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (2)	
Standard:	<ul style="list-style-type: none">• Verifies Well Water Pump 1P-58D secured.• In AUTO, verifies FC-4414D demand is zero.• In HAND, verifies speed adjust at 1C373 is zero.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 3 Critical <u>N</u>	Verify GSW Pumps 1P-89A and B in service.
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (3)	
Standard:	Verifies GSW Pumps 1P-89A and B in service.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical <u>Y</u>	Place BUS 1A1 TRANSFER switch in MANUAL.
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (4)	
Standard:	Places BUS 1A1 TRANSFER switch in MANUAL.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical <u>Y</u>	Place BUS 1A2 TRANSFER switch in MANUAL.
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (5)	
Standard:	Places BUS 1A2 TRANSFER switch in MANUAL.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 6 Critical <u>N</u>	Continue with RESTORATION OF POWER TO NON-ESSENTIAL 4160V BUSES.
Procedure Step: Page 8 AOP 304.1 – Loss of Both Non-Essential Buses – Followup action Step (6)	
Standard:	Continue with RESTORATION OF POWER TO NON-ESSENTIAL 4160V BUSES at procedure Step 1.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical <u>N</u>	CAUTION
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses - Caution	Do not attempt to reset 4160V Non-Essential Bus 1A1[1A2] Lockout Relay 186-1 [186-2] or Startup Transformer 1X3 Lockout Relay 386/ST if found to be tripped. A thorough evaluation of the cause of the trip is required to prevent equipment damage before reenergizing Bus 1A1[1A2] or Startup Transformer 1X3.
Standard:	Reviews Caution
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 8 Critical <u>N</u>	IF Startup Transformer 1X3 is desired source and is deenergized , then perform the following:
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.a	Confirm Startup Transformer 1X3 Lockout Relay 386/ST reset at 1C31 or annunciator 1C08A, C-7 STARTUP XFMR LOCKOUT TRIP reset.
Standard:	Confirms Startup Transformer 1X3 Lockout Relay 386/ST reset at 1C31 or annunciator 1C08A, C-7 STARTUP XFMR LOCKOUT TRIP reset.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 9 Critical <u>Y</u>	Place the STARTUP TRANSFORMER J BREAKER [STARTUP TRANSFORMER K BREAKER] SYNCHRONIZE switch in the ON position.
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.b	
Standard:	Places the STARTUP TRANSFORMER J BREAKER SYNCHRONIZE switch in the ON position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 10 Critical <u>N</u>	NOTE
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – NOTE	Bus 1A1[1A2] load shed will occur if grid voltage is less than 65% rated. This corresponds to 78 volts on the INCOMING VOLTS SYNCHRONIZE meter.
Standard:	Reviews note
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 11 Critical <u>N</u>	Confirm INCOMING VOLTS SYNCHRONIZE greater than 78 volts.
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.c	
Standard:	Confirms INCOMING VOLTS SYNCHRONIZE greater than 78 volts.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 12 Critical <u>Y</u>	Momentarily place STARTUP TRANSFORMER J BREAKER (OCB 5550) [STARTUP TRANSFORMER K BREAKER (OCB 5560)] in the CLOSE position.
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.d	
Standard:	Momentarily places STARTUP TRANSFORMER J BREAKER (OCB 5550) in the CLOSE position
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 13 Critical <u>N</u>	Place the STARTUP TRANSFORMER J BREAKER [STARTUP TRANSFORMER K BREAKER] SYNCHRONIZE switch in the OFF position.
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.e	
Standard:	Place the STARTUP TRANSFORMER J BREAKER SYNCHRONIZE switch in the OFF position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 14 Critical <u>N</u>	Continue at Step 2.
Procedure Step: Page 10 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 1.f	
Standard:	Continues at Step 2.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 15	CAUTION
Critical <u>N</u>	Do not attempt to reset 4160V Non-Essential Bus 1A1[1A2] Lockout Relay 186-1[186-2] or Startup Transformer 1X3 Lockout Relay 386/ST if found to be tripped. A thorough evaluation of the cause of the trip is required to prevent equipment damage before reenergizing Bus 1A1[1A2] or Startup Transformer 1X3.
Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Caution	
Standard:	Reviews Caution
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 16	IF Startup Transformer 1X3 is desired source and is energized , then perform the following:
Critical <u>N</u>	
Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.a.	Confirm Bus 1A1 Lockout Relay 186-1 reset locally or via computer point D592.
Standard:	Verifies Bus 1A1 Lockout Relay 186-1 reset locally or via computer point D592.
Evaluator Cue:	IF ASKED: As in-plant operator, 1A1 Lockout Relay (186-1) is reset.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 17 Critical <u>N</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.b.	Verify Load Shed of the following: <ul style="list-style-type: none"> • Reactor Feedwater Pump 1P-1A • Circulating Water Pump 1P-4A • Condensate Pump 1P-8A • Reactor Recirculation MG Set 1G-201A
Standard:	Operator verifies Reactor Feedwater Pump 1P-1A, Circulating Water Pump 1P-4A, Condensate Pump 1P-8A, and Reactor Recirculation MG Set 1G-201A are tripped.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 18 Critical <u>Y</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.c.	Verify 1E-69A Cooling Tower fans are OFF.
Standard:	Operator will place the 1E-69A Cooling Tower fans control switches to OFF.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 19 Critical <u>N</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses	May send in-plant operator to verify Switchgear Room is clear of personnel.
Standard:	Contacts in-plant operator/security to verify that the Switchgear Room is clear of personnel.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 20	May make plant announcement that 4160 V Bus 1A1 is being energized.
Critical <u>N</u>	
Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses	
Standard:	Announcement made that 4160 V Bus 1A1 is being energized.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 21	Re-energize Bus 1A1 by placing the control switch 4KV BREAKER 1A102 STARTUP XFMR TO BUS 1A1 momentarily in the CLOSE position.
Critical <u>Y</u>	
Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.d.	
Standard:	Control switch for 4KV BREAKER 1A102 is placed momentarily in the CLOSE position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 22	Verify that 4KV BREAKER 1A102 STARTUP XFMR TO BUS 1A1 red (breaker closed) and white (closing spring closed) indicating lights are ON.
Critical <u>N</u>	
Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.d.	
Standard:	Red and white lights are verified ON.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Performance Step: 23 Critical <u>N</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.e.	Verify that 1A1 bus voltage indicates ~4160V on all three phases by observing the BUS 1A1 VOLTS meter and placing the phase selector switch below the 1A1 VOLTS meter and observing all three phase positions.
Standard:	1A1 voltage verified to be ~4160V on all three phases.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 24 Critical <u>N</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.f.	Verify that all three white (phase energized) indicating lights above the BUS 1A1 VOLTS meter are ON.
Standard:	White lights are verified ON.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 25 Critical <u>Y</u> Procedure Step: Page 11 AOP 304.1 – Restoration of power to Non-essential 4160V Buses – Step 2.g.	Place the BUS 1A1 TRANSFER breaker mode selector switch in the AUTO position.
Standard:	Bus 1A1 Transfer switch placed in auto.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-5, Perform the Required Actions to Re-Energize a
De-Energized Non-Essential 4160V Bus from the Startup Transformer, Rev. 0

Terminating Cues: When the Operator verifies 4160V Bus 1A1 is re-energized from Startup Transformer, inform him that another operator will perform step 4 and that the JPM is completed.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

NO ☐[illegible]

EVALUATOR'S SIGNATURE: _____

Page 16 of 16

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-6

TITLE: Perform an APRM Gain Adjustment

JPM TITLE: Perform an APRM Gain Adjust

JPM NUMBER: 2009 NRC JPM S-6 REV. 0

TASK NUMBER(S) / TASK TITLE(S): 97.11 / Perform Daily and Shift Instrument Checks

K/A NUMBERS: 215005 A4.03 K/A VALUE: 3.2 / 3.3

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERTAPPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐Simulator: ☒ Other: ☐Lab: ☐Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ NoAlternate Path [NRC]: ☐ Yes ☒ NoAlternate Path [INPO]: ☐ Yes ☒ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RE-VALIDATION SIGNATURE

[illegible]

SIMULATOR SETUP:

Simulator Setup Instructions:

1. Reset to any power **IC > 25 %**, with 2 recirc loops in operation.
2. When the plant is stable, ensure the APRMs are set as follows:
 - “C” APRM +4% of core thermal power.
 - “A” and “E” APRMs set to approximately $\pm 0.5\%$ of core thermal power.
 - Verify APRM channels bypassed are “A” & “D”.
 - Ensure that the PPC printer is in the Portrait mode.

SIMULATOR MALFUNCTIONS: - None

SIMULATOR OVERRIDES: - None

SIMULATOR REMOTE FUNCTIONS: - None

Required Materials:

1. OI 878.4, Average Power Range Monitoring System
2. Small Screwdriver

General References: OI 878.4, Rev 27

Task Standards:

1. Bypass APRM “C”
2. Adjust “C” APRMs to within + or – 2%
3. Restore APRM to normal bypass conditions

TURNOVER SHEET

INITIAL CONDITIONS:

- The plant is operating at power.
- You are an on-shift RO.
- "C" APRM gain is not within limits.

INITIATING CUES (IF APPLICABLE):

- Perform an APRM Gain Adjustment for APRM "C" (Charlie) per OI 878.4, Section 8.0 and return APRMs to the as found position.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The plant is operating at power.
- You are an on-shift RO.
- "C" APRM gain is not within limits.

INITIATING CUES (IF APPLICABLE):

- Perform an APRM Gain Adjustment for APRM "C" (Charlie) per OI 878.4, Section 8.0 and return APRMs to the as found position.

**NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}**

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Determine desired APRM setting from computer point C133 or reactor heat balance calculation.
Critical N

Procedure Step
OI 878.4 Step 8.0 (1)

Standard: Core power recorded from Computer Point C133 or reactor heat balance.

Evaluator Cue: If asked which power to use (computer point C133 or the reactor heat balance), tell them to use computer point C133.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 2 If APRM adjustment is required, bypass the appropriate APRM per Section 6.1 of this procedure.
Critical N

Procedure Step
OI 878.4 Step 8.0 (2)

Standard: Go to Section 6.1 to bypass the APRM.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

2009 NRC JPM S-6, Perform an APRM Gain Adjust, Rev. 0

Performance Step: 3 Critical <u>N</u>	If an APRM is currently bypassed, perform the following for the bypassed APRM, otherwise N/A this step:
Procedure Step OI 878.4 Step 6.1 (1)	<ul style="list-style-type: none"> • Verify the APRM channel Mode Selector Switch on Panel 1C37 is in OPERATE. • Verify the APRM upscale, inoperative, and if greater than 5% reactor power, downscale trips on Panel 1C37 are reset. • Verify the IRM/APRM recorders on Panel 1C05 indicate approximately the same average power for the bypassed APRM as they do for the other APRM channels in operation. • Place the APRM BYPASS switch C51B-S3 or C51B-S6 on Panel 1C05 in the neutral (unbypassed) position. • Observe that the bypass light on Panel 1C05 and/or that the bypass light on Panel 1C37 is/are OFF.
Standard:	Performs the steps above and places the APRM BYPASS switch C51B-S3 on Panel 1C05 in the neutral (unbypassed) position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical <u>N</u>	Verify the two remaining APRM channels in the RPS trip system are operable and not BYPASSED; otherwise comply with Tech Specs for inoperable RPS instrumentation.
Procedure Step OI 878.4 Step 6.1 (2)	
Standard:	Verifies remaining channels operable.
Evaluator Cue:	<p>If asked, the remaining channels are operable.</p> <p>If permission to bypass "C" APRM is requested, give the candidate permission to bypass "C" (Charlie) APRM.</p>
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-6, Perform an APRM Gain Adjust, Rev. 0

Performance Step: 5 Critical <u>Y</u>	Place the APRM BYPASS switch C51B-S3 (C51B-S6) on Panel 1C05 in the A, C, or E (B, D, or F) position for the channel to be bypassed.
Procedure Step OI 878.4 Step 6.1 (3)	
Standard:	Operator bypasses "C" APRM by taking C51B-S3 to "C".
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 6 Critical <u>N</u>	Observe that the BYPASS light for the bypassed channel on Panel 1C05 or Panel 1C37 is ON.
Procedure Step OI 878.4 Step 6.1 (4)	
Standard:	Operator confirms the BYPASS light for "C" APRM at 1C05 or 1C37 is ON. Then returns to Procedure Step 8.0 (3)
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical <u>Y</u>	At 1C37, adjust APRM AUX card (Z31) R16 as necessary to correspond to the desired APRM setting.
Procedure Step OI 878.4 Step 8.0 (3)	
Standard:	At 1C37, adjust APRM AUX card (Z31) R16 as necessary to correspond to the desired APRM setting. Adjust "C" APRMs to within + or – 2% of computer point C133 or from the reactor heat balance.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-6, Perform an APRM Gain Adjust, Rev. 0

Performance Step: 8 Critical <u>N</u>	Confirm appropriate APRM computer point (B000 through B005) agrees with AS LEFT values on 1C37. If not, notify Reactor Engineering and the System Engineer.
Procedure Step OI 878.4 Step 8.0 (4)	
Standard:	Operator confirms the "C" APRM computer point B002 agrees with AS LEFT values on 1C37.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 9 Critical <u>N</u>	Remove appropriate APRM from bypass per Section 6.2, if necessary.
Procedure Step OI 878.4 Step 8.0 (5)	
Standard:	Goes to Section 6.2 to un-bypass the "C" APRM.
Evaluator Cue:	If requested, give permission to un-bypass "C" (Charlie) APRM.
	If asked which APRMs to bypass, tell the operator to return to "A" APRM to BYPASS.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 10 Critical <u>N</u>	Before returning a bypassed APRM to service, verify the following for that APRM:
Procedure Step OI 878.4 Step 6.2 (1)(a)	The APRM channel Mode Selector Switch on Panel 1C37 is in OPERATE.
Standard:	Operator verifies the "C" APRM channel Mode Selector Switch on Panel 1C37 is in OPERATE.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

2009 NRC JPM S-6, Perform an APRM Gain Adjust, Rev. 0

Performance Step: 11 Critical <u>N</u>	The APRM upscale, inoperative, and if greater than 5% reactor power, downscale trips on Panel 1C37 are reset.
Procedure Step OI 878.4 Step 6.2 (1)(b)	
Standard:	Operator confirms "C" APRM downscale trips on Panel 1C37 are reset.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 12 Critical <u>N</u>	The IRM/APRM recorders on Panel 1C05 indicate approximately the same average power for the bypassed APRM as they do for the other APRM channels in operation.
Procedure Step OI 878.4 Step 6.2 (1)(c)	
Standard:	Operator confirms "C" APRM recorder reads about the same as the other APRMs.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 13 Critical <u>Y</u>	Place the APRM BYPASS switch C51B-S3 on Panel 1C05 in the neutral (unbypassed) position.
Procedure Step OI 878.4 Step 6.2 (2)	
Standard:	Operator places C51B-S3 on Panel 1C05 in the neutral (unbypassed) position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 14 Critical <u>N</u>	Observe that the BYPASS light on Panel 1C05 is OFF.
Procedure Step OI 878.4 Step 6.2 (3)	
Standard:	Operator verifies "C" APRM BYPASS light on Panel 1C05 is OFF.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

NOTE: the next steps return the "A" APRM to BYPASS

Performance Step: 15 Critical <u>N</u>	Verify the two remaining APRM channels in the RPS trip system are operable and not BYPASSED; otherwise comply with Tech Specs for inoperable RPS instrumentation.
Procedure Step OI 878.4 Step 6.1 (2)	
Standard:	Verifies remaining channels operable.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 16 Critical <u>Y</u>	Place the APRM BYPASS switch C51B-S3 (C51B-S6) on Panel 1C05 in the A, C, or E (B, D, or F) position for the channel to be bypassed.
Procedure Step OI 878.4 Step 6.1 (3)	
Standard:	Operator bypasses "A" APRM by taking C51B-S3 to "A".
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 17	Observe that the BYPASS light for the bypassed channel on Panel 1C05 or Panel 1C37 is ON.
Critical <u>N</u>	
Procedure Step OI 878.4 Step 6.1 (4)	
Standard:	Operator confirms the BYPASS light for "A" APRM at 1C05 or 1C37 is ON.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Terminating Cues: Terminate the JPM when the candidate has "A" APRM is BYPASSED

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee:

Evaluator:

☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ ILT RO ☐ ILT SRO

PERFORMANCE RESULTS:

SAT: UNSAT:

Remediation required:

YES NO **COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).**

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.**EVALUATOR'S SIGNATURE:** _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-7

TITLE: TIP System Response to a Group II Containment Isolation

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: TIP System Response to a Group II Containment Isolation

JPM NUMBER: 2009 NRC JPM S-7 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 83.03 / Verify a TIP System Response to a Group II Containment Isolation

K/A NUMBERS: 232002 A4.01 **K/A VALUE:** 3.6 / 3.5

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐

Simulator: ☒ Other: ☐

Lab: ☐

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☒ Yes ☐ No

Alternate Path [INPO]: ☒ Yes ☐ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RE-VALIDATION SIGNATURE

Re-Validation Personnel	Date	Re-Validation Personnel	Date
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SIMULATOR SET UP:

Simulator Setup Instructions:

1. Group II signal in (pressure or level) – to coincide with the JPM chosen to be run concurrently.
2. Ensure TIP detector is NOT In-Shield

SIMULATOR MALFUNCTIONS:

TIME	MALF #	MALFUNCTION TITLE	ET	DELAY	F. SEV.	RAMP	I. SEV.
Setup	MS22M	Group 2 Isolation VLV(s) Fail(s) to Close CTIP Ball VLV			True		False

SIMULATOR OVERRIDES:

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP
Setup	NM BALLVLV OPEN(3)	BALLVLV OPEN-VLV CNTL (TIP-C)			ON	
Setup	NM BALLVLV CLSD(3)	BALLVLV CLOSED-VLV CNTL (TIP-C)			OFF	
Setup	NM TIP VALVE(3)	TIP DRIVE VALVE (TIP-C)			ON	
Setup	NM TIP ISOL(2)	TIP ISOLATION-ANY VALVE OPEN (MIMIC)			ON	
Setup	NM TIP ISOL(1)	TIP ISOLATION-ANY VALVE OPEN (MIMIC)			OFF	
Setup	MS PCIS-LAVDW	PCIS GROUP 2 A LOGICALLY VALVES CLOSED DW			OFF	

SIMULATOR REMOTE FUNCTIONS: - None

Required Materials:

1. OI 878.6, Rev 39
2. Keys for keylocked switch

General References:

1. OI 878.6, Rev 39

Task Standards:

1. TIP retracted
2. Shear Valve fired

TURNOVER SHEET

INITIAL CONDITIONS:

- A GROUP II Isolation has occurred due to actual accident conditions

INITIATING CUES (IF APPLICABLE):

- IAW OI 878.6 "TIP", Section 6.0, verify the TIP system response to the Group II Isolation

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- A GROUP II Isolation has occurred due to actual accident conditions

INITIATING CUES (IF APPLICABLE):

- IAW OI 878.6 "TIP", Section 6.0, verify the TIP system response to the Group II Isolation

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 Critical <u>N</u>	At Panel 1C03, verify that the green TIP (all valves closed) light is ON and the red TIP (any valve open) light OFF. If this is not the case, perform the following:
Procedure Step OI 878.6 Step 6.0 (1)(a)	Determine which ball valve is open by examining the ball valve indicating lights on the TIP Control Cabinet.
Standard:	At Panel 1C13, determines that the C TIP green TIP light is OFF and the red TIP light ON. Continues to next steps.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 2 Critical <u>Y</u>	If the associated detector is not in shield, manually retract the detector by placing the MODE switch to MAN and the MANUAL switch to REV.
Procedure Step OI 878.6 Step 6.0 (1)(b)	
Standard:	Manually retracts the “C” detector by placing the MODE switch to MAN and the MANUAL switch to REV.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 3 Critical <u>N</u>	Ensure that the detector is being retracted by observing that the REV light is ON and the digital display changing as expected.
Procedure Step OI 878.6 Step 6.0 (1)(c)	
Standard:	Ensures that the detector is being retracted by observing that the REV light is ON and the digital display changing as expected.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical <u>Y</u>	Confirm that the ball valve closes by observing that the VALVE light changes from bright to dim and that the BALL VALVE CLOSED light on the Valve Control Monitor turns ON.
Procedure Step OI 878.6 Step 6.0 (1)(d)	
Standard:	Recognizes that the ball valve failed to close by observing that the BALL VALVE CLOSED light on the Valve Control Monitor remains OFF.
Evaluator Note:	IF ASKED: Grant permission to continue.
Performance:	SATISFACTORY , UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical <u>N</u>	If the ball valve is still open, verify that the MAN VALVE CONTROL switch is in the CLOSED position.
Procedure Step OI 878.6 Step 6.0 (1)(e)	
Standard:	Verifies that the MAN VALVE CONTROL switch is in the CLOSED position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 6 Before firing the Shear Valve in the case of a containment isolation, ensure that
Critical N an actual accident condition exists; if not, notify OSM/CRS.

Procedure Step
OI 878.6 Step 6.0 (1)(f)

Standard: May notify CRS that the Shear Valve is about to be fired.

Evaluator Note: IF ASKED: State that actual accident conditions exist and you understand that the shear valve will be fired

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 7 If the ball valve is still open (valve failure or detector cannot be retracted), close
Critical Y the associated Shear Valve by placing its keylock switch on the TIP Valve Control Monitor to the FIRE position.

Procedure Step
OI 878.6 Step 6.0 (1)(g)

Standard: Places the keylock switch on the "C" TIP Valve Control Monitor to the FIRE position.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: KEY obtained from key locker OR key box on RO desk

Performance Step: 8 Observe that the SQUIB MONITOR and SHEAR VLV MONITOR lights on the
Critical N Valve Control Monitor are ON, indicating proper shear valve operation.

Procedure Step
OI 878.6 Step 6.0 (1)(h)

Standard: Observes that the SQUIB MONITOR and SHEAR VLV MONITOR lights on the Valve Control Monitor are ON, indicating proper shear valve operation.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 9 Critical <u>N</u>	Verify that the TIP SHEAR VALVE CLOSED OR CIRCUIT TROUBLE (1C05B, F-8) annunciator is activated.
Procedure Step OI 878.6 Step 6.0 (1)(i)	
Standard:	Verifies that the TIP SHEAR VALVE CLOSED OR CIRCUIT TROUBLE (1C05B, F-8) annunciator is activated. (front panel).
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 9 Critical <u>N</u>	Verify the following at TIP Control Panel 1C13:
Procedure Step OI 878.6 Step 6.0 (2) (a,b,c)	<ul style="list-style-type: none"> • The red PURGE light is turned OFF indicating that the indexer nitrogen purge valve closed. If the purge valve is still open, close by placing the PURGE switch in the OFF position. • The amber TIP OR GROUP 2 ISOLATION light is turned ON. • The white ISOLATION POWER AVAILABLE light is turned ON.
Standard:	Verifies the PURGE light is OFF, the TIP OR GROUP 2 ISOLATION light is turned ON and the ISOLATION POWER AVAILABLE light is turned ON.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Terminating Cues: Once the candidate verifies the front panel annunciator, the JPM is complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

Examinee:

Evaluator:

☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ ILT RO ☐ ILT SRO

PERFORMANCE RESULTS:

SAT: UNSAT:

Remediation required:

YES NO **COMMENTS/FEEDBACK:** (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.**EVALUATOR'S SIGNATURE:** _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

DUANE ARNOLD ENERGY CENTER

JOB PERFORMANCE MEASURE

2009 NRC JPM S-8

TITLE: Install Defeat 5 and depressurize the RPV through MSL Drains

JOB PERFORMANCE MEASURE (JPM)

JPM TITLE: Install EOP Defeat 5 to depressurize the reactor.

JPM NUMBER: 2009 NRC JPM S-8 **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): 95.15 / Perform EOP Defeat 5

K/A NUMBERS: 239001 A4.02 **K/A VALUE:** 3.2 / 3.2

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY: ☒ RO ☒ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION:

In-Plant:	<input type="checkbox"/>	Control Room:	<input type="checkbox"/>
Simulator:	<input checked="" type="checkbox"/>	Other:	<input type="checkbox"/>
Lab:	<input type="checkbox"/>		

Time for Completion: 15 Minutes Time Critical: ☐ Yes ☒ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:		
	Instructor	Date
Validated by:		
	Validation Instructor	Date
Reviewed by:		
	Plant Reviewer	Date
Approved by:		
	Training Supervisor	Date

Commitments: {C001} ACE 001729, Review recommendation 4 of OE 001501.
 {C002} CA046394, Improvements needed for Operations Simulator JPMs.

2009 NRC JPM S-8, Install EOP Defeat 5 to Depressurize the Reactor, Rev. 0
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the signature page filled in correctly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the Licensee level appropriate for the task being evaluated if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Are all critical steps clearly identified by procedural guidance? If licensing, EP or other groups were needed to determine correct actions, then the answer should be NO. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. If the JPM is to be administered to an ILT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge. {C001}	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

RE-VALIDATION SIGNATURE

JPMs must be re-validated prior to use. Verify the above Review Statements are "YES" or "N/A". When it is determined that the JPM is still valid and can be performed as written, sign and date the form below.

 Re-Validation Personnel Date

 Re-Validation Personnel Date

 Re-Validation Personnel Date

 Re-Validation Personnel Date

2009 NRC JPM S-8, Install EOP Defeat 5 to Depressurize the Reactor, Rev. 0**SIMULATOR SET UP:**

1. Insert malfunctions and overrides.
2. Allow 850 psig in RUN to cause a Group 1 Isolation.
3. Then place the Mode Switch in the SHUTDOWN position.
4. Take the handswitches for the MSIVs to the CLOSED position
5. Read initial conditions and initiating cues to the operator.

SIMULATOR MALFUNCTIONS:

NOTE: The below malfunctions are suggested as a minimum to create the needed conditions for the JPM, if other JPM setups require these to be altered that is acceptable as long as the intent of this JPM is not changed.

Time	Malf. No.	Malfunction Title	ET	Delay	F. Sev.	Ramp	I. Sev.
T=0	MS02	Steam leak inside PC			2%		As is
T=0	SW24	WW load blockage			100		

SIMULATOR OVERRIDES: - As necessary

TIME	OVERRIDE ID	OVERRIDE DESCRIPTION	ET	DELAY	VALUE	RAMP

SIMULATOR REMOTE FUNCTIONS: - As necessary

TIME	REMOTE FUNCTION #	REMOTE FUNCTION TITLE	VALUE	RAMP

Required Materials: Simulator

General References: EOP Defeat 5, Rev. 2

- Task Standards:**
- HS-4427A placed in OVERRIDE position.
 - HS-4427C placed in OVERRIDE position.
 - HS-4427B placed in OVERRIDE position.
 - HS-4427D placed in OVERRIDE position.
 - PCIS Div 1 and 2 pushbuttons reset.
 - MO-1043 is OPEN.
 - CV-1064 is OPEN.
 - MO-4424 is OPEN.
 - MO-4423 is OPEN.

TURNOVER SHEET

INITIAL CONDITIONS:

- The reactor scrammed due to a LOCA.
- The Mode Switch was NOT taken out of RUN prior to 850 psig.
- DW temperature is >280°F.
- Emergency Depressurization has been directed.
- All SRVs have failed.
- You are the BOP operator.

INITIATING CUES (IF APPLICABLE):

- Depressurize the RPV with the Main Steam Line Drains IAW EOP Defeat 5.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

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I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- The reactor scrammed due to a LOCA.
- The Mode Switch was NOT taken out of RUN prior to 850 psig.
- DW temperature is >280°F.
- Emergency Depressurization has been directed.
- All SRVs have failed.
- You are the BOP operator.

INITIATING CUES (IF APPLICABLE):

- Depressurize the RPV with the Main Steam Line Drains IAW EOP Defeat 5.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.
{C002}

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JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing “Evaluator Cues” to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee’s actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a “Y” below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

EXAMINER NOTE: To perform this JPM, the candidate obtains the Defeat 5 procedure and keys from the lock box near the back panels

Performance Step: 1 Critical <u>Y</u>	At Panel 1C15, place GROUP 1 CHANNEL A1 ALL SIGNALS OVERRIDE keylock switch HS-4427A in OVERRIDE and confirm amber light is ON.
Procedure Step Defeat 5 Step (1)	
Standard:	HS-4427A taken to OVERRIDE and amber light is on.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 2 Critical <u>Y</u>	At Panel 1C15, place GROUP 1 CHANNEL A2 ALL SIGNALS OVERRIDE keylock switch HS-4427C in OVERRIDE and confirm amber light is ON.
Procedure Step Defeat 5 Step (2)	
Standard:	HS-4427C taken to OVERRIDE and amber light is on.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 3	At Panel 1C17, place GROUP 1 CHANNEL B1 ALL SIGNALS OVERRIDE
Critical <u>Y</u>	keylock switch HS-4427B in OVERRIDE and confirm amber light is ON.
Procedure Step	
Defeat 5 Step (3)	
Standard:	HS-4427B taken to OVERRIDE and amber light is on.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 4	At Panel 1C17, place GROUP 1 CHANNEL B2 ALL SIGNALS OVERRIDE
Critical <u>Y</u>	keylock switch HS-4427D in OVERRIDE and confirm amber light is ON.
Procedure Step	
Defeat 5 Step (4)	
Standard:	HS-4427D taken to OVERRIDE and amber light is on.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 5	Proceed as follows:
Critical <u>N</u>	<ul style="list-style-type: none"> If the MSIVs are OPEN, exit this procedure and vent the RPV as directed by EOPs/SAGs. To vent the RPV using the MSL drains, perform Step 6.
Procedure Step	
Defeat 5 Step (5)(b)	
Standard:	Determines that with the MSIVs closed and the direction to depressurize the RPV via the main steam line drains, the candidate will go to step 6.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 6	Open the MSL drains and establish an RPV vent path as follows:
Critical <u>N</u>	<ul style="list-style-type: none"> Verify all MSIV handswitches are in the CLOSE position.
Procedure Step	
Defeat 5 Step (6)(a)	
Standard:	Candidate will verify that the MSIV handswitches are in the CLOSE position.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 7	Open the MSL drains and establish an RPV vent path as follows:
Critical <u>Y</u>	<ul style="list-style-type: none"> Reset Group 1 using DIV 1 RESET and DIV 2 RESET pushbuttons on 1C05.
Procedure Step	
Defeat 5 Step (6)(a)	
Standard:	The candidate will reset PCIS by depressing the DIV 1 and DIV 2 pushbuttons.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 8	At Panel 1C04, open MO-1043 MSL HEADER DRAINS BYPASS valve.
Critical <u>Y</u>	
Procedure Step	
Defeat 5 Step (6)(b)	
Standard:	MO-1043 is Opened.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 9	At Panel 1C04, verify CLOSED, MO-1044 MSL DRAIN ORIFICE BYPASS valve.
Critical <u>N</u>	
Procedure Step	
Defeat 5 Step (6)(c)	
Standard:	MO-1044 is verified CLOSED.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 10	At Panel 1C04, open CV-1064 MSL HEADER DRAIN valve by placing HS-1064 in OPEN position.
Critical <u>Y</u>	
Procedure Step	
Defeat 5 Step (6)(d)	
Standard:	CV-1064 is OPENED.
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

Performance Step: 11	At Panel 1C04, open MO-4424 OUTBD MAIN STM LINE DRAIN ISOL valve by placing handswitch HS-4424 in OPEN position.
Critical <u>Y</u>	
Procedure Step	
Defeat 5 Step (6)(e)	
Standard:	MO-4424 is OPENED.
Evaluator Note:	If student is concerned about level, tell him 1C06 operator will address RPV level
Performance:	SATISFACTORY_UNSATISFACTORY _____
Comments:	_____

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Performance Step: 12 At Panel 1C03, open MO-4423 INBD MAIN STM LINE DRAIN ISOL valve by
Critical Y placing handswitch HS-4423 in OPEN position.

Procedure Step
Defeat 5 Step (6)(f)

Standard: MO-4423 is OPENED.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Performance Step: 13 At Panel 1C04, open MO-1044 MSL DRAIN ORIFICE BYPASS as necessary to
Critical N vent the RPV.

Procedure Step
Defeat 5 Step (6)(g)

Standard: MO-1044 is OPEN.

Evaluator Cue: If the candidate asks the CRS if he wants him to continue and vent the RPV, **Cue**
 him that the Main Steam line drains are all that need to be opened.

Performance: **SATISFACTORY_UNSATISFACTORY** _____

Comments: _____

Terminating Cues: When the decision to either open or close MO-1044 has been made, the JPM is
 complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator. {C002}

Stop Time: _____

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Examinee:

Evaluator:

☐ RO ☐ SRO ☐ STA ☐ NSPEO ☐ SRO CERT

Date:

☐ ILT RO ☐ ILT SRO

PERFORMANCE RESULTS:

SAT: UNSAT:

Remediation required:

YES NO **COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).**

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.**EVALUATOR'S SIGNATURE:** _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.