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PVNGS JOB PERFORMANCE MEASURE
 2009 NRC Exam

JPM BASIS INFORMATION

TASK: 1250440201 Perform Event Control Actions for a Control Room Fire
 TASK STANDARD: Diesel Generator 'B' is running.
 K/A: 4.2.068.AA1.10 K/A RATING: RO: 3.7 SRO: 3.9
 K/A: 4.2.068.AA1.31 K/A RATING: RO: 3.9 SRO: 4.0
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes
 REFERENCES: 40AO-9ZZ19, Control Room Fire, Appendix E Rev 22
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) Yes Alternative Path? (Yes/No) Yes

APPROVAL

Developed By: Alan Malley Date: 08/31/2004
 Revised By: Alan Malley Date: 04/14/2009
 Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]
[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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1. SIMULATOR SETUP:

A. IC#: N/A

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.	N/A	
2.		
3.		
4.		

C. SPECIAL INSTRUCTIONS:

- NONE

D. REQUIRED CONDITIONS:

- NONE

E. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- A copy of Appendix E of 40AO-9ZZ19, Rev 22
- Pictures of the inside of a 4.16 kV breaker cubicle.



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The control room has been evacuated due to a fire.**
- **There has been a loss of offsite power. No automatic start and loading of the Emergency Diesel Generators, or load shed has occurred.**
- **The 'B' DG has been started per Appendix E of 40AO-9ZZ19 (Control Room Fire).**
- **The CRS directs you to complete Appendix E of 40AO-9ZZ19 beginning at step 10 to load the "B" Diesel Generator (another operator performed steps 1-9 to position disconnect switches and start the DG).**
- **The CRS has waived the Electrical Protection Equipment requirements for this task per step 3.20.1 of 01DP-0IS13 (ELECTRICAL SAFE WORK PRACTICES).**
- **Assume you have a portable lantern per Step 1 of Appendix E.**

This JPM is time critical.



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 10 of Appendix E: <u>Check</u> that Both of the following conditions for closing the DG Output Breaker are met: <ul style="list-style-type: none"> • Diesel Generator B voltage is 3740 – 4580 • Diesel Generator B speed is approximately 600 rpm. 	Provide the following cues as the examinee looks at the appropriate instrument: <ul style="list-style-type: none"> • DG “B” Voltage is 4220 VAC • DG “B” speed is 600 rpm 	Examinee identifies indication on Diesel Generator control cabinet. NOTE: Time critical portion starts here. START Time: _____
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 11 of Appendix E: <u>Close</u> breaker PBB-S04B, Diesel Generator PEB-G02, using the local control switch.	Provide the following cue: The green light is “ON” and the red light is “OFF” on PBB-S04B. The white light is “OUT” on PBB-S04B.	Examinee simulates closing PBB-S04B by using the handswitch on the front of the breaker.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3.	Step 11.1 of Appendix E: IF PBB-S04B did NOT close, THEN perform the following: a. IF the breaker will be closed manually, THEN GO TO Step 12. of this appendix.	Provide the following cue: The control room has directed you to close the breaker manually. <u>Give the examinee the enclosed pictures and inform the examinee that he/she does not need to open the switchgear door. Use the pictures to explain your actions.</u>	Examinee goes to Step 12 of the appendix

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
4.	Step 12 of Appendix E: IF breaker PBB-S04B, Diesel Generator PEB-G02, will be closed manually, THEN perform the following: a. <u>Check</u> the closing spring indicates "CHGD". b. <u>Press</u> the "MANUAL CLOSE" plunger for the breaker.	Provide the following cue: The closing spring indicates "DISCHGD". Alternate Path starts here. After examinee goes to step 12.1 If asked: The CRS directs you to close the breaker manually.	Examinee goes to Step 12.1 of the appendix.

SAT / UNSAT
Comments (required for UNSAT):



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	STEP	CUE	STANDARD
5. *	Step 12.1.a-d of Appendix E: IF PBB-S04B will be closed manually, AND the closing spring indicator does NOT indicate “CHGD”, THEN perform the following to manually close the breaker: a. Obtain ALL of the following equipment from FPN-C02, Emergency Equipment Cabinet. <ul style="list-style-type: none"> • Ratchet • Extension • 5/8 inch socket b. <u>Open</u> the 125 Vdc control power breaker. c. <u>Place</u> the ratchet on the charging spring motor eccentric, hex charging stud (Right had side between the charging springs). d. <u>Ratchet</u> the hexed charging stud clockwise to obtain a “CHGD” indication.	Provide the following cue: The closing spring indicates “DISCHGD”. Provide the following cues as the trainee simulates the steps. a. The equipment has been obtained from the cabinet b. The 125 Vdc breaker is in the “OFF” position. c. The ratchet is on the stud. d. The closing spring indicator indicates “CHGD”.	Examinee explains using the provided pictures how he/she would manually charge the springs. Examinee simulates obtaining equipment from the cabinet located by the door to the DC equipment room. The examinee opens the 125 V dc breaker. The examinee places the ratchet on the stud. The examinee ratchets the stud to obtain a “CHGD” indication.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6. *	Step 12.1.e of Appendix E: <u>Press</u> the “Manual CLOSE” plunger for the breaker.	Provide the following cue: The breaker position indicator reads “CLOSED”.	Examinee simulates closing PBB-S04B by pressing the “Manual Close” Plunger.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
7. *	Step 13.e of Appendix E: <u>Close</u> breaker PBB-S04C, Essential Spray Pond Pump SPB-P01.	Provide the following cue: The green light is “OFF” and the red light is “ON”. Another operator will complete this Appendix. This JPM is complete.	Examinee simulates closing PBB-S04C by using the handswitch on the front of the breaker. NOTE: Time critical portion stops here. STOP Time _____ (Time should be less than 15 minutes from Start time).
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	08/31/04	3	Procedure removed direction to open PHB-M3209 and PHB-M3210.
2	09/08/2006	6	Changed cues for step 11
3	04/14/2009	6	Changed alternate path to DG breaker not closing.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

1. Vendor reference document upgrade
2. Plant modification (include number)
3. Procedure upgrade
4. Internal or External Agency Commitment (indicate item number)
5. Technical Specification Change (indicate amendment number)
6. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- The control room has been evacuated due to a fire.
- There has been a loss of offsite power. No automatic start and loading of the Emergency Diesel Generators, or load shed has occurred.
- The 'B' DG has been started per Appendix E of 40AO-9ZZ19 (Control Room Fire).
- The CRS directs you to complete Appendix E of 40AO-9ZZ19 beginning at step 10 to load the "B" Diesel Generator (another operator performed steps 1-9 to position disconnect switches and start the DG).
- The CRS has waived the Electrical Protection Equipment requirements for this task per step 3.20.1 of 01DP-0IS13 (ELECTRICAL SAFE WORK PRACTICES).
- Assume you have a portable lantern per Step 1 of Appendix E.

This JPM is time critical.

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1240070004 Perform Auxiliary Operator Actions Per 40EP-9EO07, Loss Of Offsite Power
 TASK STANDARD: Align Train B EW to Spent Fuel Pool Cooling
 K/A: 4.2-062-AA1.03 K/A RATING: RO: 3.6 SRO: 3.6
 K/A: 3.8-033-A2.02 K/A RATING: RO: 2.7 SRO: 3.0
 APPLICABLE POSITION(S): AO/RO/SRO VALIDATION TIME: 10 minutes
 REFERENCES: 40EP-9EO10 Standard Appendices, Appendix 64, Attachment 64-B, Rev 60
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Mike Selland Date: 03/09/2006
 Revised By: Alan Malley Date: 03/12/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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2. SIMULATOR SETUP:

F. IC#: N/A

G. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
5.	N/A	
6.		
7.		
8.		

H. SPECIAL INSTRUCTIONS:

- NONE

I. REQUIRED CONDITIONS:

- NONE

J. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

3. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40EP-9EO10, Standard Appendices, Attachment 64-B, Rev 60

TASK CONDITIONS



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INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The plant has experienced a loss of offsite power and recovery is not expected soon.**
- **The control room is currently performing steps from the Loss of Offsite Power EOP.**
- **The CRS has directed you to perform the Area 3 actions from Attachment 64-B to align Train B EW to Spent Fuel Pool Cooling.**
- **Another operator has been stationed at Essential Chiller B to perform required actions.**
- **Permission has been granted to break 40AC-9ZZ06 locks as required.**



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Attachment 64-B: <u>Ensure</u> Spray Pond Pump B is operating	Spray Pond Pump B is running.	Examinee simulates calling control room for verification that SP Pump B is running.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 2 of Attachment 64-B: <u>Ensure</u> Essential Cooling Water Pump B is operating.	EW Pump B is running.	Examinee simulates calling control room for verification that EW Pump B is running.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Step 3 of Attachment 64-B: <u>Perform</u> the following: (EW Heat Exchanger B Room) <u>Close</u> NCB-HCV-245, NC ISOLATION TO SFP HEAT EXCHANGER.	NCB-HCV-245 stem lock is loosened and ZZ06 lock is broken. NCB-HCV-245 has been rotated in the clockwise direction and has stopped moving. The position indication pointer is indicating closed.	Examinee simulates loosening valve stem lock. Examinee simulates closing NCN-HCV-245. Note: Valve is located in EW heat exchanger B room.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4. *	Continuation of step 3 of Attachment 64-B: <u>Close</u> NCB-HCV-259, NC ISOLATION FROM SFP HEAT EXCHANGER.	NCB-HCV-259 stem lock is loosened and ZZ06 lock is broken. NCB-HCV-259 has been rotated in the clockwise direction and has stopped moving. The position indication pointer is indicating closed.	Examinee simulates loosening valve stem lock. Examinee simulates closing NCN-HCV-259. Note: Valve is located in EW heat exchanger B room.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	Continuation of step 3 of Attachment 64-B: <u>Open</u> EWB-HCV-68, EW ISOLATION FROM SFP HEAT EXCHANGER.	<u>UNIT 3 ONLY:</u> EWB-HCV-68 stem lock is loosened and ZZ06 lock is broken. EWB-HCV-68 has been rotated in the counter-clockwise direction and has stopped moving. The position indication pointer is indicating open.	<u>UNIT 3 ONLY:</u> Examinee simulates loosening valve stem lock. Examinee simulates unlocking and opening EWB-HCV-68 Note: Valve is located in EW heat exchanger B room.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6. *	Continuation of step 3 of Attachment 64-B: <u>Unlock</u> and <u>open</u> EWB-HCV-134, EW ISOLATION TO SFP HEAT EXCHANGER.	EWB-HCV-134 stem lock is loosened and ZZ06 lock is broken. EWB-HCV-134 has been rotated in the counter-clockwise direction and has stopped moving. The position indication pointer is indicating open.	Examinee simulates loosening valve stem lock. Examinee simulates unlocking and opening EWB-HCV-134 Note: Valve is located in EW heat exchanger B room.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7.	Step 4 of Attachment 64-B: <u>Direct</u> an operator to perform the following to override and open EWB-PCV-174 "REFRIGERANT HEAD PRESSURE CONTROL VALVE". <u>Turn</u> the Pilot Bypass Stem in he fully counter clockwise position.	Another operator has overridden and opened EWB-PCV-174	Examinee simulates calling another operator or the control room to open EWB-PCV-174.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
8. *	<p>Step 5 of Attachment 64-B: <u>Place</u> NCN-FI-257, FPHX B OUTLET FLOWMETER, in service by performing the following:</p> <ul style="list-style-type: none"> • Ensure the local equalizing valve is open. • Open NCB-V113, NCN-FI-257 Root Isolation. • Open NCB-V114, NCN-FI-257 Root Isolation. • Open the local low side isolation valve. • Close the equalizing valve. • Slowly open the local high side isolation valve 	<p>The local equalizing valve will rotate freely in the closed direction, but only slightly open.</p> <p>NCB-V113 has been rotated counter-clockwise and has stopped moving.</p> <p>NCB-V114 has been rotated counter-clockwise and has stopped moving.</p> <p>The local low side isolation has been rotated in the counter-clockwise direction and has stopped moving.</p> <p>The equalizing valve has been rotated clockwise and has stopped moving.</p> <p>The local high side isolation has been rotated in the counter-clockwise direction and has stopped moving.</p> <p>If requested cue: Flow is currently at 1300 gpm on NCN-FI-257.</p>	<p>Examinee simulates placing flow meter in service. Steps must be performed in the exact order listed to be satisfactory.</p> <p>Note: Flowmeter is located in Fuel Bldg 100 ft. on West side of stanchion South of PCHX A.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



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	STEP	CUE	STANDARD
9. *	Step 6 of Attachment 64-B: <u>Unlock</u> and <u>adjust</u> NCB-HCV-265, FPHX B OUTLET ISOLATION, to obtain 1400-2400 gpm.	Flow is currently at 1300 gpm. After examinee simulates opening- NCB-HV-265, flow is at 1700 gpm. After examinee adjusts flow provide the following Cue: Another operator will complete the rest of Attachment 64-B. This JPM is complete.	Examinee simulates opening NCB- HCV-265. Examinee checks flow on NCN-FI-257. Note: Valve is in Fuel Bldg 100 ft at PC Heat Exchanger B outlet.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	02/10/06	3	Updated JPM to 40EP-9EO10 Rev 45. Updated cues.
002	02/24/06	6	Change cue for step 10 to coincide with plant indications. Updated Validation time from 20 to 30 minutes.
003	03/09/06	6	Change cue in step 8. Included appropriate cues for NC/EW valves that have stem locks. Updated Validation time from 30 to 40 minutes. Editorial changes.
004	03/16/06	6	Updated step 5 cue to highlight that both U1 & U3 have stem locks on EWB-HCV-68. Added valve position indicator cue to step 6.
005	03/23/06	6	Updated step 5 cue to indicate that only U3 has the stem lock on EWB-HCV-68. Deleted step 12 and changed step 11 cue to end the JPM with another operator performing the remaining steps.
006	03/12/2009		Updated to new format

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 7. Vendor reference document upgrade
- 8. Plant modification (include number)
- 9. Procedure upgrade
- 10. Internal or External Agency Commitment (indicate item number)
- 11. Technical Specification Change (indicate amendment number)
- 12. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- **The plant has experienced a loss of offsite power and recovery is not expected soon.**
- **The control room is currently performing steps from the Loss of Offsite Power EOP.**
- **The CRS has directed you to perform the Area 3 actions from Attachment 64-B to align Train B EW to Spent Fuel Pool Cooling.**
- **Another operator has been stationed at Essential Chiller B to perform required actions.**
- **Permission has been granted to break 40AC-9ZZ06 locks as required.**

CANDIDATE



JP-3
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JPM BASIS INFORMATION

TASK: 1240023901 Perform operation of AFA-P01 at the Remote Shutdown Panel
 TASK STANDARD: Feeding the Steam Generators with AFA-P01 from the Remote Shutdown Panel
 K/A: 3.4-061-A3.01 K/A RATING: RO: 4.2 SRO: 4.2
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 10 minutes
 REFERENCES: 40AO-9ZZ18, Shutdown Outside the Control Room, Appendix E Auxiliary Feed Pumps Operation, Rev 7
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 02/27/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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3. SIMULATOR SETUP:

K. IC#: N/A

L. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
9.	N/A	
10.		
11.		
12.		

M. SPECIAL INSTRUCTIONS:

- NONE

N. REQUIRED CONDITIONS:

- NONE

O. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

4. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40AO-9ZZ18, Shutdown Outside Control Room (Appendix E – Auxiliary Feed Pumps Operations), Rev 7



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **You are a reactor operator on crew.**
- **The crew has implemented 40AO-9ZZ18, Shutdown Outside the Control Room to shutdown the unit.**
- **The CRS directs you to perform Appendix E, Auxiliary Feed Pump Operations, to start and feed the Steam Generators using AFA-P01 (Train 'A' Auxiliary Feedwater Pump) from the Remote Shutdown Panel.**



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

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- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 2. IF AFA-P01 will be used THEN <u>perform</u> the following: <u>Adjust</u> AFA-SK-52B, Auxiliary Feedwater Pump A Speed to minimum	After the examinee simulates turning the speed potentiometer counter-clockwise provide the following cue: The potentiometer has stopped moving and reads “0”.	NOTE: Examinee simulates turning the speed potentiometer in the counter-clockwise direction until the dial is at minimum.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Continuation of Step 2: <u>Place</u> AFA-SK-52A, Speed Control Transfer, to the “REMOTE SHUTDOWN” position.	After the examinee simulates turning the speed control handswitch to the “REMOTE SHUTDOWN” position provide the following cue: The handswitch is pointing to the left.	NOTE: Examinee simulates turning the speed control transfer switch left to the “REMOTE SHUTDOWN” position.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3. *	Continuation of Step 2: <u>Open</u> one of the following Steam Supply Valves <ul style="list-style-type: none"> • SGA-UV-134 • SGA-UV-138 	After the examinee simulates turning handswitch for either SGA-UV-134 or SGA-UV-138 provide the following cue for the appropriate valves: The indication for SGA-UV-134(8)A red light is on. 30 seconds later the red light for SGA-UV-134 came on and both Green lights are off.	Examinee simulates opening either SGA-UV-134 or SGA-UV-138.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4. *	Continuation of Step 2: <u>Adjust</u> turbine speed using AFA-SK-52B to ONE of the following: Unit 1 & 3 only – <ul style="list-style-type: none"> • 3590-3600 rpm Unit 2 only <ul style="list-style-type: none"> • 3560-3570 rpm 	As the examinee goes to increase on the speed potentiometer provide the following cue: Unit 1 and 3 Cue: <ul style="list-style-type: none"> • Speed is now 3600 rpm Unit 2 Cue: <ul style="list-style-type: none"> • Speed is now 3560 rpm 	The examinee looks at the speed indicator for AFA-P01 (AFA-SI-52B) on the Remote Shutdown Panel and adjusts the potentiometer to raise speed to 3590-3600 rpm in Unit 1 and 3 or 3560-3570 in Unit 2..
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	Continuation of Step 2: <u>Open BOTH</u> of the following AFW Pump A to Steam Generator Downstream Valves: <ul style="list-style-type: none"> • AFA-UV-37 • AFA-UV-36 	When the examinee takes the handswitches for AFA-UV-37 and 36 to open provide the following cue: The red lights for AFA-UV-37 and 36 are on and the green lights are off.	Examinee simulates placing the handswitches for AFA-UV-37 and AFA-UV-36
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6. *	Continuation of Step 2: <u>Maintain</u> steam generator levels 35-80% WR with ANY of the following AFA Pump A to Steam Generator Upstream Valves:: <ul style="list-style-type: none"> • AFA-UV-32 • AFA-UV-33 	<p>When examinee looks at SG level transmitters provide the following cue:</p> <p>Steam Generator Wide Range Levels are 30% WR.</p> <hr/> <p>If asked the as found position of AFA-UV-23 and 33 are as indicated on the panel.</p> <hr/> <p>When the examine simulates jogging open AFA-UV-32 and 33 provide the following cue:</p> <p>AFA-UV-32 red and green lights are on.</p> <hr/> <p>When examine looks at position indication for valves provide the following cue:</p> <p>Valve position indicators read approximately <u>20</u> % (depending on what operator says).</p> <hr/> <p>When examine looks at AF flow indicator provide the following cue:</p> <p>The gauge indication is reading 350 gpm.</p> <hr/> <p>After feed is established provide the following cue:</p> <p>Another operator will finish Appendix E.</p> <p>This JPM is complete.</p>	Examine determines SG WR level and throttles open both SG Upstream valves.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	2/27/09	6	Record created

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 13. Vendor reference document upgrade
- 14. Plant modification (include number)
- 15. Procedure upgrade
- 16. Internal or External Agency Commitment (indicate item number)
- 17. Technical Specification Change (indicate amendment number)
- 18. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- You are a reactor operator on crew.
- The crew has implemented 40AO-9ZZ18, Shutdown Outside the Control Room to shutdown the unit.
- The CRS directs you to perform Appendix E, Auxiliary Feed Pump Operations, to start and feed the Steam Generators using AFA-P01 (Train 'A' Auxiliary Feedwater Pump) from the Remote Shutdown Panel.

CANDIDATE



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JPM BASIS INFORMATION

TASK: 0010030401 Perform a SG 1 (2) high rate blowdown to the main condenser.
 TASK STANDARD: Use the high rate blowdown system to lower SG level
 K/A: 4.1 038 EA1.18 K/A RATING: RO: 4.0 SRO: 3.9
 K/A: K/A RATING: RO: SRO
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 10 minutes
 REFERENCES: 40EP-9EO10 Standard Appendices, Appendix 33 - Rev 60
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) Yes

APPROVAL

Developed By: Alan Malley Date: 04/14/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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4. SIMULATOR SETUP:

P. If running JS1 and JS2 together reset to IC#: 106 (For 2009 NRC exam only)

If running JS1 and JS3 together reset to IC# 110 (For 2009 NRC exam only)

Q. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
13.	<p>WHEN direct to open SGE-V293, SGE-V267, and SGE-VA33 perform the following:</p> <ul style="list-style-type: none"> • Go to page WD6 and click on the handswitch for 500Q. Use the override to take the valve to close. <p>THEN</p> <ul style="list-style-type: none"> • Delete the override for the handswitch above, <p>THEN</p> <ul style="list-style-type: none"> • dmf cmAVWD06SGBUV500Q_4 (listed under “Comp Malfs” on the header at the top of the simulator page) <p>THEN report the valves are open.</p>	<p>When examinee directs AO to open bypass valves for 500S. (Valves are SGE-V293, SGE-V267, and SGE-VA33).</p> <p>The handswitch is taken to close to ensure the valve does not open when the malfunction is deleted. This ensures the examinee has to open the valve.</p>
14.	<p>WHEN directed to close SGE-V293, SGE-V267, and SGE-VA33, wait a minute and report the valves closed.</p>	
15.	<p>WHEN directed to open SCN-V088, V099, V071, and V072, wait a few minutes and report the valves are open. These are opened in the simulator setup.</p>	

R. SPECIAL INSTRUCTIONS:

- Reset to IC- 106
- This JPM is set up to run with JS-2 and JS-3 for the 2009 NRC exam

S. REQUIRED CONDITIONS:

- SG NR level approximately 65-75% NR.

T. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____



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5. SPECIAL TOOLS/EQUIPMENT:

- Copy of Standard Appendix 33

This scenario is set up in IC-106. If for some reason IC-106 is not available, reset to IC 6, use AF to fill SG#1 to approximately 70% NR and close all the Blowdown containment isolation valves. Then perform the following to open SCNV088 and SCNV071:

- mrf rfWD29 OPEN
- mrf rfWD30 OPEN
- imf cmAVWD06SGBUV500Q 4 (mechanical Seizure of 500Q)

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **Unit 1 is cooling down following a SGTR**
- **SG #1 NR level is approximately 74%.**
- **The CRS has directed you to reduce SG #1 level to 50% Narrow Range using Standard Appendix 33.**

INFORMATION FOR EVALUATOR'S USE:

- * Denotes Critical Step
- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.



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- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Standard Appendix 33: Place SCN-HS-1, SG 1 Blowdown Path Selector in "OFF".		Examinee places SCN-HS-1 in "OFF".
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Step 2 of Standard Appendix 33: <u>Ensure</u> SGA-UV-500P, SG 1 Common Upstream Isolation, is open.		Examinee opens SGA-UV-500P.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Step 3 of Standard Appendix 33: <u>Ensure</u> that ONE of the following valves is open: <ul style="list-style-type: none"> • SGE-HV-43, SG 1 Hot Leg Isolation • SGE-HV-41, SG 2 Cold Leg Isolation 	If asked as CRS which valve to use provide the following cue: Select either valve.	Examinee opens either SGE-HV-43 or SGE-HV-41.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4.	Step 4 of Standard Appendix 33: <u>Check</u> that SGB-UV-500Q is open.		The examinee determines SGB-UV-500Q is closed and goes to the contingency step 4.1.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	Step 4.1 of Standard Appendix 33: <u>Perform</u> the following to open SGB-UV-500Q: a. <u>Direct</u> an operator to perform the following: 1) <u>Unlock</u> and <u>open</u> SGE-V293, "SGB-UV-500Q BYPASS HDR INLET ISOL VALVE" 2) <u>Open</u> SGE-V267, "SGB-UV-500Q BYPASS HDR OUTLET ISOL VALVE" 3) <u>Slowly open</u> SGE-VA33, "SGB-UV-500Q BYPASS HEADER THROTTLE VALVE" b. <u>Open</u> SGB-UV-500Q, SG 1 Common Downstream Isolation c. <u>Direct</u> an operator to close ALL of the following valves: • SGE-V293 • SGE-V267 • SGE-VA33	Simulator Driver action required at this time!!! Have the trainee use the radio to communicate with the Sim Driver. The driver will provide the cues for the valve positions.	Examinee directs an operator to open SGE-V293, SGE-V267, and SGE-VA33. When the operator reports these valves are open, the examinee opens SGB-UV-500Q. After SGB-UV-500Q is open, the examinee directs the operator to close SGE-V293, SGE-V267, and SGE-VA33.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6.	Step 5 of Standard Appendix 33: <u>Direct</u> an operator to open ALL of the following valves: <ul style="list-style-type: none"> • SCN-V088, “SCN-HV-018C OUTLET ISOLATION VALVE” (S/G 1 HIGH RATE B/D TO CONDENSER) • SCN-V099, “SCN-HV-018C INLET ISOLATION VALVE” (S/G 1 HIGH RATE B/D TO CONDENSER) • SCN-V071, “SCN-HV-018B OUTLET ISOLATION VALVE” (S/G 1 ABNORMAL RATE B/D TO CONDENSER) • SCN-V072, “SCN-HV-018B INLET ISOLATION VALVE” (S/G 1 ABNORMAL RATE B/D TO CONDENSER) 	(All valves have been positioned in the simulator setup). The sim driver will inform the candidate that these valves are open.	Examinee directs an operator to open the following valves: <ul style="list-style-type: none"> • SCN-V088 • SCN-V099 • SCN-V071 • SCN-V072
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7. *	Step 6 of Standard Appendix 33: <u>Place</u> SCN-HS-18, SG 1 Blowdown Rate Selector in “HIGH RATE”.		Examinee places SCN-HS-18 in “HIGH RATE”.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
8. *	Step 7 of Standard Appendix 33: <u>Maintain</u> SG level by performing the following: a. <u>Place</u> SCN-HS-1, SG 1 Blowdown Path Selector in "COND". b. WHEN SG 1 level reaches the desired level, THEN <u>place</u> SCH-HS-1, SG1 Blowdown Path Selector in "OFF".	When examiner has seen level decrease, provide the following cue: Another operator will monitor SG level and secure blowdown at 50%. This JPM is complete.	Examinee places SCN-HS-1 in "COND" and monitors SG level.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

- **Unit 1 is cooling down following a SGTR**
- **SG #1 NR level is approximately 74%.**
- **The CRS has directed you to reduce SG #1 level to 50% Narrow Range using Standard Appendix 33.**

CANDIDATE



JS-2
PVNGS JOB PERFORMANCE MEASURE
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JPM BASIS INFORMATION

TASK: 1240001601 Perform LM-HPSI pump cold leg injection
 TASK STANDARD: Borate the RCS using Charging Pump through Hot leg Injection
 K/A: 4.2-024-AA1.09 K/A RATING: RO: 3.5 SRO: 3.5
 K/A: 4.2-024-AA1.22 K/A RATING: RO: 3.2 SRO: 3.2
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 10 minutes
 REFERENCES: 40EP-9EO10 – Standard Appendices, Appendix 209, LM-Charging Pump Hot Leg Injection Tran B HPSI, Rev 60
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 3/10/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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5. SIMULATOR SETUP:

U. IC#: 106 (For 2009 NRC exam only)

V. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
16.	None required	

W. SPECIAL INSTRUCTIONS:

- This is scheduled to run with JPM JS1 for the 2009 NRC exam.

X. REQUIRED CONDITIONS:

- Ensure Charging Pump B is **NOT** running

Y. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

6. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40EP-9EO10, Standard Appendices 209, LM-Charging Pump Hot Leg Injection Tran B HPSI.

If IC-106 is not available, reset to IC-6 and perform the following:

- Depressurize RCS to ~ 250 psia
- Shift to RCPs 1A and 1B running
- Close SIB-UV-656 using the handswitch
- Open SIB-UV-307 using the handswitch
- Mrf crRH05SIBHV692_1 CLOSE (Closes the breaker for SIB-UV-692)
- Open SIB-UV-692 using the handswitch
- Open SIB-UV-322 using the handswitch
- Mrf rfSI06 OPEN (opens SIV508)
- Mrf rfCV33 CLOSE (closes CH-V337)
- Mrf rfCV35 CLOSE (closes CH-V319)
- Mrf rfCV28 OPEN (opens CH-V327)
- Mrf rfCV26 OPEN (opens CH-756)
- Mrf rvCV30 OPEN (opens CH-797)



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The plant is shutdown in Mode 5.**
- **The CRS has entered the Lower Mode Functional Recovery Procedure.**
- **Due to not having adequate Shutdown Margin, the CRS has directed you to perform Standard Appendix 209 to borate the RCS using the 'B' Charging pump.**

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.



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- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Appendix 209: <u>Check BOTH</u> of the following: <ul style="list-style-type: none"> • SDC Train B is NOT in service • SIB-UV-656, Loop 2 to SDC LPSI pump B Suction Valve is closed 		NOTE: Examinee verifies Train B SDC is NOT in service and verifies SIB-UV-656 is closed.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 2 of Appendix 209: IF it desired to align Charging Pump A, THEN perform the following: <ol style="list-style-type: none"> a. <u>Place</u> Charging Pump A in the "PULL-TO-LOCK" position. b. <u>Direct</u> an operator to <u>PERFORM</u> Attachment 209-A, <u>Charging Pump A</u> <u>Hot Leg Injection Train B</u> <u>HPSI</u>. 	If needed cue: The CRS directed you to use Charging Pump B.	Examinee determines that Charging Pump A will not be used (in Initiating cue to use Charging Pump B).
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3.	Step 3 of Appendix 209: IF it desired to align Charging Pump B, THEN perform the following: c. <u>Place</u> Charging Pump B in the “PULL-TO-LOCK” position. • <u>Direct</u> an operator to <u>PERFORM</u> Attachment 209-B, <u>Charging Pump B</u> <u>Hot Leg Injection Train B</u> <u>HPSI</u> .	After examinee directs an operator to Perform Attachment 209-B: The area operator has completed Attachment 209-B.	Examinee ensures Charging Pump B in “PULL-TO-LOCK.” Examinee directs an Area Operator to perform Attachment 209-B.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4.	Step 4 of Appendix 209: IF it desired to align Charging Pump E, THEN perform the following: d. <u>Place</u> Charging Pump E in the “PULL-TO-LOCK” position. • <u>Direct</u> an operator to <u>PERFORM</u> Attachment 209-C, <u>Charging Pump E</u> <u>Hot Leg Injection Train B</u> <u>HPSI</u> .	If needed cue: The CRS directed you to use Charging Pump B.	Examinee determines that Charging Pump E will not be used (in Initiating cue to use Charging Pump B).
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
5. *	Step 5 of Appendix 209: WHEN ANY of the following are complete: <ul style="list-style-type: none"> • Attachment 209-A • Attachment 209-B • Attachment 209-C THEN ensure BOTH of the following valves are closed: <ul style="list-style-type: none"> • SIB-HV-609, HPSI B Long Term Recirc • SIB-UV-332 SIT Fill Header Isolation 		The examinee closes SIB-HV-609, HPSI B Long Term Recirc, and closes SIB-UV-332, SIT Fill Header Isolation.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6.	Step 6 of Appendix 209: Inform the CRS that the Charging Pump(s) are aligned for Hot Leg Injection to HPSI Header B.	After the examinee informs the CRS that Charging Pump B is aligned for Hot Leg Injection to HPSI Header B provide the following cue: The CRS directs you to commence Hot Leg Injection.	The examinee informs the CRS that Charging Pump B is aligned for Hot Leg Injection to HPSI Header B.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
7. *	Step 7 of Appendix 209: WHEN directed by the CRS to commence Hot Leg Injection, THEN perform the following: a. <u>Open</u> SID-HV-331, HPSI B Long Term Recirc Throttle Valve.	The plaque on the board that references 40DP-9OP07 is informing the operator that a valve stroke surveillance must be done before Mode 4 once these valves have been moved.	The examinee opens SID-HV-331, HPSI B Long Term Recirc Throttle Valve.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
8. *	Step 7 of Appendix 209: WHEN directed by the CRS to commence Hot Leg Injection, THEN perform the following: b. <u>Start</u> the Charging Pump(s) aligned for Hot Leg Injection.	After the examinee starts borating provide the following cue: Another operator will continue with this Appendix. This JPM is complete.	The examinee starts Charging Pump B.

SAT / UNSAT

Comments (required for UNSAT):

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	03/10/2009	6	JPM created.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 25. Vendor reference document upgrade
- 26. Plant modification (include number)
- 27. Procedure upgrade
- 28. Internal or External Agency Commitment (indicate item number)
- 29. Technical Specification Change (indicate amendment number)
- 30. Other (explain in comments)



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INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

- The plant is shutdown in Mode 5.
- The CRS has entered the Lower Mode Functional Recovery Procedure.
- Due to not having adequate Shutdown Margin, the CRS has directed you to perform Standard Appendix 209 to borate the RCS using the 'B' Charging pump.

CANDIDATE



JS-3
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JPM BASIS INFORMATION

TASK: 1250280201 Respond to an Inadvertent RAS
 TASK STANDARD: RAS reset
 K/A: 3.7 012 A4.02 K/A RATING: RO: 3.3 SRO: 3.4
 K/A: K/A RATING: RO: SRO
 APPLICABLE POSITION(S): RO VALIDATION TIME: 10 minutes
 REFERENCES: 40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations, Rev 13
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) Yes

APPROVAL

Developed By: Alan Malley Date: 08/30/2005
 Revised By: Alan Malley Date: 10/05/2009
 Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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6. SIMULATOR SETUP:

Z. If running JS3 and JS4 together reset to IC#: 103 (For 2009 NRC exam only)

If running JS3 and JS1 together reset to IC# 110 (For 2009 NRC exam only)

AA. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
17.	None Required	

BB. SPECIAL INSTRUCTIONS:

- This JPM is designed to run with JS-4 or JS-1 for the 2009 NRC exam.

CC. REQUIRED CONDITIONS:

- Ensure Charging Pump B is **NOT** running

DD. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

7. SPECIAL TOOLS/EQUIPMENT:

- Copy 40AO-9ZZ17, Inadvertent PPS Actuations, Appendix B

If IC-103 is not available, then reset to IC-20. Then perform the following:

- imf cmTRCV07CHBLT203B_4 (failure of CHB-PT-203B)
- imf cmSRRP01IRRASBD2_1 (fails the RAS relay)
- imf RP06J1 (RAS Leg 1 blown fuse)

THEN

- dmf cmTRCV07CHBLT203B_4 (failure of CHB-PT-203B)
- dmf cmSRRP01IRRASBD2_1 (fails the RAS relay)
- dmf RP06J1 (RAS Leg 1 blown fuse)
- Override and close the Train B RAS Sump valves on B02.

The following lights should be lit:

- Annunciator Window 6B2A (lower half only)
- Annunciator Window 6B2B (upper and lower half)
- The Channel B Lo RWT Level Trip and Pre-trip lights on B05 and at the PPS B cabinet
- Flashing light for the “Reset Actuation Trip Path 2” above the handswitch for the actuation path reset button on Channel B PPS Cabinet

The following light should be out:

- RAS Initiation light on B05 and Channel B PPS cabinet
- Channel A RAS 2-4 leg actuation light at A PPS cabinet
- Channel B RAS 1-3 and 2-4 actuation light at B PPS Cabinet



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PVNGS JOB PERFORMANCE MEASURE
2009 NRC Exam

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

(For 100% power Initial Conditions)

- Unit 1 is at 100% power.
- An inadvertent Recirc Actuation Signal (RAS) has occurred due to a power supply problem.
- The power supply problem has been corrected.
- The CRS directs you to take actions to reset the RAS Signal in accordance with 40AO-9ZZ17, Appendix B.

(For low power Initial Conditions)

- Unit 1 is at in Mode 5 on Shutdown Cooling.
- An inadvertent Recirc Actuation Signal (RAS) has occurred due to a power supply problem.
- All SDC valves have been realigned as needed for SDC.
- The power supply problem has been corrected.
- The CRS directs you to take actions to reset the RAS Signal in accordance with 40AO-9ZZ17, Appendix B.



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Appendix B of 40AO-9ZZ17: IF PPS-ESFAS actuation was caused by a failure to reset the SG or PZR Press variable setpoints during a controlled cooldown...		Examinee marks step as N/A. Examinee may perform lamp checks to ensure no other parameters are tripped.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 2 and 2.1 of Appendix B of 40AO-9ZZ17: <u>Check</u> the Trip lamps (B05) for the affected PPS-ESFAS actuation input parameters on all PPS channels satisfy ONE of the following: <ul style="list-style-type: none"> • NOT lit • Bypassed 		The examinee determines channel B LO RWT LEVEL is LIT and resets the Channel B Trip Lamp by pushing the reset pushbutton.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3.	Step 3 of Appendix B of 40AO-9ZZ17: <u>Check</u> the affected PPS-ESFAS actuation Initiation Relay lamps lit (B05) on all PPS channels.		RAS Initiation lamps (B05) are NOT lit, so examinee goes to contingency step 3.2. Step 3.1 should be marked N/A.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4. *	Step 3.2 of Appendix B of 40AO-9ZZ17: Perform the following for any de-energized PPS-ESFAS Initiation Paths: <ul style="list-style-type: none"> • <u>Reset</u> the affected initiation path (PPS Cabinet) • <u>Check</u> the affected Initiation Signal lamps lit (PPS Status Panels above the PPS Cabinets). 		Examinee obtains RPS/ESFAS reset key and resets RAS initiation pathways on Channel B. (Places keylock switch to UNLK position and then pushes RAS reset pushbutton).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	Step 4 of Appendix B of 40AO-9ZZ17: <u>Check</u> the actuated PPS-ESFAS leg 1-3 and leg 2-4 lamps lit for PPS actuation signals A and B (PPS Status Panels above the PPS Cabinets).		The examinee determines RAS leg 1-3 and 2-4 are NOT lit.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6. *	Step 4.1 of Appendix B of 40AO-9ZZ17: Perform the following: <ul style="list-style-type: none"> • Reset the actuation path for the RAS actuation (Aux Relay cabinet) • Check the red “ON” light lit for the affected PPS-ESFAS actuation (Aux Relay Cabinet). 	When this step is completed provide the following cue: The CRS will have another operator complete the remainder of this procedure. This JPM is complete.	The examinee resets the RAS actuation path in the “A” and “B” Aux Relay cabinets. Only Channel ‘B’ needs to be reset. EVALUATOR NOTE: Only one pushbutton needs to be depressed in each ESFAS Train Cabinet to completely reset the RAS initiation logic. EVALUATOR NOTE: Only resetting the actuation path is critical for this step.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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INITIAL CONDITIONS

INITIATING CUE:
(For 100% power Initial Conditions)

- Unit 1 is at 100% power.
- An inadvertent Recirc Actuation Signal (RAS) has occurred due to a power supply problem.
- The power supply problem has been corrected.
- The CRS directs you to take actions to reset the RAS Signal in accordance with 40AO-9ZZ17, Appendix B.

CANDIDATE



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INITIAL CONDITIONS

INITIATING CUE:
(For low power Initial Conditions)

- Unit 1 is at in Mode 5 on Shutdown Cooling.
- An inadvertent Recirc Actuation Signal (RAS) has occurred due to a power supply problem.
- All SDC valves have been realigned as needed for SDC.
- The power supply problem has been corrected.
- The CRS directs you to take actions to reset the RAS Signal in accordance with 40AO-9ZZ17, Appendix B.

CANDIDATE



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JPM BASIS INFORMATION

TASK: 0500010401 Initiate a containment vent
 TASK STANDARD: Containment purge system in operation in the VENT mode.
 K/A: 3.8 029 A2.03 K/A RATING: RO: 2.7 SRO: 3.1
 K/A: K/A RATING: RO: SRO
 APPLICABLE POSITION(S): RO VALIDATION TIME: 15 minutes
 REFERENCES: 40OP-9CP01, Containment Purge System (Rev 18)
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: John Dedon Date: 04/04/2004
 Revised By: Alan Malley Date: 10/05/2009
 Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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7. SIMULATOR SETUP:

EE. IC#: 103 (For 2009 NRC exam only)

FF. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
18.		If IC-103 is not available, the reset to IC-20 and perform the following: <ul style="list-style-type: none"> • Mrf rfCH04 OPEN (opens IA-BV45) • Mrf rfIP38 1.3 (puts containment pressure at 1.3 psig)

GG. SPECIAL INSTRUCTIONS:

- This JPM is set to run with JS3 for the 2009 NRC exam

HH. REQUIRED CONDITIONS:

- Containment pressure ~ 1.3 psig.

II. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

8. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40OP-9CP01, Containment Purge System, Section 5.0, Rev 18

JJ. COMMUNICATIONS DURING JPM:

STEP	COMMAND	CUE
1	After examinee directs AO to close IA-VB47 provide the following Cue:	IA-VB47, Instrument Air Supply valve to the Containment Power Access Purge Isolation Valve CP-UV4A, is closed. (In simulator setup)
2	After examinee directs AO to open IA-VB45 provide the following Cue:	IA-VB45, Air Supply to CPB-UV-5B and CP-PV-43, is open. (In simulator setup)
3	After examinee directs AO to open/check open CP-V024 and to close/check closed CP-V023.	<ul style="list-style-type: none"> • CP-V024, Isolation between Refueling Purge Duct and RU-34, is open • CP-V023, isolation between Refueling Purge Duct and RU-34, is closed
4	If examinee asks Effluent Tech if ST for RU-37 and RU-38 is current	Shiftly Surveillance Test for RU-37 and RU-38 is current.
10	If the examinee sends an Area Operator to check the positions of M03 and/or M06 report the following as appropriate:	<ul style="list-style-type: none"> • M03 damper is closed • M06 damper is open



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The CRS has directed you to initiate a normal containment vent in accordance with 40OP-9CP01, Containment Purge System.**
- **An area operator is standing by in the RCA to assist you.**
- **RU-34 is available.**
- **Authorization has been given to break ZZ06 locks as needed.**
- **Venting of Containment is for pressure reduction**
- **All prerequisites are complete.**
- **The Effluent Release Permit is for today's date from 0700 to 2400 and is approved.**
- **The shiftly Surveillance Test for RU-37 and RU-38 is current.**

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.



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- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 5.3.1 of 40OP-9CP01: <u>Ensure</u> IA-VB47, Instrument Air Supply valve to the Containment Power Access Purge Isolation Valve CP-UV4A is closed.	Simulator driver will report IA-VB47 is closed	Examinee directs AO to verify IA-VB47 is closed.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 5.3.2 of 40OP-9CP01: <u>Unlock and open</u> IA-VB45, Air Supply to CPB-UV-5B and CP-PV-43 per 40AC-0ZZ06.	Simulator driver will report IA-VB45 is open.	Examinee directs AO to unlock and open IA-VB45.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3.	Step 5.3.3 of 40OP-9CP01: IF RU-34 is available, THEN <u>perform</u> BOTH of the following to place it in service: 2. Ensure CP-V024 (isolation between Power Access Purge Duct and RU-34) is open. 3. Ensure CP-V023 (isolation between Refueling Purge Duct and RU-34) is closed.	Simulator driver will report CP-V024 is open and CP-V023 is closed..	Examinee directs AO to open/check open CP-V024 and to close/check closed CP-V023.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4.	Step 5.3.4 of 40OP-9CP01: <u>Direct</u> the RMS/Effluents technician to <u>ensure</u> the Shiftly ST (per 74ST-9SQ07) as required by SR 3.3.8.1 is current on RU37 and/or RU-38 prior to each system startup.	If asked, the simulator driver will provide the cue that the ST for RU-37 and 38 is current. This info was in the initiating cue.	Examinee signs off this step from information provided in the Initiating CUE.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
5.	Step 5.3.5 of 40OP-9CP01: IF venting Containment to perform ANY of the following: <ul style="list-style-type: none"> • Section XI testing of CP valves • Starting Power Access Purge • Starting Refueling Purge • PAL testing per 73ST-9CL05, Containment Airlock Leakage Rate Test. THEN <u>notify</u> security that Containment will be vented to less than +0.25 psig.		The examinee N/As this step since the vent is for none of the reasons listed.

SAT / UNSAT

Comments (required for UNSAT):



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	STEP	CUE	STANDARD
6.	<p>NOTE before step 5.3.6</p> <p>An ERFDADS alarm may be inserted to alarm at +0.3 psig to alert the operator not to go below +0.25 psig.</p>	<p>Provide this cue on the floor.</p> <p>If examinee decides to set an ERFDADS alarm provide the following Cue:</p> <p>Another operator will set the ERFDADS alarm. The CRS directs you to continue with the procedure.</p>	<p>The examinee may decide to set an ERFDADS alarm. If so, give the cue. The examinee may decide to set an ERFDADS alarm. If so, give the Cue.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
7.	<p>Step 5.3.6 of 40OP-9CP01:</p> <p>IF venting Containment is only for pressure reduction, THEN do not vent less than +0.25 psig.</p>		<p>The examinee initials this step and continues.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
8.	<p>Step 5.3.7 of 40OP-9CP01:</p> <p>IF venting Containment in support of PAL testing per 73ST-9CL05, Containment Airlock Leakage Rate Test, THEN vent Containment as close to 0.1 psig, as practical.</p>		<p>Examinee N/As this step.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



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	STEP	CUE	STANDARD
9. *	Step 5.3.8 of 40OP-9CP01: <u>Place</u> CPN-HS-1, Containment Purge Mode Selector Switch, in the VENT position to start venting containment.		The examinee places CPN-HS-1 to VENT.

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
10.	Step 5.3.9 of 40OP-9CP01: <u>Ensure</u> Damper CPN-M06 opens.	If requested, the simulator driver will provide the following cue: <ul style="list-style-type: none"> • M03 damper is closed • M06 damper is open 	The examinee ensures CPN-M06 opens. This will cause dual indication for the position of M03/M06. The examinee may send an Area Operator to check the position locally.

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
11. *	Step 5.3.10 of 40OP-9CP01: <u>Place</u> CPA-HS-4, Containment Power Access Purge Upstream Isolation Valve CP-UV4B to the OPEN position.		The examinee places CPA-HS-4 to the OPEN position. NOTE: Per the note preceding this step, dual indication will be received on HS-4 because UV4A remains closed.

SAT / UNSAT
Comments (required for UNSAT):



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	STEP	CUE	STANDARD
12. *	Step 5.3.11 of 40OP-9CP01: Place CPB-HS-5, Containment Power Access Purge Upstream Isolation Valve CP-UV5B to the OPEN position.	<p>When the operator completes this step provide the following cue:</p> <p>Another operator will complete the rest of this procedure.</p> <p>This JPM is complete.</p>	<p>The examinee places CPA-HS-5 to the OPEN position.</p> <p>NOTE: Per the note preceding this step, dual indication will be received on HS-4 because UV5A remains closed.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	03/10/2009	6	Updated format
2	10/05/2009	6	Incorporated comments from the NRC validation team

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 37. Vendor reference document upgrade
- 38. Plant modification (include number)
- 39. Procedure upgrade
- 40. Internal or External Agency Commitment (indicate item number)
- 41. Technical Specification Change (indicate amendment number)
- 42. Other (explain in comments)



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INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

- The CRS has directed you to initiate a normal containment vent in accordance with 40OP-9CP01, Containment Purge System.
- An area operator is standing by in the RCA to assist you.
- RU-34 is available.
- Authorization has been given to break ZZ06 locks as needed.
- Venting of Containment is for pressure reduction
- All prerequisites are complete.
- The Effluent Release Permit is for today's date from 0700 to 2400 and is approved.
- The shiftly Surveillance Test for RU-37 and RU-38 is current.

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1140010401, lineup the steam bypass control system for normal operation
 TASK STANDARD: The "not in operate" lights are extinguished; SBCS abnormal alarm and SBCS condenser interlock alarms are reset.
 K/A: 3.4-041-A4.08 K/A RATING: RO: 3.0 SRO: 3.1
 K/A: K/A RATING: RO: SRO
 APPLICABLE POSITION(S): RO VALIDATION TIME: 10 minutes
 REFERENCES: 40OP-9SF05, Operation of Steam Bypass Control System (Rev 20)
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: John Dedon Date: 11/18/2003
 Revised By: Alan Malley Date: 04/16/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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8. SIMULATOR SETUP:

- A. IC#: 104 (For 2009 NRC exam only)
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
19.	None	

KK. SPECIAL INSTRUCTIONS:

- This JPM is set to run with JS6 for the 2009 NRC exam

LL. REQUIRED CONDITIONS:

- The following RED LEDs will be lit at the SBCS test panel:
 - Emergency Off
 - Both “Condenser Interlocks”
 - Both “Not in Operate”
 - AMI

MM. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

9. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40OP-9SF05, Operation of Steam Bypass Control System, Appendix C, Rev 20

If IC-104 is unavailable, reset to IC-20 and perform the following:

- On the SBCS Test panel:
 - Press the “Emergency Off” pushbutton
 - Place the “System Mode Selection” switch to the “TEST” position
- Place the SBCS Master Controller on B06 in “Manual”
 - Emergency Off
 - Both “Condenser Interlocks”
 - Both “Not in Operate”
 - AMI



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

The Steam Bypass Control System has been disconnected at the SBCS Test Panel. The CRS directs you to perform 40OP-9SF05, Operation of Steam Bypass Control System, Appendix C to:

- **Reconnect and reset the Steam Bypass Control System.**



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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PVNGS JOB PERFORMANCE MEASURE**

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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Appendix C: IF the SBCS needs to be reset, THEN <u>perform</u> steps 2.9 through 2.15.		Examinee marks this step N/A and goes to step 2.0 to reconnect and reset SBCS.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 2.1 of Appendix C: <u>Check</u> at least 1 "Not In Operate" light is lit on the SBCS test panel.		Verifies both RED lights are lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Step 2.2 of Appendix C: <u>Depress</u> and release the "EMERGENCY OFF" pushbutton on the SBCS test panel.		Examinee depresses the "EMERGENCY OFF" pushbutton (no change in status of SBCS Test Panel).
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4.	Step 2.3 of Appendix C: <u>Ensure</u> BOTH of the following: <ul style="list-style-type: none"> • <u>Check</u> the EMERG OFF backlight is illuminated. • <u>Check</u> that the power supply lights (-15,+15) in SFN-C03Y, nests 4, 5 and 7 are not illuminated. 	When the examinee opens the door to the cabinet provide the following CUE: The power supply lights in SFN-CO3Y, nest 4, 5, 7 are not lit. (These lights are not modeled in the simulator).	The examinee ensures the EMERG OFF backlight is illuminated. NOTE: The power supply lights are not modeled in the simulator so it is necessary to give the cue.

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
5. *	Step 2.4 of Appendix C: <u>Place</u> the System Mode Selection switch in "DISCONNECT".		The examinee places the System Mode Select switch in "DISCONNECT".

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
6. *	Step 2.5 of Appendix C: <u>Depress</u> and release the Light and Timer test button on the SBCS test panel.		The examinee depresses and releases the LIGHT AND TIMER TEST pushbutton.

SAT / UNSAT
Comments (required for UNSAT):



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	STEP	CUE	STANDARD
7.	Step 2.6 of Appendix C: <u>Check</u> that the “Not In Operate” 1 and 2 lights extinguish and then come back on in approximately 30 seconds.		The NOT IN OPERATE lights 1 and 2 will extinguish then come back “ON” in 30 seconds.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8. *	Step 2.7 of Appendix C: <u>Place</u> the System Mode Selection switch in the “Operate” position on the SBCS Test Panel		The examinee places the System Mode Selection Switch in "OPERATE".
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
9.	Step 2.8 of Appendix C: <u>Ensure</u> that the “Not In Operate” 1 and 2 lights extinguish in approximately 30 seconds.		The NOT IN OPERATE lights will extinguish in 30 seconds.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
10.	Step 2.9 of Appendix C: <u>Ensure</u> that the SBCS Master Controller is in the 'Manual' mode		The examinee ensures the SBCS Master Controller in "MANUAL" mode with backlight illuminated.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
11.	Step 2.10 of Appendix C: <u>Ensure</u> that the output of the SBCS Master Controller is zero.		The examinee ensures zero output on SBCS controller.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
12. *	Step 2.11 of Appendix C: <u>Take</u> SGN-HS-1010 to "RESET", to reset the SBCS emergency off.		Switch SGN-HS-1010 to "RESET" (spring return to neutral). NOTE: The following alarms should clear: <ul style="list-style-type: none"> • SBCS ABNORMAL • SBCS COND INTLK • NSSS SBCS RACK U POWER • NSSS SBCS RACK Y POWER
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
13.	Step 2.12 of Appendix C: IF the Turb Bypass Demand Alarm is received, THEN <u>ensure</u> that the output of the SBCS Master Controller is zero.		Turb Bypass Demand Alarm is not in alarm.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
14.	Step 2.13 of Appendix C: <u>Ensure</u> the 'SBCS Abnormal' alarm (Window 6A16A) is clear if condenser pressure is less than 5” HgA.		Verify "SBCS ABNORMAL" alarm clear.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
15.	Step 2.14 of Appendix C: <u>Ensure</u> the “SBCS COND INLK” alarm (Window 6A16B) is clear.		Verify "SBCS COND INTLK" alarm clear.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
16.	Step 2.15 of Appendix C: GO TO ONE of the following to place the BCS Master Controller in the desired mode of operation. <ul style="list-style-type: none"> • Section 4.3, Lineup of the SBCS for Normal Operation. • Section 4.4, Shifting Master Controller Modes 	Another operator will lineup the SBCS. This JPM is complete.	
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
2	04/16/2009	6	Changed format

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 43. Vendor reference document upgrade
- 44. Plant modification (include number)
- 45. Procedure upgrade
- 46. Internal or External Agency Commitment (indicate item number)
- 47. Technical Specification Change (indicate amendment number)
- 48. Other (explain in comments)



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INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

The Steam Bypass Control System has been disconnected at the SBCS Test Panel. The CRS directs you to perform 40OP-9SF05, Operation of Steam Bypass Control System, Appendix C to:

- **Reconnect and reset the Steam Bypass Control System.**

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1250370201, Perform actions for loss of letdown.

TASK STANDARD: All charging pumps are stopped and CHB-UV-255 closed

K/A: 3.3.2-004-A2.07 K/A RATING: RO: 3.4 SRO: 3.7

K/A: K/A RATING: RO: SRO

APPLICABLE POSITION(S): RO VALIDATION TIME: 10 minutes

REFERENCES: 40AO-9ZZ05 Loss of Letdown (Rev 18)

SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) Yes

APPROVAL

Developed By: Alan Malley Date: 04/25/2007

Revised By: Alan Malley Date: 04/16/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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9. SIMULATOR SETUP:

C. IC#: 104

D. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
20.	Ensure the Pressurizer Pressure Master Controller is set at 2250 psia.	

NN. SPECIAL INSTRUCTIONS:

- Place simulator in FREEZE.
- Place simulator in RUN and acknowledge alarms.
- Ensure the Pressurizer Pressure Master Controller is set at 2250 psia.
- Provide Cue.
- Place simulator in RUN.
- This JPM is set to run with JS5 for the 2009 NRC exam.

A. REQUIRED CONDITIONS:

- Letdown isolated, Letdown Control Valves in manual and closed, the normally running Charging Pump in PTL, Pressurizer level at 56% and rising. IC 104 has these conditions built in.

2. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40AO-9ZZ05, Loss of Letdown, Appendix C (Rev 18)
- No Simulator Driver actions are required for this JPM.

OO. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

If IC-104 is not available, reset to IC-20 and perform the following:

- Close CHB-UV-515 using the handswitch on B03
- Allow Pzr Level to increase to 54%
- Place the normally running Charging Pump in PTL

imf cmAVCV04CHEFV244_4 (Mechanical seizure)



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The Unit is in mode 1.**
- **Letdown was lost.**
- **The CRS has determined that letdown can NOT be restored.**
- **CRS directs you to perform applicable steps of 40AO-9ZZ05, Loss of Letdown, Appendix “C”, Extended Operations Without Letdown.**
- **The pressurizer is not in boron equalization.**

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.



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- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of Appendix C: WHEN letdown can be restored, THEN <u>GO TO</u> Appendix A, Restoration of Letdown with a Pressurizer Steam Bubble.	If Requested: Letdown can not be restored	Examinee should determine from Initiating Cue that letdown cannot be restored.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 2 of Appendix C: IF Boron equalization is in progress, THEN <u>STOP</u> Boron equalization.		Examinee determines Boron equalization is not in progress by information provided in Initiating Cue.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3.	Step 3 of Appendix C: Notify chemistry that the plant will be operated with letdown flow isolated.	Chemistry is notified of the status of letdown.	Examinee calls chemistry and informs them of the status of letdown.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4.	Step 4.a of Appendix C: WHEN the CRS determines seal injection and charging are to be stopped, OR pressurizer level is 56% or more and rising, THEN perform the following: <ul style="list-style-type: none"> • IF the unit is in Mode 1, 2 or 3, THEN ensure compliance with LCO 3.4.9, Pressurizer. 	The CRS will ensure compliance with LCO 3.4.9 if pressurizer level exceeds the Tech Spec limit.	Examinee determines that pressurizer level is $\geq 56\%$ and rising (or will exceed 56% shortly).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	Step 4.b of Appendix C: Ensure controlled Bleedoff is isolated on all standby RCPs prior to Seal 2 Outlet Temperature exceeding 250°F.		Examinee determines RCP controlled Bleedoff valves should be open and are open.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6.	Step 4.c of Appendix C: Close the seal injection flow control valves.		Examinee places the individual seal injection flow controllers in manual and adjusts the output TO 100% to close the valves by using: RCP 1(2) / A (B) SEAL INJECTION FLOW CONTROL CHN-FIC-241 THRU 244 Note: <ul style="list-style-type: none"> • These are reverse acting valves 100% output is full closed • This action may be performed by fully closing one valve at a time or partially closing each valve followed by full closure. NOTE: ALTERNATE PATH. The flow control valve for RCP 2B (CHN-FIC-244) will not respond and will not close so the examinee should go to the contingency step and close CHB-HV-255.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7. *	Step 4.c.1 of Appendix C: Close CHB-HV-255, Seal Injection Supply Header Isolation Valve.		Examinee closes CHB-HV-255, Seal Injection Supply Header Isolation Valve.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
8. *	Step 4.d of Appendix C: Place all charging pumps in pull to lock (PTL).	Another operator will complete this appendix. This JPM is complete.	Examinee places all charging pumps in pull to lock (PTL) by using: CHARGING PUMP 1 P01 *CHA-HS-216 And CHARGING PUMP 3 P01 *CHA-HS-218A CHB-HS-218 (no breaker therefore not required to go to PTL) And CHARGING PUMP 2 P01 CHB-HS-217 (in PTL is setup) NOTE: Critical nature of this step is that all running charging pumps are stopped.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	04/16/2009	6	Revised for format and procedure rev

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 49. Vendor reference document upgrade
- 50. Plant modification (include number)
- 51. Procedure upgrade
- 52. Internal or External Agency Commitment (indicate item number)
- 53. Technical Specification Change (indicate amendment number)
- 54. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- **The Unit is in mode 1.**
- **Letdown was lost.**
- **The CRS has determined that letdown can NOT be restored.**
- **CRS directs you to perform applicable steps of 40AO-9ZZ05, Loss of Letdown, Appendix "C", Extended Operations Without Letdown.**
- **The pressurizer is not in boron equalization.**

CANDIDATE



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10. SIMULATOR SETUP:

PP. IC#: 105 (For 2009 NRC exam only)

QQ. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
21.	None	

RR. SPECIAL INSTRUCTIONS:

- This JPM is set to run with JS8 for the 2009 NRC exam.

SS. REQUIRED CONDITIONS:

- NAN-S01 and NAN-S02 energized from the NAN-S03 and NAN-S04 respectively.

TT. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

10. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of 40OP-9NA03, 13.8KV Electrical System (NA) (Rev 31) Section 4.8 and 4.9
 - Copy of 41AL-1RK1A, Panel B01A Alarm Responses (Rev 50) Window 18B

If IC-105 is not available, reset to IC-20 and perform the following:

- Transfer NAN-S01 and NAN-S02 to the Startup Transformers per 40OP-9NA03 per Sections 7.0 and 11.0.
- imf cmBKED05NANS04B_1 (Auto Trip logic failure)



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The Unit's 13.8 kV buses (NAN-S01 and NAN-S02) are being supplied from offsite power (startup transformers).**
- **The CRS directs you to transfer NAN-S01 and NAN-S02 to the Unit Auxiliary Transformer, MAN-X02, in accordance with 40OP-9NA03 sections 4.8 and 4.9.**
- **All prerequisites have been performed.**



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

Note: This JPM involves two procedure sections. The JPM starts at procedure section 4.8. If examinee goes to section 4.9 first, start at JPM step 7.

	STEP	CUE	STANDARD
1. *	From step 4.8.3.1 of 40OP-9NA03: <u>Turn</u> the Synchronizing Switch for NAN-S01 Supply Breaker, NAN-SS-S01A, to “ON” and check for proper synchronization.		Examinee places synchronizing switch NAN-SS-S01A to “ON” and verifies proper synchronization indicated by MAN-EI-002I, MAN-EI-002R and synchronizing scope at the 12 o’clock position.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	From step 4.8.3.2 of 40OP-9NA03: <u>Close</u> the NAN-S01 Supply breaker NAN-S01A by turning handswitch NAN-HS-S01A to “CLOSE”.		Examinee closes NAN-S01A using NAN-HS-S01A and checks red closed light illuminated.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3.	From step 4.8.3.3 of 40OP-9NA03: <u>Check</u> that the NAN-S03-NAN-S01 Supply breaker, NAN-S03B, automatically opens when handswitch NAN-HS-S01A is released.		Examinee verifies NAN-S03B opens when NAN-HS-S01A is released by checking the green open light is illuminated on NAN-HS-S03B.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4.	From step 4.8.3.4 of 40OP-9NA03: <u>Check</u> that NAN-S01 voltage is between 12.42KV - 14.49KV.		Examinee verifies voltage between 12.42 and 14.49 KV on voltmeter NAN-EI-S01.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	From step 4.8.3.5 of 40OP-9NA03: <u>Turn</u> the Synchronizing Switch for NAN-S01 Supply Breaker, NAN-SS-S01A to "OFF".		Examinee places synchronizing switch, NAN-SS-S01A to "OFF".
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
6.	From step 4.8.3.6 of 40OP-9NA03: Perform the appropriate section of Appendix D - S/U Xfmr Winding Loading Guidance, if a related Startup Xfmr winding is supplying more than one unit.		Examinee determines that the related Startup Transformer is not supplying more than one unit and does not perform Appendix D.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
7. *	From step 4.9.3.1 of 40OP-9NA03: <u>Turn</u> the Synchronizing Switch for NAN-S02 Supply Breaker, NAN-SS-S02A to "ON" and check for proper synchronization.		Examinee places synchronizing switch NAN-SS-S02A to "ON" and verifies proper synchronization indicated by MAN-EI-002I, MAN-EI-002R and synchronizing scope at the 12 o'clock position.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
8. *	From step 4.9.3.2 of 40OP-9NA03: <u>Close</u> the NAN-S02 Supply Breaker NAN-S02A by turning handswitch NAN-HS-S02A to CLOSE.		Examinee closes NAN-S02A using NAN-HS-S02A and checks red closed light illuminated.

SAT / UNSAT

Comments (required for UNSAT):



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	STEP	CUE	STANDARD
9. *	From step 4.9.3.3 of 40OP-9NA03: <u>Check</u> that the NAN-S04-NAN-SO2 Supply Breaker NAN-S04B, automatically opens when handswitch NAN-HS-S02A is released.	If requested CUE: Understand that NAN-SO4B did not open.	Examinee verifies NAN-S04B did NOT automatically open when NAN-HS-S02A is released by checking that the red closed light is still illuminated on NAN-HS-S04B. Note: Refers to alarm response procedure 41AL-1RK1A, window 1A18B. The examinee may not refer to this procedure, although he/she should.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
10. *	From step 2 of Window 1A18B Alarm Response Procedure: IF the running breaker did not trip automatically when the oncoming breaker control switch was returned to the normal position, THEN <u>trip</u> the running breaker.	If examinee requests permission to open S04B, CUE: Open breaker NAN-S04B.	Examinee manually opens NAN-S04B using NAN-HS-S04B and checks green open light is illuminated. Note: The examinee may perform this action without reference to the alarm response procedure. This is acceptable but not preferred.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
11.	From step 4.9.3.4 of 40OP-9NA03: <u>Check</u> that NAN-S02 voltage is between 12.42KV - 14.49KV.		Examinee verifies voltage between 12.42 and 14.49 KV on voltmeter NAN-EI-S02.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
12.	From step 4.9.3.5 of 40OP-9NA03: <u>Turn</u> the Synchronizing Switch for NAN-S01 Supply Breaker, NAN-SS-S02A to "OFF".		Examinee places synchronizing switch, NAN-SS-S02A to "OFF".
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
13.	From step 4.9.3.6 of 40OP-9NA03: Perform the appropriate section of Appendix D - S/U Xfmr Winding Loading Guidance, if a related Startup Xfmr winding is supplying more than one unit.		Examinee determines that the related Startup Transformer is not supplying more than one unit and does not perform Appendix D.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
Rev 1	04/16/2009	6	Reformatted to new template and rewrote note.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 55. Vendor reference document upgrade
- 56. Plant modification (include number)
- 57. Procedure upgrade
- 58. Internal or External Agency Commitment (indicate item number)
- 59. Technical Specification Change (indicate amendment number)
- 60. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- **The Unit's 13.8 kV buses (NAN-S01 and NAN-S02) are being supplied from offsite power (startup transformers).**
- **The CRS directs you to transfer NAN-S01 and NAN-S02 to the Unit Auxiliary Transformer, MAN-X02, in accordance with 40OP-9NA03 sections 4.8 and 4.9.**
- **All prerequisites have been performed.**

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1250300301: Perform actions to restore equipment following inadvertent CSAS
 TASK STANDARD: Respond to an inadvertent CSAS on Train "B"
 K/A: 3.5 026 A2.03 K/A RATING: RO: 4.1 SRO: 4.4
 K/A: K/A RATING: RO: SRO
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes
 REFERENCES: 40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations Rev 13
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) Yes Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 08/25/2005
 Revised By: Alan Malley Date: 04/16/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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11. SIMULATOR SETUP:

- A. IC#: 105 (For 2009 NRC exam only)
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS:

EVENT	COMMAND	DESCRIPTION
22.		If IC-105 is not available, reset to IC-20 and perform the following: <ul style="list-style-type: none"> • imf RP06H1 (Blown fuse for CSAS B) • imf RP06H2 (Blown fuse for CSAS B) • Allow time for equipment to actuate • Silence the annunciators

- C. SPECIAL INSTRUCTIONS:
 - This JPM is set to run with JS7 during the 2009 NRC exam
- D. REQUIRED CONDITIONS:
 - Place simulator in FREEZE
 - Provide initiating cue to examinee
 - Place simulator in RUN
- E. SIMULATOR EVALUATION PRE-CHECK
 - Correct IC
 - Alarm Silence Off
 - Procedures available, page checked, and clean
 - For JPMs administered during transients, another instructor available to control plant parameters.
 - NA if Simulator setup not required

Verified by: _____ Date: _____

11. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40AO-9ZZ17, Section 5.0, Rev 13



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The plant is operating at 100% power and an inadvertent Train B CSAS has just occurred.**
- **The CRS directs you to respond to the inadvertent CSAS per 40AO-9ZZ17, Section 5.0.**
- **THIS IS A TIME CRITICAL JPM.**

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.



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- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	From step 1 of Section 5.0 of 40AO-9ZZ17: <u>Record</u> the time of the CSAS Actuation. _____	If Requested: CSAS occurred at the current time.	The examinee notes the time of the actuation. Start Time _____ Time critical evolution starts here.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	From step 2 of Section 5.0 of 40AO-9ZZ17: IF ANY Containment Spray Pump is running, AND BOTH of the following conditions exist: <ul style="list-style-type: none"> • Containment Spray Pump is NOT being used for SDC • SIAS has actuated THEN <u>override</u> and <u>stop</u> the Containment Spray Pump.		Examinee determines SIAS has not actuated and N/As this step.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3. *	From step 3 of Section 5.0 of 40AO-9ZZ17: IF ANY Containment Spray Pump is running, AND BOTH of the following conditions exist: <ul style="list-style-type: none"> • Containment Spray Pump is NOT being used for SDC • SIAS has NOT actuated THEN <u>place</u> the Containment Spray Pump hand switch in “STOP” to anti-pump the CS Pump.		The examinee places the CS handswitch in stop to anti-pump the CS pump and verifies the pump stops.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4. *	From step 4 of Section 5.0 of 40AO-9ZZ17: <u>Override</u> and <u>close</u> all open Containment Spray Header Isolation Valves.		Examinee overrides and closes SIB-UV-671.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
5.	From step 5 of Section 5.0 of 40AO-9ZZ17: IF seal injection is in service, AND cooling water is NOT restored to ANY operating RCP within 10 minutes of the initial loss, THEN perform the following: a. Ensure the reactor is tripped. b. Stop all of the RCPs. c. Isolate controlled bleedoff.		Examinee verifies Seal injection is in service, therefore no action should be taken unless the candidate exceeds 10 minutes to restore NC to the RCPs.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
6. *	From step 5 of Section 5.0 of 40AO-9ZZ17: <u>Open ANY</u> of the following as needed to restore Nuclear Cooling Water to Containment: <ul style="list-style-type: none"> • NCA-UV-402, NCW Containment Downstream Return Isolation Valve • NCB-UV-403, NCW Containment Upstream Return Isolation Valve • NCB-UV-401, NCW Containment Upstream Supply Isolation Valve 	Upon completion of this step CUE: Another operator will complete Section 5.0. This JPM is complete.	Examinee opens the following valves: <ul style="list-style-type: none"> • NCB-UV-403, NCW Containment Upstream Return Isolation Valve • NCB-UV-401, NCW Containment Upstream Supply Isolation Valve Note: The examinee should open UV-403 first and then UV-401. If UV-401 is opened first this is NOT a failure. Record the time that the RCP Nuclear Cooling Water Low Flow alarms clear on B04: _____ Time Critical steps end here. Time should be less than 10 minutes.

SAT / UNSAT

Comments (required for UNSAT):

JPM STOP TIME:

NORMAL TERMINATION POINT



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	10/12/2004	3	Revised to reflect procedure change to prevent pressurizer level from exceeding Tech Spec limit.
002	04/20/2005	6	Revised to make step 7 non-critical since no action is required.
003	4/25/2007	6	Enhancements to bring in line with procedure.
004	03/25/2209	6	Changed to new JPM format
005	04/16/2009	6	Changed to new format and to add procedure Revision No.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 61. Vendor reference document upgrade
- 62. Plant modification (include number)
- 63. Procedure upgrade
- 64. Internal or External Agency Commitment (indicate item number)
- 65. Technical Specification Change (indicate amendment number)
- 66. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

- **The plant is operating at 100% power and an inadvertent Train B CSAS has just occurred.**
- **The CRS directs you to respond to the inadvertent CSAS per 40AO-9ZZ17, Section 5.0.**
- **THIS IS A TIME CRITICAL JPM.**

CANDIDATE



RA 1
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JPM BASIS INFORMATION

TASK: 1270130401 Implement reactor Coolant System Draining Operations
 TASK STANDARD: Determine amount of water drained and actual RCS level.
 K/A: 2.1.25 K/A RATING: RO: 3.9 SRO: 4.2
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): RO VALIDATION TIME: 20 minutes
 REFERENCES: 40OP-9ZZ16, RCS Drain Operations (Rev 66)
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 04/17/2009
 Revised By: N/A Date: N/A
 Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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12. SIMULATOR SETUP:

UU. IC#: N/A (May be performed in the simulator or classroom, NO setup required)

VV. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
23.	N/A	
24.		
25.		
26.		

WW. SPECIAL INSTRUCTIONS:

- None

XX. REQUIRED CONDITIONS:

- None

YY. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

12. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of 40OP-9ZZ16, RCS Drain Operations Rev 66 Appendix D and E.



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PVNGS JOB PERFORMANCE MEASURE
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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

You are a Reactor Operator in Unit 2

Unit 2 has drained the RCS from 114 foot (flange level) to 103 foot 1 inch (top of the hot leg) level to the Holdup Tank per 40OP-9ZZ16, RCS Drain Operations.

Unit 2 RCS level is currently 102 ft. 6 inches.

Train ‘A’ Shutdown Cooling is in service.

The Steam Generator Nozzle dams are installed.

The CRS directs that you perform the following and record your answers in the table provided:

- 1. Use Appendix E of 40OP-9ZZ16 and determine what level increase should have occurred in the Holdup Tank (in Feet) during the drain of the RCS from 114’ to 103’1”**

Increase in HUT level should be _____ ft.

AND

- 2. Coordinate with the Auxiliary Operator in Containment and monitor RCS level locally using the Train ‘A’ local gage glass per Appendix D, Section 5.0 of 40OP-9ZZ16.**
 - **Given the following information, determine and record the actual RCS level per Appendix D Section 5.0:**

Time	Indicated level from LG -752 (Train A)	Train “A” SDC flow is:	Actual RCS level
0800	102 ft. 6 in.	4500 gpm	_____
0815	101 ft. 10 in.	4000 gpm	_____



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1. *	The examinee determines the change in level in the HUT		<p>The examinee determines the level increase in the HUT by one of the following methods:</p> <ol style="list-style-type: none"> 1. Uses the graph to determine the gallons of water drained from RCS is $(93,800 - 70500 = 23300)$ 23300 gallons divided by 12,704 gallons / foot in the HUT = a change of 1.834 ft <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> 2. Uses the graph to determine directly that the change is HUT level is $(7.4 - 5.5 = 1.9 \text{ ft})$ is 1.9 ft. <p>Acceptable answer 1.8 to 2.0 ft.</p>
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	The examinee determines the ΔP (inches) from the Unit 2 graph for a SDC flow of 4500 gpm.		The examinee determines the ΔP is approximately 28 inches (± 2 inches).
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3. *	The examinee adds indicated level and ΔP (inches) to determine actual level.		The examinee determines actual level for the 0800 reading is approximately 104 ft. 10 in. (± 2 inches)
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4.	The examinee determines the ΔP (inches) from the Unit 2 graph for a SDC flow of 4000 gpm.		The examinee determines the ΔP is approximately 22.5 inches (± 2 inches).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	The examinee adds indicated level and ΔP (inches) to determine actual level.		The examinee determines actual level is approximately 103 ft. 8.5 in. (± 2 inches)
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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PVNGS JOB PERFORMANCE MEASURE
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ANSWER KEY

Increase in HUT level should be _____ 1.9 (± 0.1 ft) _____ ft.

Time	Indicated level from LG - 752 (Train A)	Train "A" SDC flow is:	Actual RCS level
0800	102 ft. 6 in.	4500 gpm	__104 ft 10 in (± 2 inches) __
0815	101 ft. 10 in.	4000 gpm	__103 ft 8.5 in (± 2 inches) __

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	04/17/2009	6	Record created

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 67. Vendor reference document upgrade
- 68. Plant modification (include number)
- 69. Procedure upgrade
- 70. Internal or External Agency Commitment (indicate item number)
- 71. Technical Specification Change (indicate amendment number)
- 72. Other (explain in comments)



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INITIATING CUE:

You are a Reactor Operator in Unit 2

Unit 2 has drained the RCS from 114 foot (flange level) to 103 foot 1 inch (top of the hot leg) level to the Holdup Tank per 40OP-9ZZ16, RCS Drain Operations.

Unit 2 RCS level is currently 102 ft. 6 inches.

Train ‘A’ Shutdown Cooling is in service.

The Steam Generator Nozzle dams are installed.

The CRS directs that you perform the following and record your answers in the table provided:

- 1. Use Appendix E of 40OP-9ZZ16 and determine what level increase should have occurred in the Holdup Tank (in Feet) during the drain of the RCS from 114’ to 103’1”**

Increase in HUT level should be _____ ft.

AND

- 2. Coordinate with the Auxiliary Operator in Containment and monitor RCS level locally using the Train ‘A’ local gage glass per Appendix D, Section 5.0 of 40OP-9ZZ16.**
 - Given the following information, determine and record the actual RCS level per Appendix D Section 5.0:**

Time	Indicated level from LG -752 (Train A)	Train “A” SDC flow is:	Actual RCS level
0800	102 ft. 6 in.	4500 gpm	_____
0815	101 ft. 10 in.	4000 gpm	_____

CANDIDATE



RA 2
PVNGS JOB PERFORMANCE MEASURE
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JPM BASIS INFORMATION

TASK: 1290020301 Conduct shift operations
 TASK STANDARD: Determine if license is active and which operator can stand shift as a Reactor Operator.
 K/A: 2.1.4 K/A RATING: RO: 3.3 SRO: 3.8
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): RO VALIDATION TIME: 20 minutes
 REFERENCES: 40DP-9OP02, Conduct of Shift Operations, Rev 46
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 04/17/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



RA 2
PVNGS JOB PERFORMANCE MEASURE

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13. SIMULATOR SETUP:

ZZ. IC#: N/A (May be performed in the simulator or classroom, NO setup required)

AAA. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
27.	N/A	
28.		
29.		
30.		

BBB.SPECIAL INSTRUCTIONS:

- None

CCC.REQUIRED CONDITIONS:

- None

DDD. SIMULATOR EVALUATION PRE-CHECK

- N/A

13. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of 40DP-9OP02, Conduct of Shift Operations, Rev 46



RA 2
PVNGS JOB PERFORMANCE MEASURE
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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:
SPECIAL CONSIDERATIONS:

ALL JPM's

- You may use any source of information normally available.

INITIATING CUE ON THE NEXT PAGE



RA 2
PVNGS JOB PERFORMANCE MEASURE
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INITIATING CUE:

Determine which of the following individuals (if any) can stand shift as an independent Reactor Operator on 04/04/2009 and state the reason why they can or cannot stand the position. (Assume all medical and training requirements are met).

Operator #1	
12/21/2008	Operator taken off-shift to support the procedure upgrade project.
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 3.
02/12/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
02/13/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 2
02/14/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
03/13/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 3.
03/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
03/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
Operator #2	
01/15/2009	Received a new NRC Reactor Operator License
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
01/21/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
02/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
02/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.

Operator #1 can / cannot stand the position because _____
 _____.

Operator #2 can / cannot stand the position because _____
 _____.



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



RA 2
PVNGS JOB PERFORMANCE MEASURE

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JPM START TIME:

	STEP	CUE	STANDARD
1.	Obtain 40DP-9OP02, Conduct of Shift Operations.		Obtain 40DP-9OP02, Conduct of Shift Operations.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	The examinee determines that operator #1 cannot stand the shift and the reason.		The examinee reviews the 40DP-9OP02 and determines the following reason for operator #1 not being able to stand shift. Operator #1 did not complete 60 hours on shift because 12 of his/her hours were not on one shift.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	The examinee determines that operator #2 can stand the shift and the reason.		The examinee reviews the 40DP-9OP02 and determines the following reason for operator #2 being able to stand shift. Operator #2 received an Initial NRC license during the previous quarter so he/she is not required to complete 60 hours.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



RA 2
PVNGS JOB PERFORMANCE MEASURE
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ANSWER KEY

Operator #1 can / cannot stand the position because :

(Circle one)

Operator #1 did not complete 60 hours on shift because 12 of his/her hours were not on one shift.

Operator #2 can / cannot stand the position because:

(Circle one)

Operator #2 received an Initial NRC license during the previous quarter so he/she is not required to complete 60 hours.

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	04/17/2009	6	Record created

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 73. Vendor reference document upgrade
- 74. Plant modification (include number)
- 75. Procedure upgrade
- 76. Internal or External Agency Commitment (indicate item number)
- 77. Technical Specification Change (indicate amendment number)
- 78. Other (explain in comments)



RA 2
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INITIATING CUE:

Determine which of the following individuals (if any) can stand shift as an independent Reactor Operator on 04/04/2009 and state the reason why they can or cannot stand the position. (Assume all medical, training requirements, and overtime limitations are met).

Operator #1	
12/21/2008	Operator taken off-shift to support the procedure upgrade project.
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 3.
02/12/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
02/13/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 2
02/14/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
03/13/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 3.
03/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
03/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
Operator #2	
01/15/2009	Received a new NRC Reactor Operator License
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
01/21/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
02/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
02/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
Operator #1 can / cannot stand the position because _____ (Circle one)	

Operator #2 can / cannot stand the position because _____ (Circle one)	

CANDIDATE



RA 3
PVNGS JOB PERFORMANCE MEASURE
 2009 NRC Exam

JPM BASIS INFORMATION

TASK: 1290310301 Perform a Tech Review of a Permit
 TASK STANDARD: Tech Review a Permit and determine three errors with the permit.
 K/A: 2.2.13 K/A RATING: RO: 4.1 SRO: 4.3
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): RO VALIDATION TIME: 20 minutes
 REFERENCES: 40DP-9OP29, Permit and Tagging Process Rev 35, Drawings 01-E-DWB-01 & 01-M-DWP-02
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Tom Stahler Date: 05/03/2003
 Revised By: Alan Malley Date: 05/19/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT^⓪

^⓪ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



RA 3
PVNGS JOB PERFORMANCE MEASURE

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14. SIMULATOR SETUP:

EEE. IC#: N/A (May be performed in the simulator or classroom, NO setup required)

FFF. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
31.	N/A	
32.		
33.		
34.		

GGG. SPECIAL INSTRUCTIONS:

- None

HHH. REQUIRED CONDITIONS:

- None

III. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

14. SPECIAL TOOLS/EQUIPMENT:

- 40DP-9OP29, Permit and Tagging Process Rev 35,
- Drawing 01-E-DWB-01
- Drawing 01-M-DWP-02



RA 3
PVNGS JOB PERFORMANCE MEASURE
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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

Unit 1 is 100% power

The 'B' Demineralized Water Pump (DWN-P05B) has a severe seal leak on the pump. The CRS has directed that the pump be isolated and a permit hung to prevent spilling water.

Permit 1-110909-1 was generated manually due to the Site Work Management System (SWMS) being down.

The CRS has directed you to perform Tech Review of Permit 1-110909-1.

- **Identify three (3) errors (Non-clerical – not typos) on the permit.**

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



RA 3
PVNGS JOB PERFORMANCE MEASURE

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JPM START TIME:

	STEP	CUE	STANDARD
1.	Reviews Permit or Work Order to determine scope of work to be performed.		Examinee reviews Permit or Work Order and determines work scope to be replacing gasket on 1P-DWN-V050.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Identifies one (1) error on the permit. Tag 2 has the wrong circuit breaker identified.		Examinee determines the following inaccuracy/inadequacy. <ul style="list-style-type: none"> • Tag 2 is the wrong circuit breaker (breaker is for the “A” pump) The order of identification of the errors in steps 2, 3, and 4 of this JPM is not critical.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Identifies one (1) error on the permit. Tag 5 has the wrong position (open) for the discharge valve.		Examinee determines the following inaccuracy/inadequacy. <ul style="list-style-type: none"> • Tag 5 has wrong position (OPEN) for the discharge valve. The order of identification of the errors in steps 2, 3, and 4 of this JPM is not critical.
SAT / UNSAT Comments (required for UNSAT):			



RA 3
PVNGS JOB PERFORMANCE MEASURE

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	STEP	CUE	STANDARD
4. *	Identifies one (1) error on the permit. Tag 7 has the right valve number, but the wrong system designator.		Examinee determines the following inaccuracy/inadequacy. <ul style="list-style-type: none">• Tag 7 has right valve number but wrong system designator (DS). The order of identification of the errors in steps 2, 3, and 4 of this JPM is not critical.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



RA 3
PVNGS JOB PERFORMANCE MEASURE
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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	05/19/2009	6	Update format to new JPM format. Revise numbering for 2009 NRC exam.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 79. Vendor reference document upgrade
- 80. Plant modification (include number)
- 81. Procedure upgrade
- 82. Internal or External Agency Commitment (indicate item number)
- 83. Technical Specification Change (indicate amendment number)
- 84. Other (explain in comments)



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CANDIDATE

INITIATING CUE:

Unit 1 is 100% power

The 'B' Demineralized Water Pump (DWN-P05B) has a severe seal leak on the pump. The CRS has directed that the pump be isolated and a permit hung to prevent spilling water.

Permit 1-110909-1 was generated manually due to the Site Work Management System (SWMS) being down.

The CRS has directed you to perform Tech Review of Permit 1-110909-1.

- **Identify three (3) errors (Non-clerical – not typos) on the permit.**

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1290020301 Conduct On Shift Operations IAW Conduct of Shift Operations
 TASK STANDARD: Determine RP entry requirements to operate a valve.
 K/A: 2.3.13 K/A RATING: RO: 3.4 SRO: 3.8
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): RO VALIDATION TIME: 20 minutes
 REFERENCES: NGW01, Initial Radiation Worker Practices; 75DP-9RP01 Radiation Exposure and Access Control Rev 16
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 05/13/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT^⓪

^⓪ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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15. SIMULATOR SETUP:

JJJ. IC#: N/A (May be performed in the simulator or classroom, NO setup required)

KKK. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
35.	N/A	
36.		
37.		
38.		

LLL. SPECIAL INSTRUCTIONS:

- None

MMM. REQUIRED CONDITIONS:

- None

NNN. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

15. SPECIAL TOOLS/EQUIPMENT:

- a. Survey map
- b. 75DP-9RP01 Radiation Exposure and Access Control Rev 16
- c. Calculator



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- Your dose exposure this year has been 664 mrem.
- Unit 1 is coming out of a refueling outage.
- Restoration of the Train 'A' Essential Cooling Water to the Shutdown Cooling heat exchanger (SDCHX) is in progress.
- You are assigned the task of venting the EW side of the SDCHX through EWA-V020.
- Determine the following:
 - 1) How many minutes (MAXIMUM) can you stay in the area with the highest dose rate without exceeding Palo Verde's first administrative limit per 75DP-9RP01? (Assume you are not a Declared Pregnant Woman or a Declared Fertile Woman.)

ANSWER _____

- 2) What type of posting should this area have? Check only those that apply to the area you will need to access to perform the venting (not all areas of the room).

<input type="checkbox"/>	Radiation area
<input type="checkbox"/>	High radiation area
<input type="checkbox"/>	Locked High Radiation area
<input type="checkbox"/>	Very High Radiation area
<input type="checkbox"/>	Contamination area
<input type="checkbox"/>	High Contamination area
<input type="checkbox"/>	Airborne radiation area
<input type="checkbox"/>	Hot particle area

- 3) What are the requirements to enter this area? Check only those that apply to the area you will need to access to perform the venting (not all areas of the room).

<input type="checkbox"/>	Double PCs
<input type="checkbox"/>	Single PCs
<input type="checkbox"/>	Respirator
<input type="checkbox"/>	Briefing by RP
<input type="checkbox"/>	Emergency Dosimetry
<input type="checkbox"/>	Portable Dose Rate Meter
<input type="checkbox"/>	Constant RP coverage with Dose Rate meter or Stay Time
<input type="checkbox"/>	Telemetric Dosimetry



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1. *	How many minutes (MAXIMUM) can you stay in the area with the highest dose rate without exceeding Palo Verde's first administrative limit per 75DP-9RP01?		<p>Examinee reviews RP map and determines highest radiation reading is 1140 mr/hr since there is no other designation per note 1 on the map. Examinee may refer to 75DP-9RP01 to determine first administrative limit is 1.5 rem/yr. Since the examinee already has 664 mrem this year (per the cue) he/she may only receive 836 mrem for the rest of the year. In a radiation field of 1140 mrem/hr, the dose is 19mr/min, therefore 836 mrem/19 mrem/hr equals 44 minutes.</p> <p>Answer: 44 minutes (or .73 hours).</p>
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	What type of radiation posting should this area have? Check only those that apply to the area you will need to access.		<p>Examinee should check the following:</p> <ul style="list-style-type: none"> • Contamination Area • Locked High Radiation Area • Could include Radiation area, but this is not critical.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
3. *	What are the requirements to enter this area? Check only those that apply to the area you will need to access?		Examinee should check the following: <ul style="list-style-type: none">• Continuous RP coverage or Stay Times.• Briefing by RP• Single PCs
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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ANSWER KEY

INITIATING CUE:

- Your dose exposure this year has been 664 mrem.
- Unit 1 is coming out of a refueling outage.
- Restoration of the Train 'A' Essential Cooling Water to the Shutdown Cooling heat exchanger (SDCHX) is in progress.
- You are assigned the task of venting the EW side of the SDCHX through EWA-V020.
- Determine the following:
 - 1) How many minutes (MAXIMUM) can you stay in the area with the highest dose rate without exceeding Palo Verde's first administrative limit per 75DP-9RP01? (Assume you are not a Declared Pregnant Woman or a Declared Fertile Woman.)

ANSWER 44 minutes or 0.73 hours

- 2) What type of posting should this area have? Check only those that apply to the area you will need to access to perform the venting (not all areas of the room).

	Radiation area
	High radiation area
X	Locked High Radiation area
	Very High Radiation area
X	Contamination area
	High Contamination area
	Airborne radiation area
	Hot particle area

- 3) What are the requirements to enter this area? Check only those that apply to the area you will need to access to perform the venting (not all areas of the room).

	Double PCs
X	Single PCs
	Respirator
X	Briefing by RP
	Emergency Dosimetry
	Portable Dose Rate Meter
X	Constant RP coverage with Dose Rate meter or Stay Time
	Telemetric Dosimetry

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	05/13/2009	6	New JPM

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 85. Vendor reference document upgrade
- 86. Plant modification (include number)
- 87. Procedure upgrade
- 88. Internal or External Agency Commitment (indicate item number)
- 89. Technical Specification Change (indicate amendment number)
- 90. Other (explain in comments)



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INITIATING CUE:

- Your dose exposure this year has been 664 mrem.
- Unit 1 is coming out of a refueling outage.
- Restoration of the Train 'A' Essential Cooling Water to the Shutdown Cooling heat exchanger (SDCHX) is in progress.
- You are assigned the task of venting the EW side of the SDCHX through EWA-V020.
- Determine the following:
 - 1) How many minutes can you stay in the area with the highest dose rate without exceeding Palo Verde's first administrative limit per 75DP-9RP01? (Assume you are not a Declared Pregnant Woman or a Declared Fertile Woman.)

ANSWER _____

- 2) What type of radiation posting should this area have? Check only those that apply to the area you will need to access to perform the venting (not all areas of the room).

<input type="checkbox"/>	Radiation area
<input type="checkbox"/>	High radiation area
<input type="checkbox"/>	Locked High Radiation area
<input type="checkbox"/>	Very High Radiation area
<input type="checkbox"/>	Contamination area
<input type="checkbox"/>	High Contamination area
<input type="checkbox"/>	Airborne radiation area
<input type="checkbox"/>	Hot particle area

- 3) What are the requirements to enter this area? Check only those that apply to the area you will need to access perform the venting (not all areas of the room).

<input type="checkbox"/>	Double PCs
<input type="checkbox"/>	Single PCs
<input type="checkbox"/>	Respirator
<input type="checkbox"/>	Briefing by RP
<input type="checkbox"/>	Emergency Dosimetry
<input type="checkbox"/>	Portable Dose Rate Meter
<input type="checkbox"/>	Constant RP coverage with Dose Rate meter or Stay Time
<input type="checkbox"/>	Telemetric Dosimetry

CANDIDATE



SA 2
PVNGS JOB PERFORMANCE MEASURE
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JPM BASIS INFORMATION

TASK: 1290020301 Conduct shift operations
 TASK STANDARD: Determine if license is active and which operator can stand shift as a Reactor Operator. Determine if shift staffing is met
 K/A: 2.1.4 K/A RATING: RO: 3.3 SRO: 3.8
 K/A: 2.1.5 K/A RATING: RO: 2.9 SRO: 3.9
 APPLICABLE POSITION(S): SRO VALIDATION TIME: 20 minutes
 REFERENCES: 40OP-9OP02, Conduct of Shift Operations, Rev 46
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 04/17/2009
 Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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16. SIMULATOR SETUP:

OOO. IC#: N/A (May be performed in the simulator or classroom, NO setup required)

PPP. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
39.	N/A	
40.		
41.		
42.		

QQQ. SPECIAL INSTRUCTIONS:

- None

RRR.REQUIRED CONDITIONS:

- None

SSS. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

16. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of Conduct of Shift Operations, 40DP-9OP02, Rev 46



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

ALL JPM's

- You may use any source of information normally available.

INITIATING CUE:

Given the attached history of 2 Licensed operators and the planned shift manning perform the following:

- **Determine if each of the following individuals (if any) can stand shift as an independent Reactor Operator on the day of 04/04/2009.**
- **State the reason why they can or cannot stand the position. (Assume all medical, training requirements, and overtime limitations are met).**
- **Determine if staffing requirements are met and what actions (if any) would be necessary to meet Palo Verde's staffing requirements. Assume all operators except the two listed above are qualified to stand the position. Use the data from above to determine qualification of the highlighted operators.**

Use the following to document you answers

1. **RO #1 can / cannot stand the position because** _____
(Circle one)

_____.

2. **RO #2 can / cannot stand the position because** _____
(Circle one)

_____.

3. **Staffing requirements are / are not met.**
(Circle one)

4. **If staffing requirements are not met, they can be met by** _____

_____.



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Operator License History	
RO #1	
12/21/2008	Operator taken off-shift to support the procedure upgrade project.
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 3.
02/12/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
02/13/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 2
02/14/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
03/13/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 3.
03/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
03/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
RO #2	
01/15/2009	Received a new NRC Reactor Operator License
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
01/21/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
02/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
02/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.



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PLANNED SHIFT SCHEDULE TO DETERMINE MANNING			
Position	Unit 1	Unit 2	Unit 3
SM	SRO	SRO	SRO
CRS	SRO	SRO	SRO
STA	STA	STA	STA
Reactor Operator	RO #1	RO #2	RO
Control Operator	RO	RO	RO
3rd Reactor Operator	Vacant	Vacant	SRO
Area 1	AO	AO	RO
Area 2	AO	AO	AO
Area 3	AO	AO	AO
Area 4	AO	AO	AO
Radwaste	AO		



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1.	Obtain 40DP-9OP02, Conduct of Shift Operations.		Obtain 40DP-9OP02, Conduct of Shift Operations.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	The examinee determines that #1 cannot stand the shift and the reason.		The examinee states the following reason for operator #1 not being able to stand shift. Operator #1 did not complete 60 hours on shift because 12 of his/her hours were not on one shift.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	The examinee determines operator #2 can stand the shift and the reason.		The examinee states the following reason for operator #2 being able to stand shift. Operator #2 received an Initial NRC license during the previous quarter so he/she is not required to complete 60 hours.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
4. *	Determine if staffing requirements are met and what actions would be necessary (if any) to meet Palo Verde's staffing requirements (with the following crew manning list).		<p>The examinee determines that Unit 1 would not have the required number of reactor operators.</p> <p>What could be done?</p> <p>Answer #1 Could move SRO (3rd Reactor Operator from Unit 3) to fill a reactor operator position in Unit #1.</p> <p>Answer #2 Could call in another reactor operator to man Unit #1.</p> <p>Either answer is acceptable.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:

NORMAL TERMINATION POINT



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ANSWER KEY

1. Operator #1 can / **cannot** stand the position because :

Operator #1 did not complete 60 hours on shift because 12 of his/her hours were not on one shift.

2. Operator #2 **can** / cannot stand the position because:

Operator #2 received an Initial NRC license during the previous quarter so he/she is not required to complete 60 hours.

3. Staffing requirements are / **are not met**.

(Circle one)

4. If staffing requirements are not met, they can be met by: (Either answer acceptable)

- Could move SRO or RO from Unit 3 to fill a reactor operator position in Unit #1.
- Could call in another reactor operator to man Unit #1.

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	04/17/2009	6	New JPM

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 91. Vendor reference document upgrade
- 92. Plant modification (include number)
- 93. Procedure upgrade
- 94. Internal or External Agency Commitment (indicate item number)
- 95. Technical Specification Change (indicate amendment number)
- 96. Other (explain in comments)



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INITIATING CUE:

Given the attached history of 2 Licensed operators and the planned shift manning perform the following:

- Determine if each of the following individuals (if any) can stand shift as an independent Reactor Operator on the day of 04/04/2009.
- State the reason why they can or cannot stand the position. (Assume all medical, training requirements, and overtime limitations are met).
- Determine if staffing requirements are met and what actions (if any) would be necessary to meet Palo Verde's staffing requirements. Assume all operators except the two listed above are qualified to stand the position. Use the data from above to determine qualification of the highlighted operators.

Use the following to document you answers

1. RO #1 can / cannot stand the position because _____
(Circle one)

_____.

2. RO #2 can / cannot stand the position because _____
(Circle one)

_____.

3. Staffing requirements are / are not met.
(Circle one)

4. If staffing requirements are not met, they can be met by _____

_____.

CANDIDATE



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Operator License History	
RO #1	
12/21/2008	Operator taken off-shift to support the procedure upgrade project.
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 3.
02/12/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
02/13/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 2
02/14/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 2.
03/13/2009	Stood 4 hour shift as 3 rd Reactor Operator in Unit 3.
03/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
03/31/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
RO #2	
01/15/2009	Received a new NRC Reactor Operator License
01/20/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
01/21/2009	Stood 12 hour shift as 3 rd Reactor Operator in Unit 1.
02/25/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.
02/26/2009	Stood 12 hour shift as 2 nd Reactor Operator in Unit 1.

CANDIDATE



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PLANNED SHIFT SCHEDULE TO DETERMINE MANNING			
Position	Unit 1	Unit 2	Unit 3
SM	SRO	SRO	SRO
CRS	SRO	SRO	SRO
STA	STA	STA	STA
Reactor Operator	RO #1	RO #2	RO
Control Operator	RO	RO	RO
3rd Reactor Operator	Vacant	Vacant	SRO
Area 1	AO	AO	RO
Area 2	AO	AO	AO
Area 3	AO	AO	AO
Area 4	AO	AO	AO
Radwaste	AO		

CANDIDATE



SA 3
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JPM BASIS INFORMATION

TASK: 1290190102 Ensure compliance with Tech Specs
 TASK STANDARD: Identify applicable LCO / LCO conditions and completion times.
 K/A: 2.2.40 K/A RATING: RO: 3.4 SRO: 4.7
 K/A: K/A RATING: RO: SRO:
 APPLICABLE POSITION(S): SRO VALIDATION TIME: 20 minutes
 REFERENCES: Technical Specifications
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 04/23/2009
 Revised By: N/A Date: N/A
 Technical Review _____ Operations Approval _____
 E-Plan Review N/A Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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17. SIMULATOR SETUP:

TTT.IC#: N/A

UUU. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
43.	N/A	
44.		
45.		
46.		

VVV. SPECIAL INSTRUCTIONS:

- None

WWW. REQUIRED CONDITIONS:

- None

XXX. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

17. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of Tech Specs
- b. Copy of print 01-E-SIB-0001
- c. Copy of 40OP-9PB01



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INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPM's ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPM's

- You may use any source of information normally available.



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PVNGS JOB PERFORMANCE MEASURE
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INITIATING CUE:

Given the following plant conditions in Unit 3 on the same day:

- Unit 3 is at 100% power.

Event 1

- At 1315 the area operator reports oil all over the floor of the ‘B’ High Pressure Safety Injection (HPSI) pump (SIB-P02) room and no oil level indicated in pump bubbler.
- Maintenance has investigated the ‘B’ HPSI pump and determined it will take 2 hours to repair the oil leak.

Event 2

- At 1427 a SESS alarm comes in for the ‘A’ Low Pressure Safety Injection pump (SIA-P01).
- The control room indication for the ‘A’ LPSI pump breaker has been lost.
- The area operator reports that all lights are off at the breaker for the ‘A’ LPSI pump with the breaker open.

Determine any applicable LCO(s) and TLCO(s) and completion time(s).

(Assume Event 1 is still in progress when Event 2 occurs.)

Use the following to document your answers:

At time:	Enter LCO condition(s) (if applicable)	Completion time(s)	Enter TLCO condition(s) (if applicable)	Completion time(s)
1315 Event 1				
1427 Event 2				



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1. *	The examinee refers to Tech Specs and the TRM (Technical Requirements Manual).		The examinee determines the applicable LCO is LCO 3.5.3 condition B and the completion time is 72 hours.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Determine the applicable LCO(s) / TLCO(s) and completion times, if any for time 1315.		The examinee determines the applicable LCO is LCO 3.5.3 condition B and the completion time is 72 hours.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Determine the applicable LCO(s) / TLCO(s) and completion times, if any for time 1427		The examinee determines the applicable LCO is 3.5.3 condition A and the completion time is 7 days. The examinee determines the applicable TLCO is 3.5.201 condition A and the completion time is 7 days.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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ANSWER KEY

At time:	Enter LCO condition(s) (if applicable)	Completion time(s)	Enter TLCO condition(s) (if applicable)	Completion time(s)
1315 Event 1	LCO 3.5.3 condition B	72 hours	N/A	N/A
1427 Event 2	LCO 3.5.3 condition A	7 days	TLCO 3.5.201 Condition A	7 days

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	04/23/2009	6	New record

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 97. Vendor reference document upgrade
- 98. Plant modification (include number)
- 99. Procedure upgrade
- 100. Internal or External Agency Commitment (indicate item number)
- 101. Technical Specification Change (indicate amendment number)
- 102. Other (explain in comments)



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INITIATING CUE:

Given the following plant conditions in Unit 3 on the same day:

- Unit 3 is at 100% power.

Event 1

- At 1315 the area operator reports oil all over the floor of the ‘B’ High Pressure Safety Injection (HPSI) pump (SIB-P02) room and no oil level indicated in pump bubbler.
- Maintenance has investigated the ‘B’ HPSI pump and determined it will take 2 hours to repair the oil leak.

Event 2

- At 1427 a SESS alarm comes in for the ‘A’ Low Pressure Safety Injection pump (SIA-P01).
- The control room indication for the ‘A’ LPSI pump breaker has been lost.
- The area operator reports that all lights are off at the breaker for the ‘A’ LPSI pump with the breaker open.

Determine any applicable LCO(s) and TLCO(s) and completion time(s).

(Assume Event 1 is still in progress when Event 2 occurs.)

Use the following to document your answers:

At time:	Enter LCO condition(s) (if applicable)	Completion time(s)	Enter TLCO condition(s) (if applicable)	Completion time(s)
1315 Event 1				
1427 Event 2				

CANDIDATE



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JPM BASIS INFORMATION

TASK: 1290020301 Conduct On Shift Operations IAW Conduct of Shift Operations

TASK STANDARD: Determine exposure, stay time, develop Pre-Job Brief and determine who will provide a second check.

K/A: 2.3.13 K/A RATING: RO: 3.4 SRO: 3.8

K/A: K/A RATING: RO: SRO:

APPLICABLE POSITION(S): SRO VALIDATION TIME: 20 minutes

REFERENCES: Technical Specifications

SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) No Alternative Path? (Yes/No) No

APPROVAL

Developed By: Jordan Johnston Date: 5/29/2007

Revised By: Alan Malley Date: 4/29/2009

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.

PVAR # _____



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18. SIMULATOR SETUP:

YYY. IC#: N/A

ZZZ. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
47.	N/A	
48.		
49.		
50.		

AAAA. SPECIAL INSTRUCTIONS:

- None

BBBB. REQUIRED CONDITIONS:

- None

CCCC. SIMULATOR EVALUATION PRE-CHECK

- Correct IC
- Alarm Silence Off
- Procedures available, page checked, and clean
- For JPMs administered during transients, another instructor available to control plant parameters.
- NA if Simulator setup not required

Verified by: _____ Date: _____

18. SPECIAL TOOLS/EQUIPMENT:

- 75DP-9RP01, Radiation Exposure and Access Control
- REP# 9-9999Z
- Survey map of SDC HX room.
- Calculator



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INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPM's ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPM's

- You may use any source of information normally available.



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INITIATING CUE:

You are the Control Room Supervisor in Unit 1. Operations will be venting the EW supply to the Shutdown cooling heat exchanger in preparation for recovering the system from outage work.

Radiation Protection has informed you that they will be using REP 9-9999Z for this job. The task will require an operator to vent the Shutdown cooling Heat Exchanger at valve EWA-V20.

The operator assigned to the job has a current year to date exposure of 664 mr.

It is estimated to take 15 minutes to complete the venting.

Your task as the CRS is as follows:

Given the REP and radiation survey map of the Train A Shutdown Cooling Heat Exchanger room, outline a pre-job brief covering the following topics:

- **Task # to be used to perform the job.**
- **How much dose is expected to be received by the operator**
- **Max stay time for the operator above (in the 1140 mr/hr area) before the first administrative exposure hold point (per 75DP-9RP01) is exceeded**
- **RP coverage that is required for this task.**
- **Given the exposure of other operators in the table below, determine which operator would be the best choice to perform an independent verification that EWA-V020 is closed after venting is completed. (Assume it will take two minutes to perform the second check).**

Note: This will not take the place of the pre-job brief with RP.

Operator	Exposure history	Other information
1	1489 mrem year to date	
2	37 mrem this month	Has declared she is attempting to become pregnant and has filled out a “Pre-Natal Dose Limit Statement”.
3	420 mrem this month, and 720 mrem year to date	

Use the form on the next page to document your answers.



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Task #	_____
Expected Dose	_____
Max Stay time before first admin hold point	_____
Expected amount of RP coverage	_____
Which operator should perform 2nd check	_____



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INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.
- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1. *	Determine Task.		Examinee determines that Task 3 will be used.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Determine expected dose to be received. (Based on the 15 minute stay time estimate given in the cue.)		Determines 285 mrem will be received.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Determine maximum stay time before the first administrative hold point is exceeded		Determines that max stay time 44 minutes.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4. *	Determine RP Coverage requirements per the REP.		Determines that the REP will require continuous RP coverage or stay time.
SAT / UNSAT Comments (required for UNSAT):			



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	STEP	CUE	STANDARD
5. *	Determine which operator will perform the Independent Verification		Determines that the operator 3 will perform the independent verification because Operator 1 would exceed the first admin hold point and Operator 2 would exceed her dose limit due to declaring attempting to become pregnant. Only operator 3 would not exceed a dose limit of any type.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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ANSWER KEY

Task #	Task 3
Expected Dose	285 millirem
Max Stay time before first admin hold point	44 minutes
RP coverage required by the REP for this task	Continuous RP coverage or Stay time.
Which operator should perform 2nd check	Operator 3

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	5/29/2007	6	New record
1	4/29/2009	6	Modified record to different area, different cues, and different answers.

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 103. Vendor reference document upgrade
- 104. Plant modification (include number)
- 105. Procedure upgrade
- 106. Internal or External Agency Commitment (indicate item number)
- 107. Technical Specification Change (indicate amendment number)
- 108. Other (explain in comments)



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INITIATING CUE:

You are the Control Room Supervisor in Unit 1. Operations will be venting the EW supply to the Shutdown cooling heat exchanger in preparation for recovering the system from outage work.

Radiation Protection has informed you that they will be using REP 9- REP 9-9999Z for this job. The task will require an operator to vent the Shutdown cooling Heat Exchanger at valve EWA-V20.

The operator assigned to the job has a current year to date exposure of 664 mr.

It is estimated to take 15 minutes to complete the venting.

Your task as the CRS is as follows:

Given the REP and radiation survey map of the Train A Shutdown Cooling Heat Exchanger room, outline a pre-job brief covering the following topics:

- Task # to be used to perform the job.
- How much dose is expected to be received by the operator
- Max stay time for the operator above (in the 1140 mr/hr area) before the first administrative exposure hold point (per 75DP-9RP01) is exceeded.
- RP coverage that is required for this task.
- Given the exposure of other operators in the table below, determine which operator would be the best choice to perform an independent verification that EWA-V020 is closed after venting is completed. (Assume it will take two minutes to perform the second check).

Note: this will not take the place of the pre-job brief with RP.

Operator	Exposure history	Other information
1	1489 mrem year to date	
2	37 mrem this month	Has declared she is attempting to become pregnant and has filled out a "Pre-Natal Dose Limit Statement".
3	420 mrem this month, and 720 mrem year to date	

Use the form on the next page to document your answers.



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Task # to be used to perform the job.

How much dose is expected to be received by the operator?

Max stay time for the operator above (in the 1140 mr/hr area) before the first administrative exposure hold point (per 75DP-9RP01) is exceeded.

RP coverage that is required for this task.

Given the exposure of other operators in the table below, determine which operator would be the best choice to perform an independent verification that EWA-V020 is closed after venting is completed. (Assume it will take two minutes to perform the second check).



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JPM BASIS INFORMATION

TASK: 1240100202 Classify events requiring emergency plan implementation
 TASK STANDARD: Emergency Action Level (EAL) is identified and Site Area Emergency classified.
 K/A: 2.4.41 K/A RATING: RO: 2.9 SRO: 4.6
 APPLICABLE POSITION(S): SRO VALIDATION TIME: 15 minutes
 REFERENCES: EPIP-01, Satellite Technical Support Center Actions (rev 30) and EPIP-99, EPIP Standard Appendices (Rev 26)
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

Time Critical? (Yes/No) Yes Alternative Path? (Yes/No) No

APPROVAL

Developed By: Alan Malley Date: 4/21/2009
 Revised By: N/A Date: N/A
 Technical Review _____ Operations Approval _____
 E-Plan Review _____ Training Approval _____
Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT
 TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____
 Evaluator Name: _____
 Time to complete: _____ Minutes GRADE (Circle One) SAT / UNSAT[Ⓢ]

[Ⓢ] For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.
 PVAR # _____



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19. SIMULATOR SETUP:

20. IC#: This JPM is designed to be given after the 2009 NRC Scenario 3

DDDD. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
51.	N/A	

EEEE. SPECIAL INSTRUCTIONS:

- **This JPM is designed to be given after the 2009 NRC Scenario 3**

FFFF. REQUIRED CONDITIONS:

- NONE

GGGG. SIMULATOR EVALUATION PRE-CHECK

- Scenario 3 is complete.

19. SPECIAL TOOLS/EQUIPMENT:

- a. Copy of EPIP-01, Satellite Technical Support Center Actions
- b. Copy of EPIP-99, EPIP Standard Appendices



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TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPM's ONLY

- Operation of in-plant equipment is to be **SIMULATED ONLY, DO NOT OPERATE** any equipment.
- Inform the control room staff of any discovered deficiencies.
- Comply with the REP, if it is not possible to enter an area it may be permissible to discuss the equipment to be operated. Do not enter contaminated, airborne, or high radiation areas.

ALL JPM's

- You may use any source of information normally available.

INITIATING CUE:

Based on plant conditions at the conclusion of the scenario, perform the two following tasks:

1. List the Emergency Action Level that is **CURRENTLY** met.

2. List the Classification of this event.

THIS IS A TIME CRITICAL JPM

INFORMATION FOR EVALUATOR'S USE:

* Denotes Critical Step

- At the discretion of the Examiner/Evaluator, this JPM may be terminated when the Task Standard is met or adequate time has been allowed to complete the JPM. It shall be terminated when the Examinee has verbalized completion of the JPM.
- Any step marked UNSAT requires comments.
- If this is the first JPM of the set then ensure the examinee has been briefed.
- Step sequence is not critical unless noted or will prevent achieving the task standard.



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- Notify unit Shift Manager of in-plant JPM performance.
- Performance of this JPM may require entry into areas with alarmed doors. Security requirements must be observed.
- Locked valves may be involved. No attempt will be made to actually operate any valves.



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JPM START TIME:

	STEP	CUE	STANDARD
1. *	List the Emergency Action Level that is met.		<p>The examinee refers to the Mode 1-4 classification chart and determines FA1 is the correct Emergency Action Level (EAL).</p> <p>Answer: FA1 – ANY loss or ANY Potential loss of <u>EITHER</u> Fuel Clad <u>OR</u> RCS due to RCS leakrate greater than available makeup by a loss of RCS subcooling to saturation (0 °F) or RCS leak rate greater than charging capacity with Letdown isolated.</p> <p>START TIME _____</p>
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	List the Classification of this event.		<p>Examinee use the Mode 1-4 classification chart to determines the classification.</p> <p>Answer: Alert</p> <p>STOP TIME _____</p> <p>Time should be less than 15 minutes from the time the cue is given until the event is classified.</p>
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NORMAL TERMINATION POINT



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ANSWER KEY

1. **List the Emergency Action Level that is currently met.**

FA1

2. **List the Classification of this event.**

Alert

ANSWER KEY



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RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	10/15/2009	6	Record Created

REASON REVISED Enter the numbers corresponding to the reason revised in the Reason Revised column and brief description of changes in Comments Column. Comments are to be numbered consecutively in each revision.

- 109. Vendor reference document upgrade
- 110. Plant modification (include number)
- 111. Procedure upgrade
- 112. Internal or External Agency Commitment (indicate item number)
- 113. Technical Specification Change (indicate amendment number)
- 114. Other (explain in comments)



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INITIAL CONDITIONS

INITIATING CUE:

Based on plant conditions at the conclusion of the scenario, perform the two following tasks:

1. List the Emergency Action Level that is **CURRENTLY** met.

2. List the Classification of this event.

THIS IS A TIME CRITICAL JPM

Use this as your answer sheet.

CANDIDATE

Facility: PVNGS Scenario No.: 1 Op-Test No.: 2009

Examiners: _____ Operators: _____

Initial Conditions: IC #100, (100% power, MOC).

Turnover: Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance (estimated return to service is 3 days). The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service. The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by. PC is NOT recircing the RWT. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Train B is protected equipment. Unit 2 is supplying the Aux Steam cross-tie header.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N CO/SRO	Shift Condensate Demineralizers.
2	imf cmCNCV04CHNFIC243_2	I RO/SRO	A seal injection controller will fail in automatic requiring the crew to take manual control of the controller.
3	imf cmCPCH03HCNA02A_6 imf cmCPCH03HCNA02C_6	C CO/SRO	The A and C CEDM fans will trip requiring the CRS to enter 40AO-9ZZ25, Loss of HVAC to start the B and D fans (which will fail to auto start).
4	imf mfRD02B	R RO/CO/SRO (TS)	CEA 15 drops completely into the core. Crew enters 40AO-9ZZ11. Crew begins a 20% downpower. SRO enters LCO 3.1.5 Condition A and LCO 3.2.4 Condition A.
5	imf mfTH06A	C CO/SRO (TS)	A Steam Generator Tube leak occurs requiring the crew to enter 40AO-9ZZ02, Excessive RCS leakrate.
6	imf mfRD02L mfRD12A mfRP04A mfRP04C	M – ALL C - RO/SRO	Another CEA slips into the core. This will cause a reactor trip signal but an ATWS will occur. This will require the crew to open the breakers supplying the CEDM MG sets. Critical Task – Crew will insert all CEAs.
7	mfRX01	I CO/SRO	After the trip Tave will fail low requiring the CO to manually feed the SGs.
8	mmf mfTH06A	M-ALL	The SGTL will degrade on the trip. The CRS will diagnose a SGTR at the completion of the SPTAs. The crew performs a cooldown and isolates the affected Steam Generator. Critical Task – Initiate actions to cooldown and isolate the affected steam generator
End point			The scenario is terminated when the crew commences affected steam generator has been isolated or at the discretion of the lead examiner

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service.

The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service.

The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Op-Test No: 2009 Scenario No.: 1 Event No: 1

Event Description: Shift Condensate Demineralizers

Time	Position	Applicant's Actions or Behavior
T=0	CO	<p>Performs prerequisites:</p> <ul style="list-style-type: none"> • One NO and one RO to perform this Sections • Condensate and Feedwater alighted to feed the SGs. • Instrument air is available • Service air is available. • The service vessel to be placed has been rinsed within the past 12 hours. <p>Informs chemistry demin configuration will be changed.</p> <p>Directs the demin operator to ensure the following valve SCN-V960F is open for the 'F' Demin Vessel.</p> <p>Opens the 'F' Demin Vessel outlet valves (SCN-UV-216) using handswitch SCN-HS-216A on B07.</p> <p>Verifies the STANDBY light goes out, The IN-SERVICE light illuminates, the red light illuminates and the green light goes out.</p> <p>Requests demin operator to monitor vessel flow and DP.</p> <p>Closes 'E' Demin Vessel Outlet valve (SCN-UV-0215) using handswitch SCN-HS-215A on B07.</p> <p>Verifies the STANDBY light illuminates, the IN-SERVICE light goes out, the green lights illuminates, the red lights go out, and indication that flow has stopped through the service vessel.</p> <p>Requests demin operator to monitor vessel flow and DP.</p> <p>Directs demin operator to ensure SCN-V960E is closed.</p> <p>Directs demin operator to ensure SCN-V961E is open.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 2

Event Description: Seal Injection controller failure

Time	Position	Applicant's Actions or Behavior
T=7	RO	Evaluates alarm window 3A11A per 40AL-9RK3A. <ul style="list-style-type: none"> • Determines a Lo flow condition exist for RCP 2A only (~7.7 gpm). • Takes manual control of flow controller CHN-FIC-243 on B03 and adjusts flow to normal (~ 6.6 gpm).
	CRS	May enter 40AO-9ZZ04, RCP Emergencies. Directs RO to take manual control of valve controller and restore flow to the normal band per 40AL-9RK3A, Secondary Priority Action 1.

Op-Test No: 2009 Scenario No.: 1 Event No: 3

Event Description: CEDM fans trip / Failure of Stby fans to auto start

Time	Position	Applicant's Actions or Behavior
T=14	CO	<p>Responds to alarms on B07 (Window 7A9B), determines that CEDM fans are not running.</p> <p>Uses the Alarm Response Procedure or direction from the CRS to start the B and D CEDM fans using handswitch HCB-HS-50 on B07.</p> <p>Evaluator Note: These standby fans have a two minute time delay before they should start, however, due to the fault, they will not auto start.</p>
	RO	<p>Responds to alarms on SESS panel (Window 6D). Addresses the alarm response procedure.</p>
	CRS	<p><i>Evaluator Note: The crew may start the standby fans from the alarm response procedure on B07.</i></p> <p>May implement Loss of HVAC procedure, 40AO-9ZZ20.</p> <ul style="list-style-type: none"> • Directs the CO to start the standby CEDM fans. • May direct CO to verify normal containment parameters. <p>May performs brief to address the failure and contingencies.</p> <p>Evaluator Note: There are no Tech Specs to address for this event.</p>

Op-Test No: 2009 Scenario No.: 1 Event No.: 4

Event Description: CEA 15 drops into the core

Time	Position	Applicant's Actions or Behavior						
T=21	Crew	Responds to alarms on Board 3, determines that CEA 15 has dropped into the core.						
	CRS	Implement CEA Malfunction Abnormal Operating Procedure, 40AO-9ZZ11. <ol style="list-style-type: none"> 1. Checks that at least one CEA is deviating from its group by greater than 6.6 inches. 2. Verifies no CEA Reg Group is below the Transient Insertion Limit 3. Verifies Reactor power is not < 1%. 4. Ensures two or more CEAs are not deviating > 9.9 inches from their associated group. 5. Direct CEDMCS to Standby 6. Directs performance of Appendix E, Initial Actions. 7. Records CEA deviation time and Initial Power level. 8. Performs the following to start a power reduction within 10 minutes. <ol style="list-style-type: none"> a. Logs the start time for power reduction b. Directs the CO to lower turbine load to raise Tave 3°F greater than Tref. 9. Determines that a 20% downpower is required. 10. Calculates the number of gallons of baric acid needed by using the STA reactivity worksheet. (~ 1000 gallons). 11. Directs the CO to lower turbine load to maintain Tave 3°F greater than Tref. 12. Directs the RO to commence borating at a minimum rate of 25 gpm. 13. Determines the time required to perform the downpower using Appendix B. 14. When the requirements of Appendix B allow temperature to be lowered, the CRS directs the CO to maintain Tave/Tref mismatch \pm 3°F. 15. Determines the ability to stabilize power at the target plateau using the Maneuvering Box Tools (This may have been discussed at the beginning of shift reactivity brief). Enters LCO 3.1.5 Condition A. and LCO 3.2.4 Condition A. Examiner Note – Step 22 of 40AO-9ZZ11 addresses TS. CRS may not get to address LCO.s 3.1.5 and 3.2.4 within the timing of the event. This can be followed up after the scenario.						
	RO	Places CEDMCS in Standby using the Mode Select switch on the CEDMCS panel (may be performed by CO) Performs Appendix E actions (may be performed by CO): <ol style="list-style-type: none"> 1. Places Pressurizer in boron equalization <ol style="list-style-type: none"> a. Override and energize all pressurizer backup heaters: <table border="0" style="margin-left: 20px;"> <tr> <td>RCA-HS-100-4</td> <td>RCB-HS-100-5</td> </tr> <tr> <td>RCN-HS-100-6</td> <td>RCN-HS-100-7</td> </tr> <tr> <td>RCN-HS-100-8</td> <td>RCN-HS-100-9</td> </tr> </table> b. Lower the setpoint on RCNPIC-100, Pressurizer Pressure Controller to 	RCA-HS-100-4	RCB-HS-100-5	RCN-HS-100-6	RCN-HS-100-7	RCN-HS-100-8	RCN-HS-100-9
RCA-HS-100-4	RCB-HS-100-5							
RCN-HS-100-6	RCN-HS-100-7							
RCN-HS-100-8	RCN-HS-100-9							

Op-Test No: 2009 Scenario No.: 1 Event No: 4

Event Description: CEA 15 drops into the core

Time	Position	Applicant's Actions or Behavior
		<p>2220 psia.</p> <p>Borates to the RCS as direct by the CRS. (basic steps the RO will perform)</p> <ol style="list-style-type: none"> 1. Sets the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 2. Selects the "Target" makeup volume (gallons) on the boric acid makeup flow totalizer/counter CHN-FQIS-210Y (Micro-Motion) as determined in step 7.3.1 or 7.3.2. 3. Starts the boration as follows: <ol style="list-style-type: none"> a. Place CHN-HS-210 in the BORATE position. b. Depress the "Reset" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). c. Depress the "Start" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). d. Adjusts flow to the required flowrate (if > 40 gpm needed). <p>May perform Appendix B as directed by the CRS.</p>
	CO	<p>Lowers Turbine load using the Turbine Load Limit potentiometer on B06 to raise Tave greater than Tref by 3 °F to maintain power within the limits of Appendix B. May perform Appendix B as directed by the CRS.</p>
<i>After ~5% load reduction, have the driver insert the next malfunction.</i>		

Op-Test No: <u>2009</u> Scenario No.: <u>1</u> Event No.: <u>5</u>		
Event Description: Steam Generator Tube Leak		
Time	Position	Applicant's Actions or Behavior
T=41	Crew	Receives alarms on RMS panel. Reports to the CRS that RU-142 is in alarm with SG #1 having the highest readings.
	CRS	<p>Enters Excessive RCS Leakrate, 40AO-9ZZ02, Section 5.</p> <p>Examiner Note: The leakrate is small (~ 5gpm), but due to the down power, the crew may start the third charging pump and isolate letdown. It is not expected that the crew will trip the reactor.</p> <p>IF pressurizer level is lowering, THEN ensure all available Charging Pumps are running.</p> <p>IF all available Charging Pumps are running, AND pressurizer level is lowering, THEN isolate letdown.</p> <p>IF ALL of the following conditions exist:</p> <ul style="list-style-type: none"> • All available Charging Pumps are operating • Letdown is isolated • Pressurizer level is lowering THEN perform the following: <ul style="list-style-type: none"> a. Ensure that the Reactor is tripped. b. GO TO ONE of the following: <ul style="list-style-type: none"> • 40EP-9EO01, Standard Post Trip Actions • 40EP-9EO11, Lower Mode Functional Recovery <p>Ensure the event is being classified.</p> <p>IF the unit is in Mode 1 - 4, THEN ensure compliance with LCO 3.4.14, RCS Operational Leakage. The CRS should LCO 3.4.14 Condition 'b'.</p> <p>Direct Chemistry to perform 74DP-9ZZ05, Abnormal Occurrence Checklist.</p> <p>Notify Radiation Protection that an RCS leak exists.</p> <p>Examiner Note: Due to the downpower being performed due to the slipped CEA, the crew will not be able to determine a leakrate, however, RU-142 gives the crew a leakrate based on RU readings.</p> <p>Determine the leakrate using ANY of the following:</p> <ul style="list-style-type: none"> • Appendix A, 15 Minute Leak Rate Calculation • Appendix B, ERFDADS Leak Rate Determination • 40ST-9RC02, ERFDADS (Preferred) Calculation of RCS Water Inventory • 40ST-9RC05, Manual Calculation of RCS Water Inventory • 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory <p>REFER TO Appendix F, Steam Generator Tube Leak Guidelines.</p> <p>IF the plant will be shutdown, THEN PERFORM 40OP-9ZZ05, Power Operations.</p> <p>Perform Appendix C, Minimize Release to the Environment.</p> <p>Perform 40DP-9ZZ14, Contaminated Water Management (would assign to another SRO in the unit or unaffected unit).</p> <p>Direct an operator to perform Appendix D, Aligning Turbine Building Sumps to LRS.</p> <p>Direct Chemistry to sample the condensate and other connecting systems, including turbine building sumps for activity.</p> <p>IF the unit is in Mode 1 - 4, THEN ensure compliance with LCO 3.7.16, Secondary Specific Activity.</p>
	RO	Examiner Note: Due to the downpower being performed due to the slipped CEA,

Op-Test No: 2009 Scenario No.: 1 Event No: 5

Event Description: Steam Generator Tube Leak

Time	Position	Applicant's Actions or Behavior
		<p><i>the crew will not be able to determine a leakrate, however, RU-141 and RU-142 gives the crew a leakrate based on RU readings.</i></p> <p>Since a shutdown is required due to the SGTL and a downpower is in progress, the CRS may have the RO reset the totalizer on the makeup to continue the downpower. However, this may not occur until later in the event, therefore it may not be observed (or the CRS may wait until after the 20% downpower is completed to reset for the downpower).</p> <ul style="list-style-type: none"> • Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. • Select the "Target" makeup volume (gallons) on the boric acid makeup flow totalizer/counter CHN-FQIS-210Y (Micro-Motion) as determined in step 7.3.1 or 7.3.2. • Continue the boration as follows: <ol style="list-style-type: none"> 1. Place CHN-HS-210 in the BORATE position. 2. Depress the "Reset" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). 3. Depress the "Start" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). • May be asked to secure boration.
	CO	<p>Addresses RMS alarms and determines which monitors are in Alarm (RU-139, RU-142, RU-141, & RU-7). Reports highest reading in SG #1. Provides leakrate from RMS to the CRS as requested.</p> <p>Secures SG blowdown as directed in the RMS alarm response procedure.</p> <p>Performs Appendix C, Minimize Release to the Environment.</p> <ol style="list-style-type: none"> 1. Ensure ARN-HS-19, Post Filter Mode Select Switch, is in the "THRU FILTER MODE" by observing red indication on ARN-HS-19 on B07. 2. Select "OFF" on BOTH of the following switches: <ul style="list-style-type: none"> • SGN-HS-1007, Valve 7 Mode Select • SGN-HS-1008, Valve 8 Mode Select 3. Throttle opens CDN-HV-275, Demineralizer Water Feed to Condensate Service Header Valve using handswitch CDN-HS-275 on B04, to maintain 50 - 100 psig on CDN-PI-201. 4. Ensure that BOTH of the following Condensate Pump Overboard Valves are closed: <ul style="list-style-type: none"> • CDN-HV-29 (Handswitch CDN-HS-29 on B05) • CDN-HV-30 (Handswitch CDN-HS-30 on B05) <p>Reduces turbine load as necessary to maintain primary temperature as directed by the CRS.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 5

Event Description: Steam Generator Tube Leak

Time	Position	Applicant's Actions or Behavior

Op-Test No: <u>2009</u> Scenario No.: <u>1</u> Event No.: <u>6</u>		
Event Description: Trip initiator (2 nd CEA drops into the core) ATWS		
Time	Position	Applicant's Actions or Behavior
T=57	Crew	Recognizes another CEA has dropped into the core by alarms (on B04 and B05) and the CEAPDS monitor. Recognizes that a Reactor Trip should have occurred by all 4 channels of bistable trip indication on PPS parameter indications on B05 and/or first out annunciator indication on B04.
	CRS	<p>Examiner Note: The SGTL will increase in size (200-300 gpm) which will cause the RCS pressure and level to begin trending down. Depending on when the reports are made, the RO may report pressure and level decreasing. This may cause the CRS to direct a manual initiation of SIAS/CIAS.</p> <p>Implements procedure 40EP-9EO01, Standard Post Trip Actions.</p> <ol style="list-style-type: none"> 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that reactor power is dropping. b. Check that start-up rate is negative. c. Check that ALL full strength CEAs are inserted. <p>Evaluator Note: The crew will have to open the B2 breakers for L03 and L10 on B01 to trip the reactor (using handswitches NGN-HS-L03B2 and NGN-HS-L10B2 on B01). The CRS may direct this prior to getting the SPTA procedure.</p> <p>Critical Task – Crew will insert all CEAs.</p> <ol style="list-style-type: none"> 3. Determine that Maintenance of Vital Auxiliaries acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that the Main Turbine is tripped. b. Check that the Main Generator output breakers are open. c. Check that station loads have transferred to offsite electrical power such that BOTH of the following conditions are met: <ul style="list-style-type: none"> • All vital and non-vital AC buses are powered • All vital and non-vital DC buses are powered 4. Determine that RCS Inventory Control acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that Pressurizer level meets BOTH of the following: <ul style="list-style-type: none"> • 10 - 65% • Trending as expected to 33 - 53% b. Check that the RCS is 24°F or more subcooled. c. Check that BOTH of the following are in service to all RCPs. <ul style="list-style-type: none"> • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by BOTH of the following: <ul style="list-style-type: none"> • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia <p>5.2 IF pressurizer pressure drops to the SIAS setpoint, THEN ensure that SIAS is actuated.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 6Event Description: Trip initiator (2nd CEA drops into the core) ATWS

Time	Position	Applicant's Actions or Behavior
		<p>5.3 IF pressurizer pressure remains below the SIAS setpoint, THEN stop ONE RCP in each loop.</p> <p>6. Determine that Core Heat Removal acceptance criteria are met by ALL of the following:</p> <ul style="list-style-type: none"> • At least one RCP is operating • Loop ΔT is less than 10°F • RCS is 24°F or more subcooled <p>(Continued in next event)</p>
	RO	<p>Examiner Note: The SGTL will increase in size which will cause the RCS pressure and level to begin trending down. Depending on when the reports are made, the RO may report pressure and level decreasing.</p> <p>May report Reactivity. Attempts to trip the reactor using B05 pushbuttons.</p> <p>May open NGN-L03B2 and NGN-L10B2 using handswitches on B01 to de-energize the CEDM MG sets (This may be done by CO).</p> <p>Report the status of the Electric Plant (all buses are energized).</p> <p>Reports Pressurizer level and RCS subcooling.</p> <p>Reports status of Seal injection and Nuclear Cooling to the RCPs.</p> <p>Reports RCS pressure. Will stop one RCP in each loop when RCS pressure remains below the SIAS setpoint.</p> <p>Reports RCPs operating, loop ΔT, and RCS subcooling.</p> <p>May report RCS Tc (usually done by the CO).</p> <p>May report containment pressure and status of Radiation Monitoring.</p> <p>May report containment temperature and containment pressure.</p>
	CO	<p>May report Reactivity when CEAs insert.</p> <p>Reports status of the Main Turbine and Generator output breakers.</p> <p>(Continued in next event)</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 6Event Description: Trip initiator (2nd CEA drops into the core) ATWS

Time	Position	Applicant's Actions or Behavior

Op-Test No: <u>2009</u> Scenario No.: <u>1</u> Event No: <u>7</u>		
Event Description: Tave fails low		
Time	Position	Applicant's Actions or Behavior
T=57	CO	<p>Reports SG levels and method of feed. The CO will have to take manual control of the Downcomer control valves (using the Downcomer Valve controllers SGN-FIK-113 and SGN-FIK-1123 or on the DFWCS screen) and feed the Steam Generators.</p> <p>Evaluator Note: CO does not need to diagnose the Tave failure</p> <p>May report RCS Tc.</p> <p>Reports SG pressure. SG pressures should be controlled by the SBCS in automatic.</p> <p>May report containment pressure and status of Radiation Monitoring.</p> <p>May report containment temperature and containment pressure.</p>
	CRS	<p>(Continuing in the SPTAs)</p> <p>7. Determine that RCS Heat Removal acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> Check that at least one Steam Generator meets BOTH of the following conditions: <ul style="list-style-type: none"> Level is 35% WR or more Feedwater is restoring or maintaining level 45 - 60% NR <p>Evaluator Note: Due to Tave failing low on the trip, the CO will have to take manual control of feedwater to feed the SGs.</p> <ol style="list-style-type: none"> Check that Tc is 560 - 570°F. Check that steam generator pressure is 1140 - 1200 psia. <p>8. Determine that Containment Isolation acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> Check that Containment pressure is less than 2.5 psig. REFER TO Appendix 7, List of EOP Radiation Monitors and check BOTH of the following conditions: <ul style="list-style-type: none"> No valid containment area radiation monitor alarms or unexplained rise in activity No valid steam plant activity monitor alarms or unexplained rise in activity <p>9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> Check that containment temperature is less than 117°F. Check that containment pressure is less than 2.5 psig. <p>Diagnoses SGTR, enters 40EP-9EO04, Steam Generator Tube Rupture.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 7

Event Description: Tave fails low

Time	Position	Applicant's Actions or Behavior

Op-Test No: 2009 Scenario No.: 1 Event No: 8

Event Description: SGTR

Time	Position	Applicant's Actions or Behavior
T=67	CRS	<p>The CRS performs the following per 40EP-9EO04, Steam Generator Tube Rupture;</p> <ul style="list-style-type: none"> • Confirms the diagnosis of a SGTR by directing the performance of the SFSC, directing an operator to open the SG sample valves, and directing Chemistry to perform the abnormal occurrence checklist. • Ensures the event is being classified. This is normally the task of the Shift Manager. • Opens the placekeeper and enter the EOP entry time. • If pressure drops below SIAS setpoint, directs an operator to check that SIAS is actuated. • If SIAS has actuated, directs an operator to check HPSI and LPSI pumps started, and adequate SI flow per Appendix 2. • If pressure remains below the SIAS setpoint, directs an operator to ensure one RCP is stopped in each loop. • Directs an operator to monitor any operating RCP per Appendix 16. <p><i>Evaluator Note: The following two steps should have been done in the AOP for Excessive RCS leakrate</i></p> <ul style="list-style-type: none"> • Directs the CO to place the post filter blower in the "THRU FILTER MODE." • Directs the CO to place SBCS valves 1007 and 1008 in "OFF." <p>Directs the CO to commence a cooldown to T_h of less than 540 °F using the SBCS and to perform the RCS cooldown log.</p> <p><i>Evaluator Note: The CRS may hold a tailboard to discuss the operators responsibilities during the cooldown (cooldown, depressurize and reset MSIS setpoints)</i></p> <ul style="list-style-type: none"> • If steaming to atmosphere, informs Radiation Protection. • Directs the RO to depressurize the RCS to <1135 psia, approximately equal to ruptured SG pressure, and within the P/T limits. • Directs the RO to throttle HPSI when Safety Injection Throttle criteria are met. • Directs the crew to reset the MSIS setpoints. • Determines the most affected SG by verifying parameters. • Directs Isolation of the Ruptured SG. <p>Critical Task – Initiate actions to cooldown and isolate the affected steam generator</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 8

Event Description: SGTR

Time	Position	Applicant's Actions or Behavior										
	RO	<p>When pressure is < SIAS setpoint, ensures SIAS actuated and HPSI, LPSI pumps running. Verifies SIAS actuated and equipment is actuated by visually verifying equipment or checking SESS panel.</p> <p>Trips one RCP in each loop when pressure remains below the SIAS setpoint using the handswitches on B04. (Trips 1A and 2A or trips 1B and 2B RCPs).</p> <ul style="list-style-type: none"> • RCP1A – handswitch RCN-HS-1 • RCP1B – handswitch RCN-HS-2 • RCP2A – handswitch RCN-HS-3 • RCP2B – handswitch RCN-HS-4 <p>Monitors running RCP parameters per Appendix 16.</p> <p>Depressurizes the RCS when directed using main sprays on B04 and/or aux sprays on B03.</p> <ul style="list-style-type: none"> • Main sprays – controller RCN-PIC-100 or RCN-PIK-100 in manual • Aux Sprays – CHA-HS-205 and/or CHB-HS-203 <p>Throttles HPSI when Safety Injection throttle criteria are met using the following handswitches on B03. Throttles HPSI one valve at a time.</p> <table border="1" data-bbox="618 1045 1386 1205"> <thead> <tr> <th data-bbox="618 1045 1002 1079">Train A</th> <th data-bbox="1002 1045 1386 1079">Train B</th> </tr> </thead> <tbody> <tr> <td data-bbox="618 1079 1002 1108">SIA-HS-617</td> <td data-bbox="1002 1079 1386 1108">SIB-HS-616</td> </tr> <tr> <td data-bbox="618 1108 1002 1138">SIA-HS-627</td> <td data-bbox="1002 1108 1386 1138">SIB-HS-626</td> </tr> <tr> <td data-bbox="618 1138 1002 1167">SIA-HS-637</td> <td data-bbox="1002 1138 1386 1167">SIB-HS-636</td> </tr> <tr> <td data-bbox="618 1167 1002 1205">SIA-HS-647</td> <td data-bbox="1002 1167 1386 1205">SIB-HS-646</td> </tr> </tbody> </table> <p>Resets MSIS setpoints as the cooldown occurs as directed using the “LO SG PRESS RESET” pushbuttons on B05.</p>	Train A	Train B	SIA-HS-617	SIB-HS-616	SIA-HS-627	SIB-HS-626	SIA-HS-637	SIB-HS-636	SIA-HS-647	SIB-HS-646
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	CO	<p>May manually initiate SIAS/CIAS if directed by CRS.</p> <p>Evaluator Note: The next two steps may have been performed during the Abnormal Operating Procedure for the SGTL.</p> <p>Ensures post filter blower is in “THRU FILTER MODE” when directed using handswitch ARN-HS-19.</p> <p>Places SBCS valves 1007 and 1008 are in “OFF” when directed using SGN-HS-1007 and SGN-HS-1008.</p> <p>Performs a cooldown using SBCS (probably using SGN-PIK-1001, but any other SBCS valve is acceptable) to get T_h less than 540 °F when directed</p> <p>Resets MSIS setpoints using the “LO SG PRESS SETPOINT RESET” pushbuttons on B05 as the cooldown occurs as directed.</p> <p>Isolates the affected SG when directed by ensuring the following are closed:</p> <table border="1" data-bbox="548 1793 1386 1885"> <thead> <tr> <th data-bbox="548 1793 954 1856">Component</th> <th data-bbox="954 1793 1386 1856">Handswitch – all on B06 unless noted otherwise.</th> </tr> </thead> <tbody> <tr> <td data-bbox="548 1856 954 1885">ADV 184</td> <td data-bbox="954 1856 1386 1885">SGA-HIC-184A</td> </tr> </tbody> </table>	Component	Handswitch – all on B06 unless noted otherwise.	ADV 184	SGA-HIC-184A						
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Op-Test No: <u>2009</u> Scenario No.: <u>1</u> Event No: <u>8</u>																						
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		Scenario Normal end point is when the SG is isolated.																				

Facility: PVNGS Scenario No.: 3 Op-Test No.: 2009

Examiners: _____

Operators: _____

Initial Conditions: IC # 101 (50% power, MOC)

Turnover: Unit 1 has been at 50% power for the past 4 days. The core is at 250 EFPD. The unit had been in a SNOW outage and stopped the power increase due to a possible issue with the 'B' MFP. During the startup of the 'B' MFP it had high vibration and high temperature on the outboard pump bearing. Maintenance is investigating at this time. The 'B' MFP is tagged out. The crew is directed to shift the stator cooling water pumps after turnover to CEN-P01A running and CEN-P01B in standby to support electrical maintenance troubleshooting of a hot spot on the motor terminal connection of CEN-P01B. The Area Operator has been briefed and is standing by the stator cooling pumps. Window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is the protected train. PC is NOT recircing the RWT. Normal Shiftly Surveillances are complete.

Risk Management Action Level is Green. Unit 2 is supplying the Aux Steam cross-tie header.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N CO	Swap stator cooling pumps.
2	doED ZLS037271DS_W1 doRP ZLSAAC01ALOP1_W1 mf AN_1A03D1	C CO/SRO (TS)	The UV-1 LOV relay for PBA-S03 will fail requiring the crew to address the alarm response procedures and the CRS to address Tech Specs.
3	cmTRRC03RCNPT100X_1	C RO/SRO	RCN-PT-100X fails high requiring the crew to address the Alarm Response procedure and select the unaffected channel.
4	cmBKED05NBNS02A_5	C CO/SRO	Loss of NBN-S02 causing a loss of Turbine Cooling Water due to the 'A' Turbine Cooling failing to auto start. The CRS should address 40AO-9ZZ12, Degraded Electrical, 40AO-9ZZ03, Loss of Cooling water or the alarm response procedure to start the standby TC pump. Other 4.16 kV loads will also be lost.
5	imf mfTH01B	(TS) RO/SRO	A RCS leak will develop requiring the CRS to enter 40AO-9ZZ02, Excessive RCS leakrate.
6	imf mfTC13 imf mfMS16	M ALL	Main Turbine Trip causes a reactor trip after a short time period due to failure of the SBCS Q.O. block circuitry (reactor trips on high pressurizer pressure).
7	imf cmTRMS02SGNPT1024_4	I CO/SRO	After the reactor trips, a failure of Main Steam pressure transmitter SGN-PT-1024 will require the CO to take manual actions to control heat removal with either the SBCS or ADVs.
8	mmf mfTH01B k:4 f:10 imf cmMVRH03SIAUV672_6 imf cmCPRH05SIBP03_5 mmf mfTH01B f: 10 rfEG20	M ALL C RO/SRO	RCS Leak degrades to a LOCA and one Containment Spray Pump will fail to auto start while the other Containment Spray Header isolation will fail to open. HPSI 'B' pump trips and the 'A' DG does not come up to speed. Critical Task – Initiate Containment Spray flow.
9	imf mfED10A	C RO/SRO	After the CRS enters the LOCA procedure, a loss of PBA-S03 will occur due to a fault on a SU transformer. This will cause a loss of the only running HPSI pump (other pump tripped when started). The CRS will transition to the FRP to restore power to PBA-S03. Critical Task – Energize PBA-S03 from NBN-X04 to supply power to the 'A' HPSI pump.
End point			The scenario is terminated when the PB bus is energized and HPSI has started.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Supplemental Turnover

Plant conditions:

Unit 1 has been at 50% power for the past 4 days. The core is at 250 EFPD.

Risk Management Action Level is Green.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header.

Equipment out of service:

Alarm Window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

The unit had been in a SNOW outage and stopped the power increase due to a possible issue with the 'B' MFP.

During the startup of the 'B' MFP it had high vibration and high temperature on the outboard pump bearing.

Maintenance is investigating at this time. The 'B' MFP is tagged out.

Planned shift activities:

Normal Shiftly surveillances are complete.

The crew is directed to shift the stator cooling water pumps after turnover to CEN-P01A running and CEN-P01B in standby to support electrical maintenance troubleshooting of a hot spot on the motor terminal connection of CEN-P01B. The Area Operator has been briefed and is standing by the stator cooling pumps.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Turnover

Plant conditions:

Unit 1 has been at 50% power for the past 4 days. The core is at 250 EFPD.

Risk Management Action Level is Green.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header.

Equipment out of service:

Alarm Window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

The unit had been in a SNOW outage and stopped the power increase due to a possible issue with the 'B' MFP.

During the startup of the 'B' MFP it had high vibration and high temperature on the outboard pump bearing.

Maintenance is investigating at this time. The 'B' MFP is tagged out.

Planned shift activities:

Normal Shiftly surveillances are complete.

The crew is directed to shift the stator cooling water pumps after turnover to CEN-P01A running and CEN-P01B in standby to support electrical maintenance troubleshooting of a hot spot on the motor terminal connection of CEN-P01B. The Area Operator has been briefed and is standing by the stator cooling pumps.

Op-Test No: 2009 Scenario No.: 3 Event No: 1

Event Description: Swap Stator Cooling Pumps

Time	Position	Applicant's Actions or Behavior
T=0	CO	<p>Performs prerequisite – Stator Cooling System is in Operation with CEN-P01B running and CEN-P01A in standby.</p> <p>Pushes CEN-HS-29B, Auto Start Test button until CEA-P01A starts as indicated by the amber light above the handswitch (CEN-HS-30) on B07.</p> <p>Places CEN-HS-30 to START</p> <p>Checks that the pump running red light is on.</p> <p>Stops CEN-P01B using handswitch CEN-HS-37.</p> <p>Pushes CEN-HS-29B, Auto Start Test button until CEA-P01B starts as indicated by the amber light above the handswitch (CEN-HS-37) on B07</p> <p>Stops CEN-P01B using CEN-HS-37.</p> <p>Checks discharge pressure is normal (~140 psig as read locally on CEN-PI-4).</p> <p>Evaluator Note: The CRS may decide not to perform the auto start test of the 'B' CE pump due to the problem with the terminal hot spot.</p>
	CRS	<p>Directs the CO to start the 'A' Stator Cooling Water Pump and stop the 'B' Stator Cooling Water Pump.</p> <p>Evaluator Note: The CRS may decide not to perform the auto start test of the 'B' CE pump due to the problem with the terminal hot spot.</p>

Op-Test No: 2009 Scenario No.: 3 Event No: 2

Event Description: PBA-S03 LOV relay 727-1 fails

Time	Position	Applicant's Actions or Behavior
T=10	RO	<p>Addresses Alarm on B01 using 41AL-1RK1A window 3D and performs the following:</p> <ul style="list-style-type: none"> • Determines alarm is not valid by observing PBA-S03 voltage indicator PBA-EI-S03. • Determines that the 727-1 relay tripped by observing PBA-S03 undervoltage white indicating lights on panel B01. • Investigate the cause of the undervoltage condition. Possible cause and indications of the condition include: <ul style="list-style-type: none"> ○ A low voltage condition on PBA-S03 ○ Excessive load on PBA • Informs CRS that alarm response procedure states if an undervoltage relay is malfunctions, then place the undervoltage relay in 'Bypass'. • Informs the CRS to evaluate Tech Specs and to refer to the following LCOs: <ul style="list-style-type: none"> ○ 3.3.7 ○ 3.8.1 ○ 3.8.2
	CRS	<p>Addresses Tech Specs and enters LCO 3.3.7 Condition 'A' which requires bypassing the channel within 1 hour.</p> <p>May refer to Control System drawing to determine which UV relay to bypass.</p> <p>Directs CO to place Train 'A' LOPI relay UV-1 in bypass (using 40OP-9SA01) at the BOP-ESFAS cabinet.</p>
	CO	<p>Places Train 'A' UV-1 in bypass using 40OP-9SA01 by performing the following:</p> <ul style="list-style-type: none"> • Prerequisites <ul style="list-style-type: none"> ○ Ensures Applicable LCO has been reviewed (may mark this complete if CRS has discussed this). ○ CRS Permission obtained (direction to do this is adequate) ○ Verifies redundant module in the other Train is not in bypass by a visual inspection of the Train B BOP-ESFAS Cabinet.

Op-Test No: 2009 Scenario No.: 3 Event No: 2

Event Description: PBA-S03 LOV relay 727-1 fails

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • Procedure <ul style="list-style-type: none"> ○ Ensures the sequencer is not in Auto Test by verifying the Manual half of the "Manual/Auto" button at the BOP-ESFAS cabinet is lit. ○ Performs a lamp test on Train 'A' BOP-ESFAS cabinet using the Lamp Test button. ○ Determine the same relay on the redundant train module is NOT in bypass. ○ Place a checkmark by module to be placed in service in the procedure. ○ Bypass the UV-1 relay on Train 'A' BOP-ESFAS Cabinet by: <ul style="list-style-type: none"> ▪ Place Bypass key in key slot for UV-1 module ▪ Turn the key clockwise ¼ turn or until the Bypass light comes on. ○ Requests Independent Verification of bypass.

Op-Test No: 2009 Scenario No.: 3 Event No.: 3

Event Description: RCS controlling pressure (RCN-PT-100X) fails high.

Time	Position	Applicant's Actions or Behavior
T= 20	RO	<p>Receives alarms on B04 and addresses the Alarm Response Procedure 40AL-9RK4A (Windows 1B and 1A)</p> <ul style="list-style-type: none"> • Actions from Window 1B alarm response <ul style="list-style-type: none"> ○ Checks pressurizer pressure by observing RCN-PT-100X and 100Y on RCN-PR-100 ○ Selects the unaffected channel (Y) using handswitch RCN-HS-100 on B04. ○ Closes the heater breaker for the proportional heaters using the following handswitches: <ul style="list-style-type: none"> ▪ RCN-HS-100-1 ▪ RCN-HS-100-2 ○ Ensures ability to maintain pressure with available heaters. • Actions from Window 1A alarm response are the same as above.
	CRS	<p>When RO reports failed instrument, directs the RO to select the unaffected Channel Y.</p> <p>Determines the affect of the failed instrument (affects the SBCS such that there will be bias from a high RCS pressure condition applied to the SBCS). This may be discussed by another member of the crew.</p> <p>If RCS pressure lowers to less than 2130 psia, the CRS should address Tech Spec 3.4.1 condition 'c'.</p>

Op-Test No: 2009 Scenario No.: 3 Event No: 4

Event Description: Loss of NBN-X02

Time	Position	Applicant's Actions or Behavior
T=27	RO	<p>The RO addresses alarms on B01 (Window 6C) (this may be done after the CO addresses the cooling water pumps due to manpower limitations). Refers CRS to 40AO-9ZZ12, Degraded Electrical.</p>
	CO	<p>Addresses alarms on B07 (numerous windows) Notifies no Turbine Cooling Water Pump is running. Starts the 'B' TC pump (due to failure to auto start). Addresses the Normal chiller by starting the 'A' Normal Chiller and restarting the 'B' Normal Chiller (tripped due to low NC flow).</p>
	CRS	<p>Enters 40AO-9ZZ12, Degraded Electrical. Checks that all of the following pumps are operating as needed:</p> <ul style="list-style-type: none"> • Nuclear Cooling Water Pump A • Turbine Cooling Water Pump A • Plant Cooling Water Pump A <p>The crew notices that TC Pump A is not running and the CRS enters 40AO-9ZZ03, Loss of Cooling Water to start the TC A Pump (or the CO may use the alarm response procedure to start the pump). Addresses that the following have been lost: Condensate Pump C Heater Drain Pump A Normal Chiller C NC Pump B TC Pump B PW Pump B Directs the CO to address the Normal chillers by starting the 'A' Normal chiller and restarting the 'B' Normal Chiller (tripped due to low NC flow when the pumps shifted).</p>

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>5</u>		
Event Description: RCS Leak		
Time	Position	Applicant's Actions or Behavior
T= 40	RO	An operator discovers that the RCS leakrate is increasing by either observing ERFDADS leakrate number increasing, letdown flow lowering, pressurizer level lowering, or by RU alarms. The Reactor Operator may start the standby charging pump if directed by the CRS. The Reactor Operator may isolate letdown if directed by the CRS. The Reactor Operator performs an RCS leakrate per Appendix B of 40AO-9ZZ02 by placing the VCT makeup in Manual and waiting for ERFDADS to calculate leakrate.
	CO	Responds to RMS Alarms and informs CRS of actions/information. May monitor Containment sump levels using RDN-LI-410 and humidity / temperature Yokogawa record 1JMNTJR001 (Both on B07). May monitor Containment Pressure using PPS indicators on B-05.
	CRS	Evaluator Note: If the CRS decides to trip the reactor due to the leak, have the driver insert Event 6 before the crew trips the reactor. The CRS enters 40AO-9ZZ02, Excessive RCS Leakrate and performs the following: <ol style="list-style-type: none"> 1. Directs starting all available charging pumps if pressurizer level is lowering. 2. Direction isolate letdown if all charging pumps are running and pressurizer level is lowering. 3. If all charging pumps are running, letdown is isolated, and pressurizer level is lowering, direct a Reactor Trip. 4. Ensure the event is being classified. Evaluator note: The CRS should tell the Shift Manager to classify the event. <ol style="list-style-type: none"> 5. Ensure compliance with LCO 3.4.14, RCS operation leakage. The CRS should enter condition 'A' of LCO 3.4.14 (reduce leakage in 4 hours or be in Mode 3 in 6 hours and Mode 5 in 36 hours). 6. Directs chemistry to perform 74DP-9ZZ05, Abnormal Occurrence Checklist. 7. Notifies RP that an RCS leak exists. 8. Directs the RO to determine the leakrate.

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>5</u>		
Event Description: RCS Leak		
Time	Position	Applicant's Actions or Behavior
		<i>Evaluator note: Leakrate should be about 50 gpm.</i> 9. Evaluate plant parameters to attempt to identify the source of the leakage. 10. Directs an operator to walkdown charging and letdown piping. 11. Continue efforts to locate and isolate the leak.

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>6</u>		
Event Description: Main turbine trip.		
Time	Position	Applicant's Actions or Behavior
T= 55	Crew	<p>Crew recognizes a Main Turbine trip has occurred. Crew may recognize that the SBCS did not quick open which results in a reactor trip. <i>Evaluator Note: There is only a short time period between the Turbine Trip and the automatic trip on High Pressurizer pressure; therefore the CRS may not have time to direct a manual reactor trip.</i></p>
	CRS	<p>May direct a manual reactor trip <i>Evaluator Note: There is only a short time period between the Turbine Trip and the automatic trip on High Pressurizer pressure; therefore the CRS may not have time to direct a manual reactor trip.</i></p>

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>7</u>										
Event Description: Standard Post Trip Actions/ Failure of SGN-PT-1024.										
Time	Position	Applicant's Actions or Behavior								
T= 55	CRS	Directs the crew through the Standard Post Trip Actions (see next event for steps).								
	RO	<p>May report Reactivity (may be done by the CO). Will report the status of the Electric Plant. All vital and non-vital busses are energized Reports Pressurizer level and RCS subcooling. Reports Seal injection and Nuclear Cooling Water available to the RCPs. Reports RCS pressure. Reports all RCPs operating, loop ΔT, and RCS subcooling. May report RCS Tc (usually done by the CO). May report containment pressure and status of Radiation Monitoring. May report containment temperature and containment pressure.</p>								
	CO	<p>May report Reactivity. Reports status of the Main Turbine and Generator output breakers. Reports SG levels and method of feed. Should be with MFPs in RTO. May report RCS Tc. Reports SG pressure. Due failure of SGN-PT0-1024, the CO will have to control SG pressure with the SBCS valves in manual (SGN-PIK-1001), the SBCS Master Controller in manual, or may use ADVs by giving the ADVs two permissive and using the controller below for the applicable ADV.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">ADV 184</td> <td style="width: 50%;">SGA-HIC-184A</td> </tr> <tr> <td>ADV 178</td> <td>SGB-HIC-178A</td> </tr> <tr> <td>ADV 185</td> <td>SGB-HIC-185A</td> </tr> <tr> <td>ADV 179</td> <td>SGB-HIC-179A</td> </tr> </table> <p>May report containment pressure and status of Radiation Monitoring. May report containment temperature and containment pressure.</p>	ADV 184	SGA-HIC-184A	ADV 178	SGB-HIC-178A	ADV 185	SGB-HIC-185A	ADV 179	SGB-HIC-179A
ADV 184	SGA-HIC-184A									
ADV 178	SGB-HIC-178A									
ADV 185	SGB-HIC-185A									
ADV 179	SGB-HIC-179A									

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>8</u>																										
Event Description: RCS Leak degrades/Failure of Containment Spray/DG 'A' fails to reach rated speed/ HPSI B trips																										
Time	Position	Applicant's Actions or Behavior																								
T= 7 minutes after reactor trip	Crew	Notices RCS leak rate has increased dramatically.																								
	RO	<p>Secures RCPs on either CSAS or loss of subcooling. Recognize that there is no Containment Spray flow after the Containment Spray Actuation Signal. The Train A CS valve fails to open and cannot be opened. The Train 'B' CS pump fails to auto start. Starts the Train B Containment Spray Pump using SIB-HS-6 on B02. Critical Task – initiate CS flow. May report DG 'A' not running at rated speed after SIAS starts the DG. (The crew may attempt to override and raise the speed of the DG which will be unsuccessful.) May report HPSI B has an 86 lockout (this may be done at end of SPTA briefing)</p>																								
	CO	<p>Shifts SG pressure control to the ADVs if using the SBSCS. Shifts SG feed to Auxiliary Feedwater due to the MSIS.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">AF 'A'</th> <th style="width: 33%;">AF 'B'</th> <th style="width: 33%;">AF 'N'</th> </tr> </thead> <tbody> <tr> <td>SGA-HS-134A</td> <td>AFB-HS-10</td> <td>AFA-HS-11</td> </tr> <tr> <td>SGA-HS-138A</td> <td>AFB-HS-30A</td> <td>CTA-HS-1</td> </tr> <tr> <td>AFA-HS-32A</td> <td>AFB-HS-31A</td> <td>CTA-HS-4</td> </tr> <tr> <td>AFC-HS-36A</td> <td>AFB-HS-34A</td> <td>SGN-FIK-1133 or</td> </tr> <tr> <td>AFA-HS-37A</td> <td>AFB-HS-35A</td> <td>SGN-HS-1143</td> </tr> <tr> <td>AFC-HS33A</td> <td></td> <td>SGN-FIK-1123 or</td> </tr> <tr> <td></td> <td></td> <td>SGN-HS-1145</td> </tr> </tbody> </table>	AF 'A'	AF 'B'	AF 'N'	SGA-HS-134A	AFB-HS-10	AFA-HS-11	SGA-HS-138A	AFB-HS-30A	CTA-HS-1	AFA-HS-32A	AFB-HS-31A	CTA-HS-4	AFC-HS-36A	AFB-HS-34A	SGN-FIK-1133 or	AFA-HS-37A	AFB-HS-35A	SGN-HS-1143	AFC-HS33A		SGN-FIK-1123 or			SGN-HS-1145
AF 'A'	AF 'B'	AF 'N'																								
SGA-HS-134A	AFB-HS-10	AFA-HS-11																								
SGA-HS-138A	AFB-HS-30A	CTA-HS-1																								
AFA-HS-32A	AFB-HS-31A	CTA-HS-4																								
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AFC-HS33A		SGN-FIK-1123 or																								
		SGN-HS-1145																								
	CRS	<p>Evaluator Note: These actions may vary depending on where the CRS is in the procedure when the RCS leakrate is increased. See actions at this section. Implements procedure 40EP-9EO01, Standard Post Trip Actions.</p> <ol style="list-style-type: none"> 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that reactor power is dropping. b. Check that start-up rate is negative. c. Check that ALL full strength CEAs are inserted. 3. Determine that Maintenance of Vital Auxiliaries acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that the Main Turbine is tripped. b. Check that the Main Generator output breakers are open. c. Check that station loads have transferred to offsite electrical power such that BOTH of the following conditions are met: 																								

Op-Test No: 2009 Scenario No.: 3 Event No: 8

Event Description: RCS Leak degrades/Failure of Containment Spray/DG 'A' fails to reach rated speed/ HPSI B trips

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • All vital and non-vital AC buses are powered • All vital and non-vital DC buses are powered <p>4. Determine that RCS Inventory Control acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> a. Check that Pressurizer level meets BOTH of the following: <ul style="list-style-type: none"> • 10 - 65% • Trending as expected to 33 - 53% b. Check that the RCS is 24°F or more subcooled. c. Check that BOTH of the following are in service to all RCPs. <ul style="list-style-type: none"> • Seal injection • Nuclear Cooling Water <p>5. Determine that RCS Pressure Control acceptance criteria are met by BOTH of the following:</p> <ul style="list-style-type: none"> • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia <p>5.2 IF pressurizer pressure drops to the SIAS setpoint, THEN ensure that SIAS is actuated.</p> <p>5.3 IF pressurizer pressure remains below the SIAS setpoint, THEN stop ONE RCP in each loop.</p> <p>6. Determine that Core Heat Removal acceptance criteria are met by ALL of the following:</p> <ul style="list-style-type: none"> • At least one RCP is operating • Loop ΔT is less than 10°F • RCS is 24°F or more subcooled <p>7. Determine that RCS Heat Removal acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> a. Check that at least one Steam Generator meets BOTH of the following conditions: <ul style="list-style-type: none"> • Level is 35% WR or more • Feedwater is restoring or maintaining level 45 - 60% NR b. Check that Tc is 560 - 570°F. c. Check that steam generator pressure is 1140 - 1200 psia. <p>8. Determine that Containment Isolation acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> c. Check that Containment pressure is less than 2.5 psig. d. REFER TO Appendix 7, List of EOP Radiation Monitors and check BOTH of the following conditions: <ul style="list-style-type: none"> • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity <p>9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following:</p>

Op-Test No: 2009 Scenario No.: 3 Event No: 8
 Event Description: RCS Leak degrades/Failure of Containment Spray/DG 'A' fails to reach rated speed/ HPSI B trips

Time	Position	Applicant's Actions or Behavior
		a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. When the LOCA gets large the CRS may repeat some SPTA steps. <ul style="list-style-type: none"> • If time permits, may direct an operator to manually initiate a SIAS/CIAS/MSIS/ and or CSAS • Directs RO to ensure proper SIAS actuation • Directs RO to stop RCPs on CSAS or loss of subcooling. • Directs RO to isolate RCP seal bleedoff. • Direct CO to shift feedwater to Auxiliary Feed and use ADVs to control SG pressure. • Ensures adequate CS flow. Diagnoses a LOCA and proceeds to 40EP-9EO03.

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No.: <u>9</u>										
Event Description: Loss of PBA-S03										
Time	Position	Applicant's Actions or Behavior								
T= When the CRS enters the LOCA procedure	Crew	Recognizes a LOP has occurred by alarm on B05 and other plant indications.								
	RO	<ol style="list-style-type: none"> 1. Determines that PBA-S03 has lost power. 2. Determines that his only running HPSI pump has lost power (this may be pointed out by another crew member). 3. CRS/RO may attempt to override and increase speed on the 'A' DG. This will not be successful 4. Overrides and opens HPB-UV-2 on B02. 5. Places the 'B' Hydrogen Analyzer in service. 6. Energizes PBA-S03 from NBN-S04 by closing breaker PBA-S03L using handswitch PBA-SS-S03K (Synch Switch) and PBA-II-S03K (breaker switch) when directed by the CRS. 7. Starts HPSI A using SIA-HS-1 or may wait for pump to start automatically. 								
	CRS	<p>Determines a loss of a safety function has occurred and transitions to the Functional Recovery Procedure.</p> <ol style="list-style-type: none"> 1. Ensures the event is being classified 2. Enters the EOP entry time. 3. If pressurizer pressure remains below the SIA S setpoint, ensure one RCP is stopped in each loop or if < 24 °F, ensure all RCPs are stopped. 4. If any RCPs are operating, directs the RO to perform Standard Appendix 16, RCP Trip Criteria. 5. Ensures the SG sample valves are open and directs chemistry to perform the Abnormal Occurrence Checklist. 6. If CIAS has actuated, directs the RO to override and open HPB-UV-2 on B02. 7. Directs the RO to place the Hydrogen analyzers in service. 8. Identifies the success paths to be used to satisfy each safety function. <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <td>RC-1</td> <td>HR-2</td> </tr> <tr> <td>MVDC-1</td> <td>CI-1</td> </tr> <tr> <td>MVAC-1 – Jeopardized</td> <td>CTPC-2</td> </tr> <tr> <td>IC-2 – Jeopardized</td> <td>CCGC-1</td> </tr> </table>	RC-1	HR-2	MVDC-1	CI-1	MVAC-1 – Jeopardized	CTPC-2	IC-2 – Jeopardized	CCGC-1
RC-1	HR-2									
MVDC-1	CI-1									
MVAC-1 – Jeopardized	CTPC-2									
IC-2 – Jeopardized	CCGC-1									

Op-Test No: <u>2009</u> Scenario No.: <u>3</u> Event No: <u>9</u>		
Event Description: Loss of PBA-S03		
Time	Position	Applicant's Actions or Behavior
		<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">PC-3</div> <p>9. Directs an operator to perform the Safety Function Status Check for those success paths in use.</p> <p>10. Performs MVAC-1 (first jeopardized Safety Function) and directs the RO to close PBA-S03K to energize PBA-S03 from the train B ESF Transformer (NBN-X04).</p> <p>11. The CRS directs the RO to start the 'A' HPSI pump or may wait for HPSI to start automatically (~ 60 seconds after bus is powered).</p> <p>Critical Task – X-tie PB busses to restore HPSI.</p>
End Point		Scenario Normal end point is when the HPSI A is started after PBA-S03 is energized.

Facility: <u>PVNGS</u>	Scenario No.: <u>4</u>	Op-Test No.: <u>2009</u>	
Examiners: _____ _____	Operators: _____ _____		
Initial Conditions: IC #100, (100% power, MOC).			
Turnover: Unit 1 has been at 100% power for the past 150 days. The core is at 250 EFPH. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days. Train B is protected equipment. The crew is directed to shift running Plant Cooling Water pumps immediately after turnover due to a Vibration Technician standing by at the pump to take vibrations on the 'A' PW pump. The area operator has been briefed and is standing by the PW pumps. Normal Shiftly Surveillances are complete. Risk Management Action Level is Yellow. PC is NOT recircing the RWT. Unit 2 is supplying the Aux Steam cross-tie header.			
Event No.	Malf. No.	Event Type*	Event Description
1	None	N CO/SRO	Crew Shifts running Plant Cooling Water Pumps.
2	imf cmTRCV19RCALT110X_4	I RO/SRO (TS)	The Train A Pressurizer Level Transmitter will fail. The crew should address the Alarm response procedure and select the Train B level transmitter. The CRS should address Tech Specs.
3	imf cmTRRX12SGCLT1123C_4	I CO/SRO (TS)	A SG level transmitter fails low. The crew addresses the alarm response procedure and places the correct parameter in bypass. The CRS addresses Tech Specs.
4	imf mfFW17B	C RO/CO/SRO	The 'B' MFP will trip requiring the CRS to enter 40AO-9ZZ09, RPCB (Loss of Feedpump).
5	imf mfFW15A imf mfFW17A	M- ALL	After the crew stabilizes power, the 'A' MFP will experience high vibrations. The crew should address the alarm response procedure and determine they have to trip the reactor and trip the MFP.
6	imf mfRD031 imf mfRD03M	C RO/SRO	On the trip, two CEAs will stick out. This will require the crew to borate.
7	imf mf FW21B imf mfFW23	C CO/SRO	5 minutes into the SPTAs, the 'B' AFW pump will trip. The CO should shift to the 'N' AFW pump. If the examinee attempts to use AFA-P01 it will not come up to speed.
8	imf cmCPFW07AFNP01_3	M ALL	When the CRS enters the Reactor Trip procedure, AFN-P01 discharge pressure will degrade. The CRS should realize that a LOAF has occurred and transition to the FRP to feed the Steam Generators with the condensate pumps. Critical Task – Take actions to align and initiate condensate to a steam generator.
End point			The scenario is terminated when the crew has established feed to one SG with a condensate pump.
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is at 250 EFPH.

Normal Shiftly Surveillances are complete.

Risk Management Action Level is Yellow.

Train B is the protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header.

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Planned shift activities:

The crew is directed to shift running Plant Cooling Water pumps immediately after turnover due to a vibration tech standing by at the pump to take vibrations on the 'A' PW pump. The area operator has been briefed and is standing by the PW pumps. The area operator also has an approved Confined Space Entry form.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is at 250 EFPH.

Normal Shiftly Surveillances are complete.

Risk Management Action Level is Yellow.

Train B is the protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header.

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

Planned shift activities:

The crew is directed to shift running Plant Cooling Water pumps immediately after turnover due to a vibration tech standing by at the pump to take vibrations on the 'A' PW pump. The area operator has been briefed and is standing by the PW pumps. The area operator also has an approved Confined Space Entry form.

Op-Test No: 2009 Scenario No.: 4 Event No: 1

Event Description: Crew shifts running Plant Cooling Water Pumps.

Time	Position	Applicant's Actions or Behavior
T=0	CO	<p>Starts PW pump A using PWN-HS-5 on B07.</p> <p>Directs AO to check pump running with no unusual noise or vibration.</p> <p>Checks motor current decays to less than 137 amps.</p> <p>Directs the AO to close PWN-HCV-12, PWN Pump B discharge valve</p> <p>When PWN-HCV-12 is closed, stops PW Pump B using PWN-HS-6.</p> <p>Checks pressure alarm is clear and pressure returns to normal.</p> <p>Directs AO to open PWN-HCV-12.</p> <p>Directs AO to inspect PW Pump B to ensure no rotation.</p>

Op-Test No: 2009 Scenario No.: 4 Event No: 1

Event Description: Crew shifts running Plant Cooling Water Pumps.

Time	Position	Applicant's Actions or Behavior

Op-Test No: 2009 Scenario No.: 4 Event No: 2

Event Description: Train A Pressurizer Level instrument fails low

Time	Position	Applicant's Actions or Behavior
T=5	RO	Addresses the alarms on B04 (Windows 1A and 2B) <ol style="list-style-type: none"> 1. Verifies the controlling channel (RCA-LT-110X) has failed low 2. Selects Channel Y on RCN-HS-100 (Level Control Selector Channel X/Y) and RCN-HS-100-3 (Heater Control Selector Level Trip Channel X/Y) 3. Closes the proportional heater breakers by going to "ON" on handswitches RCN-HS-100-1 and RCN-HS-100-2.
	CRS	Addresses Tech Specs: Enters LCO 3.3.10 (Post Accident Monitoring) condition 'A' and LCO 3.3.11 (Remote Shutdown Panel) condition 'A'. Both require restoration of the function within 30 day.

Op-Test No: 2009 Scenario No.: 4 Event No.: 3

Event Description: SG #2 Channel C level transmitter failure

Time	Position	Applicant's Actions or Behavior
T=12	CO	Addresses the alarm response procedure <ol style="list-style-type: none"> 1. Compares SG #2 level instrumentation and determines Channel C has failed low. 2. May recommend bypassing the affected channel to the CRS. 3. May inform the CRS that Tech Specs 3.3.1, 3.3.5, 3.3.10 and 3.3.11 may be affected. 4. Bypasses the affected parameters (8, 18 and 19) as directed by the CRS.
	CRS	Addresses Tech Specs <ol style="list-style-type: none"> 1. Enters LCO 3.3.1 (Reactor Protection System (RPS) Instrumentation – Operating) condition 'A' and LCO 3.3.5 (Engineered Safety Feature Actuation System (ESFAS) Instrumentation) condition 'A' which both require bypassing or tripping the affected channel within 1 hour. 2. Refers to the bases for LCO 3.3.1 or LCO 3.3.5 to determine which instruments need to be bypassed. <p>Evaluator Note: LCO 3.3.10 is not applicable because it only requires 2 of the 4 channels and LCO 3.3.11 are not applicable for this channel because this is not a channel monitors at the Remote Shutdown panel.</p> <ol style="list-style-type: none"> 3. Directs the CO to bypass Steam Generator #2 Level Low (RPS) and Steam Generator #1 and #2 Level Low (ESFAS) per the LCO bases.

Op-Test No: 2009 Scenario No.: 4 Event No: 4

Event Description: Trip of the 'B' MFP

Time	Position	Applicant's Actions or Behavior
T=22	Crew	Addresses the alarms and diagnoses the trip of the 'B' MFP.
	CRS	Enters 40AO-9ZZ09 (RPCB-Loss of Feedpump) and performs the following: <ol style="list-style-type: none"> 1. Enters the AOP entry time 2. Checks that A RPCB – Loss of Feedpump has actuated and CEA subgroups 4, 5, and 22 have inserted. 3. Checks that Main Turbine Setback-Runback has lowered Main Turbine load to 65% or less. 4. Checks that no CEAs are deviating by greater than 6.6 inches if ANY CEA Reg Groups are below the Transient Insertion Limits. 5. May direct an operator to perform Appendix D, Status Check RPCB Loss of Feedpump (normally done by the STA). 6. Directs the CO to restore and maintain SG levels 45-60% NR. 7. Checks that RRS is adjusting CEAs to restore Tave/Tref \pm 3°F. 8. If condenser hotwell level is less than 41 inches, directs an operator to restore level to 41 inches or more. 9. Directs an operator to remove RPCB from service by pushing the "AUTO ACTUATE OUT OF SERVICE" and the "TEST RESET" pushbuttons. 10. Directs the CO to perform a lamp test to ensure the "LOAD LIMITING" light illuminates. 11. Directs the CO to lower the load limit potentiometer until the "LOAD LIMITING" light comes on. 12. Directs CO to raise Speed Bias on the operating Main Feedwater Pump to zero or more 13. Directs an operator to place CEDMCS is "Manual Sequential" when CEA motion is only required for Xenon Buildup 14. Directs an operator to monitor ASI. 15. Directs an operator to start boron equalization of the pressurizer. 16. Directs the CO to adjust FWCS DP to stabilize feedwater (if necessary)
	RO	<ol style="list-style-type: none"> 1. May check that RPCB has occurred with subgroups 4, 5, and 22 inserted (may be done by CO). 2. Checks for CEA deviation. 3. Checks that RRS is adjusting to maintain Tave/Tref \pm 3°F. 4. Places CEDMCS in Manual Sequential using the CEDMCS Mode Select Switch on B04. 5. Commences Pressurizer Boron Equalization by performing the following:

Op-Test No: 2009 Scenario No.: 4 Event No: 4

Event Description: Trip of the 'B' MFP

Time	Position	Applicant's Actions or Behavior
		<p>a. Override and energize all pressurizer backup heaters: RCA-HS-100-4 RCB-HS-100-5 RCN-HS-100-6 RCN-HS-100-7 RCN-HS-100-8 RCN-HS-100-9</p> <p>b. Lower the setpoint on RCNPIC-100, Pressurizer Pressure Controller to 2220 psia.</p> <p>6. May perform Appendix D (Status Check of 40AO-9ZZ09)</p> <p>7. May remove RPCB from service by pushing the "TEST RESET" and "AUTO-ACTUATE OOS" pushbuttons on the RPCB module on B04. (May be done by CO)</p>
	CO	<p>1. May check that RPCB has occurred with subgroups 4, 5, and 22 inserted (may be done by RO).</p> <p>2. Ensures the Main Turbine Setback-Runback has reduced Main Turbine load to < 65% (~ 890 MWs).</p> <p>3. Monitors SG levels to ensure they are restoring and maintaining 45-60% NR.</p> <p>4. May check that RPCB has occurred with subgroups 4, 5, and 22 inserted (may be done by RO).</p> <p>5. Restore hotwell level to > 41 inches if necessary.</p> <p>6. May remove RPCB from service by pushing the "TEST RESET" and "AUTO-ACTUATE OOS" pushbuttons on the RPCB module on B04. (May be done by RO)</p> <p>7. Performs a lamp test on the LOAD LIMITING light and then lowers the load limit potentiometer on B06 to cause the LOAD LIMITING light to come on.</p> <p>8. Monitors ASI.</p> <p>9. Ensures operating Feedpump bias is at zero at the FP Speed controller.</p> <p>10. Ensures FWCS DP is maintaining feedwater steady.</p>

Op-Test No: 2009 Scenario No.: 4 Event No: 4

Event Description: Trip of the 'B' MFP

Time	Position	Applicant's Actions or Behavior

Op-Test No: <u>2009</u> Scenario No.: <u>4</u> Event No: <u>5</u>		
Event Description: High Vibration on the 'A' Main Feedpump (Trip initiator)		
Time	Position	Applicant's Actions or Behavior
T=35	CO	Addresses the high vibration alarm on B06. <ol style="list-style-type: none"> 1. Checks FWPT 'A' vibration on recorder MTN-YR-301 on B07. 2. Checks FWPT 'A' vibration on the plant computer. 3. Contacts vibration group to take local readings. 4. Directs an operator to check the FWPT A for vibration 5. When the vibration is greater than 5 mils and the AO reports the Feedpump is vibrating, informs the CRS that the alarm response directs a trip of the FWPT. 6. Trips the A MFP using the red trip pushbutton (FTN-HS-51) on B06.
	CRS	When the CO reports that the alarm response directs a trip of the FWPT A, the CRS should direct a reactor trip and a trip of the FWPT A.
	RO	Trips the reactor when directed by the CRS using the four RTSG breaker pushbuttons on B05 (SBA-HS-1, SBB-HS-2, SBC-HS-3, and SBD-HS-4).

Op-Test No: 2009 Scenario No.: 4 Event No.: 6

Event Description: Standard Post Trip actions with 2 CEAs stuck out.

Time	Position	Applicant's Actions or Behavior
T= 45	Crew	The crew commences performance of the SPTAs.
	CO	<ol style="list-style-type: none"> 1. Reports that power is lowering, negative startup rate and more than one CEA stuck out. 2. Checks the Main Turbine is tripped and the generator output breakers are open. <p>Evaluator note: Since the RO is starting a boration, the CRS may use the CO to continue with the SPTAs until the RO gets the boration started, therefore the following 6 steps may be completed by the CO until the RO takes over.</p> <ol style="list-style-type: none"> 3. Reports the status of the electric plant (may be performed by the RO) – all vital and non-vital busses are energized. 4. Checks pressurizer level is 10-65% trending to 33-53%. 5. Checks that the RCS is 24°F or more subcooled. 6. Checks that Seal Injection and Nuclear Cooling water is available to all RCPs. 7. Checks RCS pressure 1837-2285 trending to 2225-2275 psia. 8. Determines Core Heat Removal is met by at least one RCP running, Loop ΔT less than 10°F, and RCS is 24°F or more subcooled. 9. Uses AFB to feed the Steam Generators since both Main Feedwater pumps are tripped. 10. Checks Tc is 560-570°F. 11. Checks Steam Generator Pressure is 1140-1200 psia. <p>Evaluator note: The following steps may be performed by the RO or CO.</p> <ol style="list-style-type: none"> 12. Checks Containment Pressure < 2.5 psig and checks RMS for alarm or trends. 13. Checks Containment temperature < 117°F and Containment pressure < 2.5 psig. <p>Evaluator Note: Due to the failure of RCN-PT-100X lowering the modulate signal, the SBCS will cycle valves when the permissive is automatically removed unless the CO takes manual control.</p>
	RO	<p>Commences boration of the RCS using Standard Appendix 103. (basic steps the RO will perform)</p> <ol style="list-style-type: none"> 4. Sets the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 5. Selects the “Target” makeup volume (gallons) on the boric acid makeup flow totalizer/counter CHN-FQIS-210Y (Micro-Motion) (minimum 5000 gallons). 6. Starts the boration as follows: <ol style="list-style-type: none"> a. Place CHN-HS-210 in the BORATE position. b. Depress the “Reset” pushbutton - the left pushbutton on the

Op-Test No: 2009 Scenario No.: 4 Event No: 6

Event Description: Standard Post Trip actions with 2 CEAs stuck out.

Time	Position	Applicant's Actions or Behavior
		<p>totalizer/counter module (Micro-Motion).</p> <p>c. Depress the "Start" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion).</p> <p>When boration is started, he will continue with the SPTAs as noted in the CO actions above.</p>
	CRS	<p>Implements procedure 40EP-9EO01, Standard Post Trip Actions.</p> <ol style="list-style-type: none"> 1. Open the placekeeper and enter the EOP Entry Time. 2. Determines that Reactivity Control acceptance criteria are not met because of the stuck out CEAs and directs the RO to borate using Standard Appendix 103. 3. Determine that Maintenance of Vital Auxiliaries acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that the Main Turbine is tripped. b. Check that the Main Generator output breakers are open. c. Check that station loads have transferred to offsite electrical power such that BOTH of the following conditions are met: <ul style="list-style-type: none"> • All vital and non-vital AC buses are powered • All vital and non-vital DC buses are powered 4. Determine that RCS Inventory Control acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that Pressurizer level meets BOTH of the following: <ul style="list-style-type: none"> • 10 - 65% • Trending as expected to 33 - 53% b. Check that the RCS is 24°F or more subcooled. c. Check that BOTH of the following are in service to all RCPs. <ul style="list-style-type: none"> • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by BOTH of the following: <ul style="list-style-type: none"> • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia 5.2 IF pressurizer pressure drops to the SIAS setpoint, THEN ensure that SIAS is actuated. 5.3 IF pressurizer pressure remains below the SIAS setpoint, THEN stop ONE RCP in each loop. 6. Determine that Core Heat Removal acceptance criteria are met by ALL of the following: <ul style="list-style-type: none"> • At least one RCP is operating • Loop ΔT is less than 10°F • RCS is 24°F or more subcooled 7. Determine that RCS Heat Removal acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that at least one Steam Generator meets BOTH of the

Op-Test No: 2009 Scenario No.: 4 Event No: 6

Event Description: Standard Post Trip actions with 2 CEAs stuck out.

Time	Position	Applicant's Actions or Behavior
		<p>following conditions:</p> <ul style="list-style-type: none"> • Level is 35% WR or more • Feedwater is restoring or maintaining level 45 - 60% NR. <p>b. Checks that Tc is between 560 and 570°F.</p> <p>c. Check that steam generator pressure is 1140 - 1200 psia.</p> <p>8. Determine that Containment Isolation acceptance criteria are met by the following:</p> <p>e. Check that Containment pressure is less than 2.5 psig.</p> <p>f. REFER TO Appendix 7, List of EOP Radiation Monitors and check BOTH of the following conditions:</p> <ul style="list-style-type: none"> • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity <p>9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following:</p> <p>a. Check that containment temperature is less than 117°F.</p> <p>b. Check that containment pressure is less than 2.5 psig.</p> <p>Diagnoses a Reactor Trip.</p>

Op-Test No: <u>2009</u> Scenario No.: <u>4</u> Event No: <u>7</u>		
Event Description: Trip of 'B' AFW pump		
Time	Position	Applicant's Actions or Behavior
If the CO uses AFN first, then go to event 8.		
T= 50 (~ 5 minutes into the SPTAs after CO reports feeding SGs)	RO	Receives a SESS alarm on AFW pump B and informs the CRS and CO.
	CRS	Directs the CO to use AFN-P01 to feed the SGs.
	CO	<ol style="list-style-type: none"> 1. Determines the AFW pump B has tripped on an 86 lockout. 2. Commences feeding the SGs with AFW pump N by performing the following: <ol style="list-style-type: none"> a. Opening both suction valves for AFN-P01 using handswitches CTA-HS-1 and CTA-HS-2) on B06. b. Taking manual control of the Downcomer Flow control valves (SGN-FIK-1113 and SGN-FIK-1123) and closing the flow valves or closing the Downcomer block valves (SGN-HS-1142 and SGN-HS-1144) c. After the suction valves are open, starting AFN-P01 using handswitch AFA-HS-11. d. Start feeding the SGs by using the Downcomer flow controllers (SGN-FIK-1113 and SGN-FIK-1123) in manual or by using the Downcomer bypass valves (SGN-HS-1143 and SGN-HS-1145). <p><i>Examiner Note: If the examinee attempts to use AFA-P01, it will not come up to speed (malfunction in the simulator setup).</i></p>

Op-Test No: <u>2009</u> Scenario No.: <u>4</u> Event No: <u>8</u>		
Event Description: AFN-P01 discharge degrades.		
Time	Position	Applicant's Actions or Behavior
T= after CRS enters	CO	<ol style="list-style-type: none"> 1. Notices that the feed to the SGs has degraded or stopped. 2. Informs the CRS of a loss of all feed.

Op-Test No: 2009 Scenario No.: 4 Event No: 8

Event Description: AFN-P01 discharge degrades.

Time	Position	Applicant's Actions or Behavior										
Reactor Trip EOP		<i>Evaluator Note: See next page for continuance of CO actions after CRS enters the Functional Recovery Procedure..</i>										
	CRS	<p>Determines a loss of safety function has occurred and transitions to the Functional Recovery Procedure.</p> <ol style="list-style-type: none"> 12. Ensures the event is being classified 13. Enters the EOP entry time. 14. Directs the RO to perform Standard Appendix 16, RCP Trip Criteria. 15. Ensures the SG sample valves are open and directs chemistry to perform the Abnormal Occurrence Checklist. 16. Directs the RO to place the Hydrogen analyzers in service. 17. Identifies the success paths to be used to satisfy each safety function. <table border="0" style="margin-left: 20px;"> <tr> <td>a. RC-2</td> <td>e. HR-1 Jeopardized</td> </tr> <tr> <td>b. MVDC-1</td> <td>f. CI-1</td> </tr> <tr> <td>c. MVAC-1</td> <td>g. CTPC-1</td> </tr> <tr> <td>d. IC-1</td> <td>h. CCGC-1</td> </tr> <tr> <td>e. PC-1</td> <td></td> </tr> </table> 18. Directs an operator to perform the Safety Function Status Check for those success paths in use. 19. Proceed to HR-1 since it is the only jeopardized Safety Function. 20. Directs the RO to stop all RCPs. 21. Directs the CO to close all Blowdown Containment Isolation valves and SG sample valves. 22. Directs the CO to perform Standard Appendix 44, FEEDING WITH THE CONDENSATE PUMPS. 	a. RC-2	e. HR-1 Jeopardized	b. MVDC-1	f. CI-1	c. MVAC-1	g. CTPC-1	d. IC-1	h. CCGC-1	e. PC-1	
a. RC-2	e. HR-1 Jeopardized											
b. MVDC-1	f. CI-1											
c. MVAC-1	g. CTPC-1											
d. IC-1	h. CCGC-1											
e. PC-1												
	CO	<p>When directed performs Standard Appendix 44, FEEDING WITH CONDENSATE PUMPS.</p> <ol style="list-style-type: none"> 1. Selects a SG to feed (will probably discuss this with the CRS). 2. Open both Downcomer Isolation valves for the selected SG. <table border="1" style="margin-left: 20px; width: 100%;"> <thead> <tr> <th style="text-align: center;">SG #1 selected</th> <th style="text-align: center;">SG #2 selected</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">SGA-UV-172</td> <td style="text-align: center;">SGA-UV-175</td> </tr> <tr> <td style="text-align: center;">SGB-UV-130</td> <td style="text-align: center;">SGB-UV-135</td> </tr> </tbody> </table> 3. Place the Downcomer Control valve in manual and close the Downcomer control valve. <table border="1" style="margin-left: 20px; width: 100%;"> <thead> <tr> <th style="text-align: center;">SG #1 selected</th> <th style="text-align: center;">SG #2 selected</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">SGN-FV-1113</td> <td style="text-align: center;">SGN-FV-1123</td> </tr> </tbody> </table> 4. If SG Downcomer Block valve will be used to feed the SG, open the 	SG #1 selected	SG #2 selected	SGA-UV-172	SGA-UV-175	SGB-UV-130	SGB-UV-135	SG #1 selected	SG #2 selected	SGN-FV-1113	SGN-FV-1123
SG #1 selected	SG #2 selected											
SGA-UV-172	SGA-UV-175											
SGB-UV-130	SGB-UV-135											
SG #1 selected	SG #2 selected											
SGN-FV-1113	SGN-FV-1123											

Op-Test No: 2009 Scenario No.: 4 Event No: 8

Event Description: AFN-P01 discharge degrades.

Time	Position	Applicant's Actions or Behavior																		
		<p>Downcomer block valve</p> <table border="1" data-bbox="548 415 1372 478"> <tr> <td>SG #1 selected</td> <td>SG #2 selected</td> </tr> <tr> <td>SGN-HV-1142</td> <td>SGN-HV-1144</td> </tr> </table> <p>5. Close the Downcomer Bypass valve.</p> <table border="1" data-bbox="548 520 1372 583"> <tr> <td>SG #1 selected</td> <td>SG #2 selected</td> </tr> <tr> <td>SGN-HV-1143</td> <td>SGN-HV-1145</td> </tr> </table> <p>6. Fast close ALL Economizer FWIVs (both SGs) using pushbuttons.</p> <table border="1" data-bbox="548 625 1372 688"> <tr> <td>SGA-UV-174</td> <td>SGA-UV-177</td> </tr> <tr> <td>SGB-UV-132</td> <td>SGB-UV-137</td> </tr> </table> <p>7. If using the Downcomer Bypass Valve to feed the SG, ensure Downcomer Block Valve is closed.</p> <table border="1" data-bbox="548 762 1372 825"> <tr> <td>SG #1 selected</td> <td>SG #2 selected</td> </tr> <tr> <td>SGN-HV-1142</td> <td>SGN-HV-1144</td> </tr> </table> <p>8. Ensure one set or more of the HP feedwater heater isolation valves are open. (HV-73 and HV-101 or HV-74 and HV-102)</p> <p>9. Ensure both of the FWPTs are tripped.</p> <p>10. Check both FWPT Miniflow valves are closed (FWN-FV-1 and FWN-FV-2)</p> <p>11. Ensure one or more of the FWPT Discharge valves are open (FWN-HV-31 and/or FWN-HV-32).</p> <p>12. Ensure one set or more of the LP Feedwater heater isolation valves are open (red lights lit on any of these handswitches - CDN-HS-214, CDN-HS-215, and/or CDN-HS-216).</p> <p>13. Ensures a condensate pump is running by observing red light on above any of the three handswitches (CDN-HS- 11, 12, or 13).</p> <p>14. IF RCS makeup is require then the CO will coordinates with the RO to start all available charging pumps, minimize letdown flow, Start one HPSI pump and open at least one HPSI Injection valve. The CO will probably discuss this step with the CRS.</p> <p>15. IF a MSIS or SIAS not initiated, lower the setpoints for the MSIS or SIAS as the cooldown and depressurization continues using the "LO SG PRESS SETPOINT RESET" and the "LO PXR PRESS SETPOINT RESET" pushbuttons on B05. This will probably be done by both the RO and CO.</p> <p>16. Perform Appendix 5, RCS and Pressurizer Cooldown Log.</p> <p>17. Fast close the MSIVs on the selected SG using the pushbuttons on B06.</p> <table border="1" data-bbox="524 1598 1425 1629"> <tr> <td>SG #1- SGA-HS-251 or SGB-HS-253 (only need to push one button)</td> </tr> </table> <table border="1" data-bbox="524 1633 1425 1665"> <tr> <td>SG #2- SGA-HS-250 or SGB-HS-252 (only need to push one button)</td> </tr> </table> <p>18. Lower the pressure in the affected SG to below the condensate pump discharge pressure using ADVs (SGA-HIC-184A, SGB-HIC-178A, SGB-HIC-185A, and/or SGA-HIC-179A) ion B06.</p> <p>Evaluator Note: Per the Technical Guidelines for Standard Appendix 44, the 100°F/hr cooldown rate may be exceeded during steam generator depressurization and subsequent refill with condensate. Re-establishing Feedwater o recover heat removal capabilities has priority over the</p>	SG #1 selected	SG #2 selected	SGN-HV-1142	SGN-HV-1144	SG #1 selected	SG #2 selected	SGN-HV-1143	SGN-HV-1145	SGA-UV-174	SGA-UV-177	SGB-UV-132	SGB-UV-137	SG #1 selected	SG #2 selected	SGN-HV-1142	SGN-HV-1144	SG #1- SGA-HS-251 or SGB-HS-253 (only need to push one button)	SG #2- SGA-HS-250 or SGB-HS-252 (only need to push one button)
SG #1 selected	SG #2 selected																			
SGN-HV-1142	SGN-HV-1144																			
SG #1 selected	SG #2 selected																			
SGN-HV-1143	SGN-HV-1145																			
SGA-UV-174	SGA-UV-177																			
SGB-UV-132	SGB-UV-137																			
SG #1 selected	SG #2 selected																			
SGN-HV-1142	SGN-HV-1144																			
SG #1- SGA-HS-251 or SGB-HS-253 (only need to push one button)																				
SG #2- SGA-HS-250 or SGB-HS-252 (only need to push one button)																				

Op-Test No: <u>2009</u> Scenario No.: <u>4</u> Event No: <u>8</u>												
Event Description: AFN-P01 discharge degrades.												
Time	Position	Applicant's Actions or Behavior										
		<p><i>consequences of over cooling.</i></p> <p>19. Maintain the non-selected SG pressure < 1200 psia.</p> <p>20. If the selected steam generator is dry then maintain feed flow rate of ≤ 1000 gpm.</p> <p>21. Initiates feed flow using the Downcomer Controllers or the Downcomer bypass valves.</p> <p>Critical Task: Take actions to align and initiate condensate to a steam generator.</p>										
	RO	<p>Performs Standard Appendix 16 for running RCPs.</p> <p>Stops all RCPs when directed by the CRS (using RCN-HS-1, 2, 3 and 4 on B04).</p> <p>Places the H₂ Analyzers in service when directed by the CRS (by using HP-HS-1, 2, 7, 8, 9A, and 10A on B02).</p> <p>May operate Aux Sprays using CHA-HS-205 or CHB-HS-203 on B03)</p> <p>When the CO is ready to reduce the SG pressure for feed using condensate the RO may start available charging pumps (using handswitch CHA-HS216, CHA-HS-218A, and/or CHB-HS-217) minimize letdown using the PLCS master controller (RCN-LIC-110) on B04, start a HPSI pump (using handswitch SIA-HS-1 or SIB-HS-1), and open at least one HPSI injection valve when directed.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Train A valves</th> <th style="text-align: center;">Train B vales</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">SIA-HS-617</td> <td style="text-align: center;">SIB-HS-616</td> </tr> <tr> <td style="text-align: center;">SIA-HS-627</td> <td style="text-align: center;">SIB-HS-626</td> </tr> <tr> <td style="text-align: center;">SIA-HS-637</td> <td style="text-align: center;">SIB-HS-636</td> </tr> <tr> <td style="text-align: center;">SIA-HS-647</td> <td style="text-align: center;">SIB-HS-646</td> </tr> </tbody> </table> <p>The RO may assist resetting MSIS and SIAS setpoints during depressurization of the Steam Generator using the “LO SG PRESS RESET” pushbuttons on B05.</p> <p>The RO may assist controlling SG pressures while the CO performs standard Appendix 44.</p>	Train A valves	Train B vales	SIA-HS-617	SIB-HS-616	SIA-HS-627	SIB-HS-626	SIA-HS-637	SIB-HS-636	SIA-HS-647	SIB-HS-646
Train A valves	Train B vales											
SIA-HS-617	SIB-HS-616											
SIA-HS-627	SIB-HS-626											
SIA-HS-637	SIB-HS-636											
SIA-HS-647	SIB-HS-646											
End Point		The scenario may be stopped when feedwater is established to one SG using condensate.										

Facility: PVNGS Scenario No.: 1 Op-Test No.: 2009

Examiners: _____ Operators: (SRO)
 _____ (ATC/RO)
 _____ (CO/BOP)

Initial Conditions: IC #100, (100% power, MOC). **This is the as run scenario for one "crew".**

Turnover: Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance (estimated return to service is 3 days). The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service. The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by. PC is NOT recircing the RWT. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Train B is protected equipment. Unit 2 is supplying the Aux Steam cross-tie header.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N CO/SRO	Shift Condensate Demineralizers.
2	imf cmCNCV04CHNFIC243_2	I RO/SRO	A seal injection controller will fail in automatic requiring the crew to take manual control of the controller.
3	imf cmCPCH03HCNA02A_6 imf cmCPCH03HCNA02C_6	C CO/SRO	The A and C CEDM fans will trip requiring the CRS to enter 40AO-9ZZ25, Loss of HVAC to start the B and D fans (which will fail to auto start).
4	imf mfRD02B	R RO/CO/SRO (TS)	CEA 15 drops completely into the core. Crew enters 40AO-9ZZ11. Crew begins a 20% downpower. SRO enters LCO 3.1.5 Condition A and LCO 3.2.4 Condition A.
5	imf mfTH06A	C CO/SRO (TS)	A Steam Generator Tube leak occurs requiring the crew to enter 40AO-9ZZ02, Excessive RCS leakrate.
6	imf mfRD02L mfRD12A mfRP04A mfRP04C	M – ALL	Another CEA slips into the core. This will cause a reactor trip signal but an ATWS will occur. This will require the crew to open the breakers supplying the CEDM MG sets. Critical Task – Crew will insert all CEAs.
7	mfRX01	I CO/SRO	After the trip Tave will fail low requiring the CO to manually feed the SGs.
8	mmf mfTH06A	M-ALL	The SGTL will degrade on the trip. The CRS will diagnose a SGTR at the completion of the SPTAs. The crew performs a cooldown and isolates the affected Steam Generator. Critical Task – Initiate actions to cooldown and isolate the affected steam generator
End point			The scenario is terminated when the crew commences affected steam generator has been isolated or at the discretion of the lead examiner

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service.

The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance.

Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service.

The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Facility: PVNGS Scenario No.: 1 Op-Test No.: 2009

Examiners: _____ Operators: (SRO)
 _____ (ATC/RO)
 _____ (CO/BOP)

Initial Conditions: IC #100, (100% power, MOC).

Turnover: Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD. The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance (estimated return to service is 3 days). The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service. The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by. PC is NOT recircing the RWT. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green. Train B is protected equipment. Unit 2 is supplying the Aux Steam cross-tie header.

Event No.	Malf. No.	Event Type*	Event Description
1	None	N CO/SRO	Shift Condensate Demineralizers.
2	imf cmCNCV04CHNFIC243_2	I RO/SRO	A seal injection controller will fail in automatic requiring the crew to take manual control of the controller.
3	imf cmCPCH03HCNA02A_6 imf cmCPCH03HCNA02C_6	C CO/SRO	The A and C CEDM fans will trip requiring the CRS to enter 40AO-9ZZ25, Loss of HVAC to start the B and D fans (which will fail to auto start).
4	imf mFRD02B	R RO/CO/SRO (TS)	CEA 15 drops completely into the core. Crew enters 40AO-9ZZ11. Crew begins a 20% downpower. SRO enters LCO 3.1.5 Condition A and LCO 3.2.4 Condition A.
5	imf mfTH06A	C CO/SRO (TS)	A Steam Generator Tube leak occurs requiring the crew to enter 40AO-9ZZ02, Excessive RCS leakrate.
6	imf mFRD02L mfRD12A mfRP04A mfRP04C	M – ALL	Another CEA slips into the core. This will cause a reactor trip signal but an ATWS will occur. This will require the crew to open the breakers supplying the CEDM MG sets. Critical Task – Crew will insert all CEAs.
7	mfRX01	I CO /SRO	After the trip Tave will fail low requiring the CO to manually feed the SGs.
8	mmf mfTH06A	M-ALL	The SGTL will degrade on the trip. The CRS will diagnose a SGTR at the completion of the SPTAs. The crew performs a cooldown and isolates the affected Steam Generator. Critical Task – Initiate actions to cooldown and isolate the affected steam generator
End point			The scenario is terminated when the crew commences affected steam generator has been isolated or at the discretion of the lead examiner

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

Supplemental Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service. The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Note:

The crew will walk down the control boards and assume the shift and then perform a reactivity brief prior to the commencement of the evaluation.

Turnover

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. The core is presently at 250 EFPD.

The Emergency Seal Oil Pump is tagged out for emergent maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

The alarm window on Board 6 is due to the Emergency Seal Oil Pump being tagged out for emergent maintenance. Estimated return to service is 3 days.

Planned shift activities:

Normal, shiftly surveillances are complete.

The crew needs to place the 'F' Condensate Demin in Service and remove the 'E' Condensate Demin from service. The 'F' Condensate Demineralizer was rinsed right before turnover. The Demin operator has been briefed and is standing by.

Op-Test No: 2009 Scenario No.: 1 Event No: 1

Event Description: Shift Condensate Demineralizers

Time	Position	Applicant's Actions or Behavior
T=0	CO	<p>Performs prerequisites:</p> <ul style="list-style-type: none"> • One NO and one RO to perform this Sections • Condensate and Feedwater alighted to feed the SGs. • Instrument air is available • Service air is available. • The service vessel to be placed has been rinsed within the past 12 hours. <p>Informs chemistry demin configuration will be changed.</p> <p>Directs the demin operator to ensure the following valve SCN-V960F is open for the 'F' Demin Vessel.</p> <p>Opens the 'F' Demin Vessel outlet valves (SCN-UV-216) using handswitch SCN-HS-216A on B07.</p> <p>Verifies the STANDBY light goes out, The IN-SERVICE light illuminates, the red light illuminates and the green light goes out.</p> <p>Requests demin operator to monitor vessel flow and DP.</p> <p>Closes 'E' Demin Vessel Outlet valve (SCN-UV-0215) using handswitch SCN-HS-215A on B07.</p> <p>Verifies the STANDBY light illuminates, the IN-SERVICE light goes out, the green lights illuminates, the red lights go out, and indication that flow has stopped through the service vessel.</p> <p>Requests demin operator to monitor vessel flow and DP.</p> <p>Directs demin operator to ensure SCN-V960E is closed.</p> <p>Directs demin operator to ensure SCN-V961E is open.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 2

Event Description: Seal Injection controller failure

Time	Position	Applicant's Actions or Behavior
T=7	RO	Evaluates alarm window 3A11A per 40AL-9RK3A. <ul style="list-style-type: none"> • Determines a Lo flow condition exist for RCP 2A only (~7.7 gpm). • Takes manual control of flow controller CHN-FIC-243 on B03 and adjusts flow to normal (~ 6.6 gpm).
	CRS	May enter 40AO-9ZZ04, RCP Emergencies. Directs RO to take manual control of valve controller and restore flow to the normal band per 40AL-9RK3A, Secondary Priority Action 1.

Op-Test No: 2009 Scenario No.: 1 Event No: 3

Event Description: CEDM fans trip / Failure of Stby fans to auto start

Time	Position	Applicant's Actions or Behavior
T=14	CO	<p>Responds to alarms on B07 (Window 7A9B), determines that CEDM fans are not running.</p> <p>Uses the Alarm Response Procedure or direction from the CRS to start the B and D CEDM fans using handswitch HCB-HS-50 on B07.</p> <p>Evaluator Note: These standby fans have a two minute time delay before they should start, however, due to the fault, they will not auto start.</p>
	RO	<p>Responds to alarms on SESS panel (Window 6D). Addresses the alarm response procedure.</p>
	CRS	<p><i>Evaluator Note: The crew may start the standby fans from the alarm response procedure on B07.</i></p> <p>May implement Loss of HVAC procedure, 40AO-9ZZ20.</p> <ul style="list-style-type: none"> • Directs the CO to start the standby CEDM fans. • May direct CO to verify normal containment parameters. <p>May performs brief to address the failure and contingencies.</p> <p>Evaluator Note: There are no Tech Specs to address for this event.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 4

Event Description: CEA 15 drops into the core

Time	Position	Applicant's Actions or Behavior
T=21	Crew	Responds to alarms on Board 3, determines that CEA 15 has dropped into the core.
	CRS	<p>Implement CEA Malfunction Abnormal Operating Procedure, 40AO-9ZZ11.</p> <ol style="list-style-type: none"> 1. Checks that at least one CEA is deviating from its group by greater than 6.6 inches. 2. Verifies no CEA Reg Group is below the Transient Insertion Limit 3. Verifies Reactor power is not < 1%. 4. Ensures two or more CEAs are not deviating > 9.9 inches from their associated group. 5. Direct CEDMCS to Standby 6. Directs performance of Appendix E, Initial Actions. 7. Records CEA deviation time and Initial Power level. 8. Performs the following to start a power reduction within 10 minutes. <ol style="list-style-type: none"> a. Logs the start time for power reduction b. Directs the CO to lower turbine load to raise Tave 3°F greater than Tref. 9. Determines that a 20% downpower is required. 10. Calculates the number of gallons of baric acid needed by using the STA reactivity worksheet. (~ 1000 gallons). 11. Directs the CO to lower turbine load to maintain Tave 3°F greater than Tref. 12. Directs the RO to commence borating at a minimum rate of 25 gpm. 13. Determines the time required to perform the downpower using Appendix B. 14. When the requirements of Appendix B allow temperature to be lowered, the CRS directs the CO to maintain Tave/Tref mismatch ± 3°F. 15. Determines the ability to stabilize power at the target plateau using the Maneuvering Box Tools (This may have been discussed at the beginning of shift reactivity brief). <p>Enters LCO 3.1.5 Condition A. and LCO 3.2.4 Condition A.</p> <p><i>Examiner Note – Step 22 of 40AO-9ZZ11 addresses TS. CRS may not get to address LCO.s 3.1.5 and 3.2.4 within the timing of the event. This can be followed up after the scenario.</i></p>

Op-Test No: 2009 Scenario No.: 1 Event No: 4

Event Description: CEA 15 drops into the core

Time	Position	Applicant's Actions or Behavior
	RO	<p>Places CEDMCS in Standby using the Mode Select switch on the CEDMCS panel (may be performed by CO)</p> <p>Performs Appendix E actions (may be performed by CO):</p> <ol style="list-style-type: none"> 1. Places Pressurizer in boron equalization <ol style="list-style-type: none"> a. Override and energize all pressurizer backup heaters: RCA-HS-100-4 RCB-HS-100-5 RCN-HS-100-6 RCN-HS-100-7 RCN-HS-100-8 RCN-HS-100-9 b. Lower the setpoint on RCNPIC-100, Pressurizer Pressure Controller to 2220 psia. <p>Borates to the RCS as direct by the CRS. (basic steps the RO will perform)</p> <ol style="list-style-type: none"> 1. Sets the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 2. Selects the "Target" makeup volume (gallons) on the boric acid makeup flow totalizer/counter CHN-FQIS-210Y (Micro-Motion) as determined in step 7.3.1 or 7.3.2. 3. Starts the boration as follows: <ol style="list-style-type: none"> a. Place CHN-HS-210 in the BORATE position. b. Depress the "Reset" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). c. Depress the "Start" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). d. Adjusts flow to the required flowrate (if > 40 gpm needed). <p>May perform Appendix B as directed by the CRS.</p>
	CO	<p>Lowers Turbine load using the Turbine Load Limit potentiometer on B06 to raise Tave greater than Tref by 3 °F to maintain power within the limits of Appendix B.</p> <p>May perform Appendix B as directed by the CRS.</p>
<i>After ~5% load reduction, have the driver insert the next malfunction.</i>		

Op-Test No: 2009 Scenario No.: 1 Event No.: 5

Event Description: Steam Generator Tube Leak

Time	Position	Applicant's Actions or Behavior
T=41	Crew	Receives alarms on RMS panel. Reports to the CRS that RU-142 is in alarm with SG #1 having the highest readings.
	CRS	<p>Enters Excessive RCS Leakrate, 40AO-9ZZ02, Section 5.</p> <p><i>Examiner Note: The leakrate is small (~ 5gpm), but due to the down power, the crew may start the third charging pump and isolate letdown. It is not expected that the crew will trip the reactor.</i></p> <p>IF pressurizer level is lowering, THEN ensure all available Charging Pumps are running.</p> <p>IF all available Charging Pumps are running, AND pressurizer level is lowering, THEN isolate letdown.</p> <p>IF ALL of the following conditions exist:</p> <ul style="list-style-type: none"> • All available Charging Pumps are operating • Letdown is isolated • Pressurizer level is lowering THEN perform the following: <ul style="list-style-type: none"> a. Ensure that the Reactor is tripped. b. GO TO ONE of the following: <ul style="list-style-type: none"> • 40EP-9EO01, Standard Post Trip Actions • 40EP-9EO11, Lower Mode Functional Recovery
		<p>tripped Reactor here on Misdiagnosed tube rupture</p> <p>↓ ↓</p> <p>Not run items</p> <p>↓</p> <p>Ensure the event is being classified.</p> <p>IF the unit is in Mode 1 - 4, THEN ensure compliance with LCO 3.4.14, RCS Operational Leakage. The CRS should LCO 3.4.14 Condition 'b'.</p> <p>Direct Chemistry to perform 74DP-9ZZ05, Abnormal Occurrence Checklist.</p> <p>Notify Radiation Protection that an RCS leak exists.</p> <p><i>Examiner Note: Due to the downpower being performed due to the slipped CEA, the crew will not be able to determine a leakrate, however, RU-142 gives the crew a leakrate based on RU readings.</i></p> <p>Determine the leakrate using ANY of the following:</p> <ul style="list-style-type: none"> • Appendix A, 15 Minute Leak Rate Calculation • Appendix B, ERFDADS Leak Rate Determination • 40ST-9RC02, ERFDADS (Preferred) Calculation of RCS Water Inventory • 40ST-9RC05, Manual Calculation of RCS Water Inventory • 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory <p>REFER TO Appendix F, Steam Generator Tube Leak Guidelines.</p> <p>IF the plant will be shutdown, THEN PERFORM 40OP-9ZZ05, Power</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 5

Event Description: Steam Generator Tube Leak

Time	Position	Applicant's Actions or Behavior
<p style="text-align: center;">Not run</p> 		<p>Operations.</p> <p>Perform Appendix C, Minimize Release to the Environment.</p> <p>Perform 40DP-9ZZ14, Contaminated Water Management (would assign to another SRO in the unit or unaffected unit).</p> <p>Direct an operator to perform Appendix D, Aligning Turbine Building Sumps to LRS.</p> <p>Direct Chemistry to sample the condensate and other connecting systems, including turbine building sumps for activity.</p> <p>IF the unit is in Mode 1 - 4, THEN ensure compliance with LCO 3.7.16, Secondary Specific Activity.</p>
	RO	<p><i>Examiner Note: Due to the downpower being performed due to the slipped CEA, the crew will not be able to determine a leakrate, however, RU-141 and RU-142 gives the crew a leakrate based on RU readings.</i></p> <p>Since a shutdown is required due to the SGTL and a downpower is in progress, the CRS may have the RO reset the totalizer on the makeup to continue the downpower. However, this may not occur until later in the event, therefore it may not be observed (or the CRS may wait until after the 20% downpower is completed to reset for the downpower).</p> <ul style="list-style-type: none"> • Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. • Select the "Target" makeup volume (gallons) on the boric acid makeup flow totalizer/counter CHN-FQIS-210Y (Micro-Motion) as determined in step 7.3.1 or 7.3.2. • Continue the boration as follows: <ol style="list-style-type: none"> 1. Place CHN-HS-210 in the BORATE position. 2. Depress the "Reset" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). 3. Depress the "Start" pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion). • May be asked to secure boration.

Op-Test No: 2009 Scenario No.: 1 Event No: 5

Event Description: Steam Generator Tube Leak

Time	Position	Applicant's Actions or Behavior
	CO	<p>Addresses RMS alarms and determines which monitors are in Alarm (RU-139, RU-142, RU-141, & RU-7). Reports highest reading in SG #1. Provides leakrate from RMS to the CRS as requested.</p> <p>Secures SG blowdown as directed in the RMS alarm response procedure.</p> <p>Performs Appendix C, Minimize Release to the Environment.</p> <ol style="list-style-type: none"> 1. Ensure ARN-HS-19, Post Filter Mode Select Switch, is in the "THRU FILTER MODE" by observing red indication on ARN-HS-19 on B07. 2. Select "OFF" on BOTH of the following switches: <ul style="list-style-type: none"> • SGN-HS-1007, Valve 7 Mode Select • SGN-HS-1008, Valve 8 Mode Select 3. Throttle opens CDN-HV-275, Demineralizer Water Feed to Condensate Service Header Valve using handswitch CDN-HS-275 on B04, to maintain 50-100 psig on CDN-PI-201. 4. Ensure that BOTH of the following Condensate Pump Overboard Valves are closed: <ul style="list-style-type: none"> • CDN-HV-29 (Handswitch CDN-HS-29 on B05) • CDN-HV-30 (Handswitch CDN-HS-30 on B05) <p>Reduces turbine load as necessary to maintain primary temperature as directed by the CRS.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 6Event Description: *Rx trip on Misdiagnosed tube rupture*
Trip initiator (~~2nd CEA drops into the core~~) ATWS

Time	Position	Applicant's Actions or Behavior
T=57	Crew	<p>Recognizes another CEA has dropped into the core by alarms (on B04 and B05) and the CEAPDS monitor.</p> <p>Recognizes that a Reactor Trip should have occurred by all 4 channels of bistable trip indication on PPS parameter indications on B05 and/or first out annunciator indication on B04.</p>
	CRS	<p><i>Examiner Note: The SGTL will increase in size (200-300 gpm) which will cause the RCS pressure and level to begin trending down. Depending on when the reports are made, the RO may report pressure and level decreasing. This may cause the CRS to direct a manual initiation of SIAS/CIAS.</i></p> <p>Implements procedure 40EP-9EO01, Standard Post Trip Actions.</p> <ol style="list-style-type: none"> 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that reactor power is dropping. b. Check that start-up rate is negative. c. Check that ALL full strength CEAs are inserted. <p><i>Evaluator Note: The crew will have to open the B2 breakers for L03 and L10 on B01 to trip the reactor (using handswitches NGN-HS-L03B2 and NGN-HS-L10B2 on B01). The CRS may direct this prior to getting the SPTA procedure.</i></p> <p>Critical Task – Crew will insert all CEAs.</p> <ol style="list-style-type: none"> 3. Determine that Maintenance of Vital Auxiliaries acceptance criteria are met by the following: <ol style="list-style-type: none"> a. Check that the Main Turbine is tripped. b. Check that the Main Generator output breakers are open. c. Check that station loads have transferred to offsite electrical power such that BOTH of the following conditions are met: <ul style="list-style-type: none"> • All vital and non-vital AC buses are powered • All vital and non-vital DC buses are powered 4. Determine that RCS Inventory Control acceptance criteria are met by the

Op-Test No: 2009 Scenario No.: 1 Event No: 6Event Description: Trip initiator (2nd CEA drops into the core) ATWS

Time	Position	Applicant's Actions or Behavior
		<p>following:</p> <ul style="list-style-type: none"> a. Check that Pressurizer level meets BOTH of the following: <ul style="list-style-type: none"> • 10 - 65% • Trending as expected to 33 - 53% b. Check that the RCS is 24°F or more subcooled. c. Check that BOTH of the following are in service to all RCPs. <ul style="list-style-type: none"> • Seal injection • Nuclear Cooling Water <p>5. Determine that RCS Pressure Control acceptance criteria are met by BOTH of the following:</p> <ul style="list-style-type: none"> • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia <p>5.2 IF pressurizer pressure drops to the SIAS setpoint, THEN ensure that SIAS is actuated.</p> <p>5.3 IF pressurizer pressure remains below the SIAS setpoint, THEN stop ONE RCP in each loop.</p> <p>6. Determine that Core Heat Removal acceptance criteria are met by ALL of the following:</p> <ul style="list-style-type: none"> • At least one RCP is operating • Loop ΔT is less than 10°F • RCS is 24°F or more subcooled <p>(Continued in next event)</p>
	RO	<p><i>Examiner Note: The SGTL will increase in size which will cause the RCS pressure and level to begin trending down. Depending on when the reports are made, the RO may report pressure and level decreasing.</i></p> <p>May report Reactivity. Attempts to trip the reactor using B05 pushbuttons.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 6Event Description: Trip initiator (2nd CEA drops into the core) ATWS

Time	Position	Applicant's Actions or Behavior
		<p>May open NGN-L03B2 and NGN-L10B2 using handswitches on B01 to de-energize the CEDM MG sets (This may be done by CO).</p> <p>Report the status of the Electric Plant (all buses are energized).</p> <p>Reports Pressurizer level and RCS subcooling.</p> <p>Reports status of Seal injection and Nuclear Cooling to the RCPs.</p> <p>Reports RCS pressure. Will stop one RCP in each loop when RCS pressure remains below the SIAS setpoint.</p> <p>Reports RCPs operating, loop ΔT, and RCS subcooling.</p> <p>May report RCS Tc (usually done by the CO).</p> <p>May report containment pressure and status of Radiation Monitoring.</p> <p>May report containment temperature and containment pressure.</p>
	CO	<p>May report Reactivity when CEAs insert.</p> <p>Reports status of the Main Turbine and Generator output breakers.</p> <p>(Continued in next event)</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 7

Event Description: Tave fails low

Time	Position	Applicant's Actions or Behavior
T=57	CO	<p>Reports SG levels and method of feed. The CO will have to take manual control of the Downcomer control valves (using the Downcomer Valve controllers SGN-FIK-113 and SGN-FIK-1123 or on the DFWCS screen) and feed the Steam Generators.</p> <p><i>Evaluator Note: CO does not need to diagnose the Tave failure</i></p> <p>May report RCS Tc.</p> <p>Reports SG pressure. SG pressures should be controlled by the SBCS in automatic.</p> <p>May report containment pressure and status of Radiation Monitoring.</p> <p>May report containment temperature and containment pressure.</p>
	CRS	<p>(Continuing in the SPTAs)</p> <p>7. Determine that RCS Heat Removal acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> a. Check that at least one Steam Generator meets BOTH of the following conditions: <ul style="list-style-type: none"> • Level is 35% WR or more • Feedwater is restoring or maintaining level 45 - 60% NR <p><i>Evaluator Note: Due to Tave failing low on the trip, the CO will have to take manual control of feedwater to feed the SGs.</i></p> <ol style="list-style-type: none"> b. Check that Tc is 560 - 570°F. c. Check that steam generator pressure is 1140 - 1200 psia. <p>8. Determine that Containment Isolation acceptance criteria are met by the following:</p> <ol style="list-style-type: none"> a. Check that Containment pressure is less than 2.5 psig. b. REFER TO Appendix 7, List of EOP Radiation Monitors and check BOTH of the following conditions: <ul style="list-style-type: none"> • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity

Op-Test No: 2009 Scenario No.: 1 Event No: 7

Event Description: Tave fails low

Time	Position	Applicant's Actions or Behavior
		<p>9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following:</p> <ul style="list-style-type: none">a. Check that containment temperature is less than 117°F.b. Check that containment pressure is less than 2.5 psig. <p>Diagnoses SGTR, enters 40EP-9EO04, Steam Generator Tube Rupture.</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 8

Event Description: SGTR

Time	Position	Applicant's Actions or Behavior
T=67	CRS	<p>The CRS performs the following per 40EP-9EO04, Steam Generator Tube Rupture;</p> <ul style="list-style-type: none"> • Confirms the diagnosis of a SGTR by directing the performance of the SFSC, directing an operator to open the SG sample valves, and directing Chemistry to perform the abnormal occurrence checklist. • Ensures the event is being classified. This is normally the task of the Shift Manager. • Opens the placekeeper and enter the EOP entry time. • If pressure drops below SIAS setpoint, directs an operator to check that SIAS is actuated. • If SIAS has actuated, directs an operator to check HPSI and LPSI pumps started, and adequate SI flow per Appendix 2. • If pressure remains below the SIAS setpoint, directs an operator to ensure one RCP is stopped in each loop. • Directs an operator to monitor any operating RCP per Appendix 16. <p><i>Evaluator Note: The following two steps should have been done in the AOP for Excessive RCS leakage</i></p> <ul style="list-style-type: none"> • Directs the CO to place the post filter blower in the "THRU FILTER MODE." • Directs the CO to place SBCS valves 1007 and 1008 in "OFF." <p>Directs the CO to commence a cooldown to T_h of less than 540 °F using the SBCS and to perform the RCS cooldown log.</p> <p><i>Evaluator Note: The CRS may hold a tailboard to discuss the operators responsibilities during the cooldown (cooldown, depressurize and reset MSIS setpoints)</i></p> <ul style="list-style-type: none"> • If steaming to atmosphere, informs Radiation Protection. • Directs the RO to depressurize the RCS to <1135 psia, approximately equal to ruptured SG pressure, and within the P/T limits. • Directs the RO to throttle HPSI when Safety Injection Throttle criteria are met. • Directs the crew to reset the MSIS setpoints. • Determines the most affected SG by verifying parameters. • Directs Isolation of the Ruptured SG. <p>Critical Task – Initiate actions to cooldown and isolate the affected steam generator</p>

Op-Test No: 2009 Scenario No.: 1 Event No: 8

Event Description: SGTR

Time	Position	Applicant's Actions or Behavior										
	RO	<p>When pressure is < SIAS setpoint, ensures SIAS actuated and HPSI, LPSI pumps running. Verifies SIAS actuated and equipment is actuated by visually verifying equipment or checking SESS panel.</p> <p>Trips one RCP in each loop when pressure remains below the SIAS setpoint using the handswitches on B04. (Trips 1A and 2A or trips 1B and 2B RCPs).</p> <ul style="list-style-type: none"> • RCP1A – handswitch RCN-HS-1 • RCP1B – handswitch RCN-HS-2 • RCP2A – handswitch RCN-HS-3 • RCP2B – handswitch RCN-HS-4 <p>Monitors running RCP parameters per Appendix 16.</p> <p>Depressurizes the RCS when directed using main sprays on B04 and/or aux sprays on B03.</p> <ul style="list-style-type: none"> • Main sprays – controller RCN-PIC-100 or RCN-PIK-100 in manual • Aux Sprays – CHA-HS-205 and/or CHB-HS-203 <p>Throttles HPSI when Safety Injection throttle criteria are met using the following handswitches on B03. Throttles HPSI one valve at a time.</p> <table border="1" data-bbox="577 1208 1353 1438"> <thead> <tr> <th data-bbox="577 1208 964 1255">Train A</th> <th data-bbox="964 1208 1353 1255">Train B</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 1255 964 1302">SIA-HS-617</td> <td data-bbox="964 1255 1353 1302">SIB-HS-616</td> </tr> <tr> <td data-bbox="577 1302 964 1349">SIA-HS-627</td> <td data-bbox="964 1302 1353 1349">SIB-HS-626</td> </tr> <tr> <td data-bbox="577 1349 964 1396">SIA-HS-637</td> <td data-bbox="964 1349 1353 1396">SIB-HS-636</td> </tr> <tr> <td data-bbox="577 1396 964 1438">SIA-HS-647</td> <td data-bbox="964 1396 1353 1438">SIB-HS-646</td> </tr> </tbody> </table> <p>Resets MSIS setpoints as the cooldown occurs as directed using the “LO SG PRESS RESET” pushbuttons on B05.</p>	Train A	Train B	SIA-HS-617	SIB-HS-616	SIA-HS-627	SIB-HS-626	SIA-HS-637	SIB-HS-636	SIA-HS-647	SIB-HS-646
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Op-Test No: 2009 Scenario No.: 1 Event No: 8

Event Description: SGTR

Time	Position	Applicant's Actions or Behavior																								
	CO	<p>May manually initiate SIAS/CIAS if directed by CRS.</p> <p><i>Evaluator Note: The next two steps may have been performed during the Abnormal Operating Procedure for the SGT.</i></p> <p>Ensures post filter blower is in "THRU FILTER MODE" when directed using handswitch ARN-HS-19.</p> <p>Places SBCS valves 1007 and 1008 are in "OFF" when directed using SGN-HS-1007 and SGN-HS-1008.</p> <p>Performs a cooldown using SBCS (probably using SGN-PIK-1001, but any other SBCS valve is acceptable) to get T_h less than 540 °F when directed</p> <p>Resets MSIS setpoints using the "LO SG PRESS SETPOINT RESET" pushbuttons on B05 as the cooldown occurs as directed.</p> <p>Isolates the affected SG when directed by ensuring the following are closed:</p> <table border="1" data-bbox="493 868 1356 1563"> <thead> <tr> <th data-bbox="509 868 917 950">Component</th> <th data-bbox="917 868 1356 950">Handswitch – all on B06 unless noted otherwise.</th> </tr> </thead> <tbody> <tr> <td data-bbox="509 950 917 1001">ADV 184</td> <td data-bbox="917 950 1356 1001">SGA-HIC-184A</td> </tr> <tr> <td data-bbox="509 1001 917 1052">ADV 178</td> <td data-bbox="917 1001 1356 1052">SGB-HIC-178A</td> </tr> <tr> <td data-bbox="509 1052 917 1134">MSIVs</td> <td data-bbox="917 1052 1356 1134">SGA-HS-251 or SGB-HS-253 (only need to push one button)</td> </tr> <tr> <td data-bbox="509 1134 917 1175">MSIV bypass</td> <td data-bbox="917 1134 1356 1175">Lights above SGA-HS-169A</td> </tr> <tr> <td data-bbox="509 1175 917 1257">FWIVs</td> <td data-bbox="917 1175 1356 1257">SGA-HS-174C and SGB-HS-132C (need to push both buttons)</td> </tr> <tr> <td data-bbox="509 1257 917 1297">Downcomer valves</td> <td data-bbox="917 1257 1356 1297">SGA-HS-172 and SGB-HS-130</td> </tr> <tr> <td data-bbox="509 1297 917 1359">Blowdown Containment Isolations</td> <td data-bbox="917 1297 1356 1359">SGA-HS-500P and SGB-HS-500Q (on B07)</td> </tr> <tr> <td data-bbox="509 1359 917 1410">Steam Trap Isolations</td> <td data-bbox="917 1359 1356 1410">SGA-HS-1133 and SGB-HS-1135</td> </tr> <tr> <td data-bbox="509 1410 917 1461">SG Safety Valves</td> <td data-bbox="917 1410 1356 1461">LEDs above ADV controllers</td> </tr> <tr> <td data-bbox="509 1461 917 1512">AF 'A' Steam Supply</td> <td data-bbox="917 1461 1356 1512">SGA-HS-134A</td> </tr> <tr> <td data-bbox="509 1512 917 1563">AF 'A' Feedwater Isolations</td> <td data-bbox="917 1512 1356 1563">AFB-HS-34A and AFC-HS-36A</td> </tr> </tbody> </table>	Component	Handswitch – all on B06 unless noted otherwise.	ADV 184	SGA-HIC-184A	ADV 178	SGB-HIC-178A	MSIVs	SGA-HS-251 or SGB-HS-253 (only need to push one button)	MSIV bypass	Lights above SGA-HS-169A	FWIVs	SGA-HS-174C and SGB-HS-132C (need to push both buttons)	Downcomer valves	SGA-HS-172 and SGB-HS-130	Blowdown Containment Isolations	SGA-HS-500P and SGB-HS-500Q (on B07)	Steam Trap Isolations	SGA-HS-1133 and SGB-HS-1135	SG Safety Valves	LEDs above ADV controllers	AF 'A' Steam Supply	SGA-HS-134A	AF 'A' Feedwater Isolations	AFB-HS-34A and AFC-HS-36A
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		Scenario Normal end point is when the SG is isolated.																								