JP 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1100020401, Operate CEDMCS

TASK STANDARD: Transfer CEA's to the hold bus

K/A: 3.1.001.A2.14 K/A RATING: RO: 3.7 SRO: 3.9

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

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

REFERENCES: 40AL-9SF01 Local Alarm Panel J-SFN-C01D Responses

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [ ] PLANT [X]

JPM TYPE

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

APPROVAL

Developed By: Willie Drey Date: 7/13/2000

Revised By: Jordan Johnston Date: 4/25/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

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PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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:

- Copy of 40AL-9SF01.

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:

- **You are the Area 3 operator.**
- **The Unit is at 100% power.**
- **The control room has received a CEDMCS Trouble alarm. Continuous Gripper High Voltage is indicated.**
- **The CRS directs you to carry out the actions of the local Alarm Response Procedure and place the affected subgroup on the hold bus.**
- **This is a time critical JPM.**

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PVNGS JOB PERFORMANCE MEASURE
2008 NRC Exam

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 <u>any</u> valves.

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PVNGS JOB PERFORMANCE MEASURE

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JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Proceed to CEDMCS room and obtain alarm response procedure.		Examinee goes to CEDMCS room and obtains copy of 40AL-9SF01. TIME START: _____ **NOTE:** Start time is when examinee has entered the RCA.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Evaluate supervisory panels for alarms and indications.	**(When Examinee looks at SFN-C01C for subgroup 16)** **INFORM CUER: Red LED's 17 and 19 for continuous gripper high voltage on subgroup 16 are lit. No other LED's are lit.**	Examinee evaluates local panel for indications and alarms.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	**Examiner Note: There ARE subgroups affected, making Step 1 N/A.** Step 2: Notify the Reactor Operator of the alarm.	**INFORM CUE: Reactor Operator acknowledges communication and instructs you to continue with alarm response and place the affected subgroup on the hold bus.**	Examinee contacts control room and notifies them of alarm.
SAT / UNSAT **Comments (required for UNSAT):**			

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PVNGS JOB PERFORMANCE MEASURE

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	STEP	CUE	STANDARD
4.	Step 3: Determine number of CEDM subgroups affected by checking for lit CGHV LED's on the bays of each cabinet where CEA subgroup power assemblies exist.	**If requested CUE: CRS instructs you to place subgroup 16 on the hold bus IAW the alarm response procedure.**	Examinee determines subgroup 16 is the only subgroup affected and proceeds to step 9
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Step 9a: Notify the Reactor Operator to place CEDMCS in standby. **Examiner Note: Steps 4 and 5 are N/A, Step 6 sends to Step 9.**	**If requested CUE: RO acknowledges communication and reports CEDMCS is in standby.**	Examinee instructs RO to place CEDMCS in standby.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Step 9b: Check that no other subgroups are on the Hold Bus. **Examiner Note: The panel will have to be opened to perform this evolution. Area 3 would normally carry this key.**	**If requested CUE: Key is in Examinee's possession as Area 3.** **When Requested CUE: Hold bus control panel is open.** **INFORM CUE: All subgroups lights are extinguished on the Hold Bus panel**	Examinee determines that no other subgroups are on the hold bus. Examinee unlocks and opens hold bus control panel.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7.	Step 9d: Check for Hold Bus voltage of greater than 50 volts. **Examiner Note: Step 9c is N/A.**	**If requested CUE: Hold Bus voltage 70 VDC.**	Examinee simulates verifying Hold Bus voltage greater than 50 volts.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8. *	Step 9e: Select subgroup 16 by adjusting the SG/SEL thumbwheel to 16.	**Inform CUE: SG/SEL thumbwheel indicates 16.**	Examinee selects subgroup 16 on the SG/SEL thumbwheel.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 9f: Operate transfer switch to latch the subgroup selected.	**If Requested CUE: Transfer switch is in the transfer position. Transfer light and subgroup 16 lights are illuminated.**	Examinee simulates placing transfer switch in transfer position and notes red "Transfer" light illuminates as well as the affected subgroup light.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
10. *	Sep 9g: One at a time, open the four individual CEA breakers on the appropriate Subgroup Power Switch Assembly for the Subgroup that was placed on the Hold Bus. Check with the RO to verify the correct breaker is opened by ensuring no CEA's drop.	**When Requested CUE: No CEA's have dropped.**	Examinee simulates opening the following breakers and verifies with the Control Room that no CEA's drop. • XESFNCEA55 • XESFNCEA58 • XESFNCEA61 • XESFNCEA64 End Time _____ **Examiner Note: End time is when final breaker is open.** **CEA's must be transferred to hold bus within 10 minutes.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
11.	Step 9h: Notify the Reactor Operator that subgroup 16 is on the Hold Bus.	**INFORM CUE: Another AO will investigate the problem with I&C assistance.**	Examinee notifies RO that subgroup 16 is on the Hold Bus.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ☐

NORMAL TERMINATION POINT

JP 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	4/24/2008	3	Procedure and format change.

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)

JP 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **You are the Area 3 operator.**
- **The Unit is at 100% power.**
- **The control room has received a CEDMCS Trouble alarm. Continuous Gripper High Voltage is indicated.**
- **The CRS directs you to carry out the actions of the local Alarm Response Procedure and place the affected subgroup on the hold bus.**
- **This is a time critical JPM.**

CANDIDATE

JP2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1240023901 Perform local operation of AFN-P01

TASK STANDARD: Perform Alternate Method of SG Level Control by Local Manual Start-up of the Non-Essential Aux Feed Pump AFN-P01

K/A: 3.4-061-A2.03 K/A RATING: RO: 3.1 SRO: 3.4

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

APPLICABLE POSITION(S): AO/RO/SRO VALIDATION TIME: 10 minutes

REFERENCES: 40EP-9EO10, Standard Appendices, Appendix 41

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [ ] PLANT [X]

JPM TYPE

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

APPROVAL

Developed By: Mike Selland Date: 9/12/2006

Revised By: Jordan Johnston Date: 4/24/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

JP2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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:

- Copy of Standard Appendix 41, Attachment 41-A
- Pictures of 4.16 kV breaker cubicle as required

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:

- **A Loss of All Feedwater event has occurred.**
- **There has also been a loss of 125V DC control power to breaker PBA-S03S.**
- **The CRS directs you to perform a Local Manual start of the non-class Aux Feed Pump, AFN-P01 per 40EP-9EO10, Standard Appendix 41 - Attachment 41-A.**

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.

JP2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 1: Check that the closing springs indicator for breaker PBA-S03S "Aux Feedwater Pump M-AFN-P01" indicates "CHGD"	**Once the examinee locates PBA-S03S, provide examinee with breaker pictures.** **When the examinee shows the charging spring indicator provide the following cue:** **Closing springs do <u>not</u> indicate charged.**	**NOTE:** Examinee simulates opening cubicle. Examinee will explain operation of components inside cubicle. Examinee simulates observing closing spring indicator. **NOTE:** Charging spring indicator located in middle left side of cubicle.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Contingency Action Step 1.1a: Obtain All the following equipment from FPN-C02 "Emergency Equipment Cabinet" • Ratchet • Extension • 5/8" Socket	**You have obtained the indicated equipment.**	Examinee simulates obtaining from FPN-C02 "Emergency Equipment Cabinet" **NOTE:** 5/8" socket and ratchet wrench located in Emergency Equipment Locker FPN-C02 on the 100' level of the Control Bldg. in the 'B' switchgear room.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Contingency Action Step 1.1b: Open RRA the 125VDC Control Power Breaker.	Using pictures already provided when examinee indicates where control power breaker is located give the following cue: **The Control Power Breaker is open.**	Examinee simulates opening Control Power Breaker. **NOTE**: Control Power Breaker is located inside breaker cubicle, top right-hand side.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Contingency Action Step 1.1c: Manually charge the closing springs by ratcheting the hexed charging stud counter-clockwise to obtain a "CHGD" indication on the closing spring indicator.	Using pictures already provided when examinee indicates where control power breaker is located give the following cue: **Closing springs indicate charged.**	Examinee simulates manually charging closing spring by pointing out closing springs driving stud and indicating that he would rotate stud in the counter-clockwise direction.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Contingency Action Step 1.1d: Close RRA the 125 V DC Control Power Breaker.	Using pictures already provided when examinee indicates where control power breaker is located give the following cue: **Control Power Breaker for PBA-S03S is closed.**	Examinee simulates closing Control Power Breaker for PBA-S03S. (RRA)
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6. *	Step 2: Press the "Manual Close" plunger for the breaker, PBA-S03S.	Using pictures already provided when examinee indicates where control power breaker is located give the following cue: **The Manual Close plunger for breaker PBA-S03S has been pressed in.**	Examinee simulates pressing the manual close push-button to close PBA-S03S.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7.	Step 3: Check that the mechanical breaker indication for the breaker PBA-S03S indicates closed.	Using pictures already provided when examinee indicates where control power breaker is located give the following cue: **PBA-S03S mechanical breaker indication indicates closed.**	Examinee simulates verifying PBA-S03S closed by observing closed flag on breaker (or breaker position indicator).
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8.	Step 4: Inform the responsible operator that the attachment 41-A is complete.	**Control Room is informed of Attachment 41-A completion.**	Examinee simulates informing the responsible operator that attachment 41-A is complete.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JP2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	09/12/06	3	Updated JPM to 40EP-9EO10 Rev. 41.
002	08/09/2007	6	Changed to Alternate path, verified with current procedure revision
003	4/24/2008	6	JPM format change

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)

JP2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **A Loss of All Feedwater event has occurred.**
- **There has also been a loss of 125V DC control power to breaker PBA-S03S.**
- **The CRS directs you to perform a Local Manual start of the non-class Aux Feed Pump, AFN-P01 per 40EP-9EO10, Standard Appendix 41 - Attachment 41-A.**

CANDIDATE

JP 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1250060402E1 Direct recovery actions for loss of Instrument Air

TASK STANDARD: "C" Air Dryer secured.

K/A: 4.2-065-AA1.03 K/A RATING: RO: 2.9 SRO: 3.1

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

APPLICABLE POSITION(S): AO/RO/SRO VALIDATION TIME: 20 minutes

REFERENCES: 40AO-9ZZ06, Loss of Instrument Air, Appendix E

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [ ] PLANT [X]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 4/24/2008

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JP 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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:

- Copy of 40AO-9ZZ06, Appendix E.

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:

- **A Loss of Instrument Air occurred 2 hours ago.**
- **Instrument Air has been restored and recovery operations are in progress.**
- **The CRS has directed you to align Instrument Air Dryers for normal operations by securing the "C" Air Dryer in accordance with the Loss of Instrument Air abnormal operating procedure, 40AO-9ZZ06 Appendix E.**

JP 3
PVNGS JOB PERFORMANCE MEASURE
2008 NRC Exam

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.

JP 3
PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 1: Open the solenoid air supply valve for IAN-M13, Moisture Trap, from the dryer that is to remain in service.	Inform cue: **Valve stem is out, will not move (in the open direction)**	Examinee ensures the air supply from "D" dryer is open.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Step 2: Close the solenoid air supply valve for IAN-M13, Moisture Trap, from the dryer that is to be taken out of service.	Inform cue: **Valve stem moved down, and has now stopped.**	Examinee closes the air supply from "C" dryer.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Step 3: Close the After Filter Outlet Isolation valve for the dryer to be taken out of service: IAN-VF51	Inform cue: **Valve handle is turned to the right.**	Examinee closes IAN-VF51.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Step 4: Place the Power Disconnect and alarm Bypass switch to "OFF" for the dryer to be taken out of service.	**Inform Cue: The switch is in the off position.**	Examinee takes switch to OFF on the "C" Dryer.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5. *	Step 5: Close the Prefilter Inlet Isolation valve for the dryer being taken out of service: IAN-VF48	Inform cue: **Valve stem moved down, and has now stopped.**	Examinee closes IAN-VF48.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Step 6: Close the Moisture Indicator Isolation Valve for the dryer being removed from service.	Inform cue: **Valve handle is turned to the right.**	Examinee closes the Moisture Indicator Isolation Valve for the "C" dryer.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7. *	Step 7: Close the valve for the dryer being removed from service: IAN-VF55	Inform cue: **Valve handle is turned to the right.**	Examinee closes IAN-VF55.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8. *	Step 8: Close the air supply valve for the dryer being removed from service: IAN-M11	Inform cue: **Valve handle is turned to the right.**	Examinee closes IAN-M11.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 9: **When** the off-stream desiccant chamber has depressurized for regeneration, **Then** check that the purge pressure is set at 62 psig as read on: IAN-PI-243, Purge Pressure	**Cue for chamber depressurized how to tell?** **Inform cue: IAN-PI-243 reads 14 psig.**	Examinee checks IAN-PI-243, Purge Pressure.
SAT / UNSAT **Comments (required for UNSAT):**			

JP 3
PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
10. *	Contingency action step 9.1: Adjust the dryers Purge adjusting valve to 62 psig.	**Inform Cue: IAN-PI-243 now reads 62 psig.**	Examinee turns the regulator adjusting purge knob to the right.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
11.	Step 10: Inform the responsible Operator that the Instrument Air Dryers are aligned for normal operation.		Examinee informs Control Room.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JP 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

JP 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **A Loss of Instrument Air occurred 2 hours ago.**
- **Instrument Air has been restored and recovery operations are in progress.**
- **The CRS has directed you to align Instrument Air Dryers for normal operations by securing the "C" Air Dryer in accordance with the Loss of Instrument Air abnormal operating procedure, 40AO-9ZZ06 Appendix E.**

CANDIDATE

JS_1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 0720010401 Perform manual PB switching operations

TASK STANDARD: Parallel Offsite power to PBB-S03

K/A: 3.6-062-A4.07 K/A RATING: RO: 3.1 SRO: 3.1

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes

REFERENCES: 40OP-9PB01

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 4/18/2008

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

JS_1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 54

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

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

C. SPECIAL INSTRUCTIONS:

- **IC 54 is set up to run JS-1 and JS-2 on the 2008 NRC Exam**.
- **Reset to IC 54**
- **Go to run, silence alarms, and then to freeze.**
- **Go to run when examiners are ready.**

D. REQUIRED CONDITIONS:

- Loss of Offsite Power
- Diesels carrying the class buses
- One offsite power line now supplying the switchyard and down to NAN-X03

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:

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:

- **You are the third RO in Unit 1.**
- **The Unit tripped on a loss of offsite power.**
- **Power has been restored to the switchyard.**
- **NBN-X03 is now energized.**
- **The CRS directs you to parallel offsite power back onto PBB-S03 per section 14 of 40OP-9PB01.**

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 <u>any</u> valves.

JS_1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Perform Prerequisites (section 14.2)		Examinee determines that all prerequisites are complete. **Examiner Note: DG B is running but it is NOT paralleled with offsite power.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Step 14.3.1.1 Ensure DG B is NOT in override.		Examinee determines that DG B is not in override.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 14.3.1.2 Ensure alarms reset at the local DG panel (DGA-B01)	**If requested as AO: "Neutral overvoltage, Overcurrent, and Negative Sequential Trip are all clear at the Diesel Generator panel"**	Examinee checks that Neutral overvoltage, Overcurrent, and Negative Sequential Trip are all reset.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4.	Step 14.3.1.3 Ensure all DG alarms are reset.		Examinee N/As step since there are no alarms.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Step 14.3.1.4 Obtain CRS permission to override DG	**When asked as CRS: "You have permission to override Diesel Generator A".**	Examinee obtains CRS permission.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6. *	Steps 14.3.1.5 and 14.3.1.6 Take DGA-HS-1 to "Start" Check the white OVERRIDE light on.		Examinee puts DG in override.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7. *	Step 14.3.2.1 Ensure PEA-SS-G01D is in the "DROOP" position.		Examinee places PEA-SS-G01D in the "DROOP" position.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8. *	Step 14.3.2.2 Place PBA-SS-S03L, synch switch for PBA-SO3L, to "ON".		Examinee places PBA-SS-S03L to "ON".
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 14.3.2.3 Adjust DG A speed using PEA-SC-G01 to cause the synchroscope to move slowly in the Fast direction.		Examinee adjusts DG A so the synchroscope is moving slowly in the Fast direction.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
10. *	Step 14.3.2.4 Match the DG voltage with the ESF Service Transformer voltage using PEA-EC-G01, DG A Voltage Switch.		Examinee matches voltages between DG A and NBN-X03(ESF Service Transformer) output. **Examiner Note: The meters for this evolution are:** **MAN-EI-002R for DG (PBB-S03)** **MAN-EI-002I for NBN-X03.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
11. *	Step 14.3.2.5 WHEN the synchroscope needle is at the 12 o'clock position, THEN close PBA-S03L.		Examinee closes PBA-S03L when the synchroscope is at the 12 o'clock position.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
12.	Step 14.3.2.7 Unit 1 only, If it is desired to continue to operate DGA, go to 40OP-9DG01.	**"The Diesel Generator will be shut down by another RO".**	
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

JS_1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

JS_1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **You are the third RO in Unit 1.**
- **The Unit tripped on a loss of offsite power.**
- **Power has been restored to the switchyard.**
- **NBN-X03 is now energized.**
- **The CRS directs you to parallel offsite power back onto PBB-S03 per section 14 of 40OP-9PB01.**

CANDIDATE

JS 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: E202507 Ensure that a RAS automatically actuates and align the remaining valves to support the recirculation alignment

TASK STANDARD: Ensure proper RAS actuation following a LOCA

K/A: 4.4-A16-AA1.1 K/A RATING: RO: 3.4 SRO: 3.6

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes

REFERENCES: 40EP-9EO03

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

Time Critical? *(Yes/No)* NO Alternative Path? *(Yes/No)* **YES**

APPROVAL

Developed By: Jordan Johnston Date: 4/18/2008

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JS 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 54

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.	N/A	Included in IC 54
2.		
3.		
4.		

C. SPECIAL INSTRUCTIONS:

- **IC 54 is set up to run JS-1 and JS-2 on the 2008 NRC Exam**
- **Reset to IC 54**
- **Go to run, silence alarms, and then to freeze.**
- **Go to run when examiners are ready.**

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:

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:

- **You are the Reactor Operator in Unit 1.**
- **A large break LOCA has occurred.**
- **The CRS directs you to verify a proper RAS actuation per the Loss of Coolant EOP, step 54.**

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.

JS 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 54 a: Ensure that both LPSI pumps are stopped.		Examinee determines that both LPSI pumps have stopped.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Step 54 b: Ensure that the ESF pump suction has shifted to the containment.		Examinee determines that SIA-UV-673 did not open and attempts to open it. **Examiner note: this valve is stuck shut and will not open.** Examinee determines that SIB-UV-675 did not open and opens it using **SIB-HS-675**. **Examiner note: this valve failed to auto open but will open when attempted.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Step 54 b.1 contingency step: If any ESF pump suctions can NOT be shifted to the containment sump AND any HPSI or CS pumps are running, THEN stop those pumps.		Examinee determines that the A Train side containment sump valve will not open and stops the HPSI A and CS A pumps using **SIA-HS-1** and **SIA-HS-5**.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Step 54 c: Ensure ALL the following valves are closed: SIA-UV-666 SIA-UV-664 SIB-UV-667 SIB-UV-665		Examinee determines that SIB-UV-667 did not close and closes it using **SIB-HS-667**. **Examiner note: this valve failed to auto close but will close when attempted.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5. *	Step 54 d: Close BOTH of the following valves: CHA-HV-531 CHB-HV-530	**When both valves are closed, cue: "Another RO will finish the procedure".**	Examinee closes **CHA-HS-531** and **CHB-HS-530**.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

JS 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

JS 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **You are the Reactor Operator in Unit 1.**
- **A large break LOCA has occurred.**
- **The CRS directs you to verify a proper RAS actuation per the Loss of Coolant EOP, step 54.**

CANDIDATE

JS 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1250010301 Respond to a condition requiring emergency boration instructions and contingencies.

TASK STANDARD: In order to Emergency Borate, operate HPSI pumps in lieu of Charging pumps.

K/A: 4.2.024.AK3.02 K/A RATING: RO: 4.2 SRO: 4.4

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes

REFERENCES: 40AO-9ZZ01, Emergency Boration

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

Time Critical? *(Yes/No)* NO Alternative Path? *(Yes/No)* **YES**

APPROVAL

Developed By: T. Stahler Date: 4/15/03

Revised By: Jordan Johnston Date: 4/18/08

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JS 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 55

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: The following commands are already in IC 55. If using IC 55, do NOT reload these commands. If IC 55 is not available, use *IC 4* and perform the following:

EVENT	COMMAND	DESCRIPTION
1.	rfCV66A open	Opens air supply to CH-532
2.	cmDPCV06CHAP01_6	CCP A trip. **Place on trigger "CH532".**
3.	crB3CV06CHBP01_2 RACK_OUT	Rack out CCP B
4.	crB3CV06CHEP01_2 RACK_OUT	Rack out CCP E
	Perform the following to set up:	
	Close CHE-HV-532	

C. SPECIAL INSTRUCTIONS:

- **IC 55 is set up to run JS 3 and JS 4 for the 2008 NRC Exam**
- **Reset to IC 55**
- **Go to run, silence alarms, and go to freeze**
- **Go to run when examiners are ready.**

D. REQUIRED CONDITIONS:

- **Hang Caution tags for SI mini-flows**
- **Hang Caution tags on Charging pumps B and E**

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:

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:

- **The unit is in Mode 5 with 'B' LPSI on Shutdown cooling.**
- **An "Emergency Boration" due to inadequate shutdown margin is required.**
- **Charging pumps B&E are inoperable.**

The CRS directs you to Emergency Borate per 40AO-9ZZ01, Section 3 Emergency Boration.

- **Inform the CRS when adequate flow is established.**
- **PC Cleanup is NOT on the RWT.**

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.

JS 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 3.1 : Check that BOTH of the following are available for Emergency Boration: • The RWT • At least one Charging Pump		Examinee determines that the RWT and Charging pump A are both available. **Examiner Note: Examinee will "N/A" the next two steps, 3.2 and 3.3.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Ensure CHE-HV-532 is OPEN (Charging Pump A will trip at this point)	After the examinee reports that the Charging Pump has tripped, cue: **"The CRS has assigned another operator to investigate the Charging Pump Trip. The CRS directs you to establish Emergency Boration to the RCS."** If sent as AO to Charging Pump breaker, **cue:** **"Charging pump A tripped on 86 relay".**	**Examiner Note: The Examinee will determine charging pump flowpath by using either steps 4, 5, or 6. They all have the same first substep. When CHN-HS-532 is placed to "OPEN", Charging pump A will trip, forcing them to use HPSI to complete the boration.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Examinee reevaluates step 1. With no Charging Pumps now available he goes to section 4 HPSI Pump.		Examinee goes to HPSI Pump, section 4.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4.	Refer to Appendix F, simplified Drawings for a basic flow view.	**Inform Cue:** **"CRS directs using 'B' HPSI pump."**	May refer to Appendix.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Step 4.2: Check that the HPSI 'B' Pump breaker is racked in.	**If Requested Cue:** **"HPSI 'B' Pump breaker is Racked in."**	Examinee determines that HPSI 'B' Pump breaker is racked in by one of the following: - No white SEIS light - Normal green light on pump HS - Sending AO locally
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Step 4.3: Check that the HPSI Pump lockout relay is reset.	**If sent as AO, cue:** **"HPSI Pump B 86 relay is reset."**	Examinee determines that the lockout relay is reset by one of the following: - No white SEIS light - Normal green light on pump HS - Sending AO locally
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7.	Step 4.4 : Check that the HPSI 'B' Pump UC fuses are 'ON'	**If sent as AO, cue:** **"HPSI Pump B UC fuses are on."**	Examinee determines that the UC fuses are on by one of the following: - Normal green light on pump HS - Sending AO locally
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8.	Step 4.6: If HPSI Pump 'B' will be used for emergency boration. Then perform the following: a) Ensure all of the following valves are closed: • SIB-UV-668, LPSI Pump B Miniflow Recirc. • SIB-UV-665, CS Pump B Miniflow Recirc. • SIB-HV-609, HPSI Pump B Long Term Recirc Isolation. • All Train 'B' HPSI Cold Leg Injection Valves. b) Ensure ALL of the following valves are open: • CHB-HV-530, RWT to Train B Safety Injection. • SIB-UV-667, HPSI Pump B Miniflow recirc. SIB-UV-659, Train B Pumps Combined Recirc.		a) Examinee closes SIB-UV-665. All other valves are verified CLOSED. b) All valves are verified OPEN.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 4.7: Start The appropriate HPSI Pump		Examinee starts HPSI pump 'B'
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
10. *	Step 4.8: Throttle open one of the HPSI Cold Leg Injection Valves to obtain 75 gpm or more.	**When flow is established, cue:** **"Another RO will complete the remaining actions."**	Flow of greater than 75 GPM established through a 'B' train HPSI Cold Leg Injection Valve: - SIB-HS-616 - SIB-HS-626 - SIB-HS-636 - SIB-HS-646 **Examiner Note**: Approx. 50% valve position will give flowrate of between 75 - 100 gpm.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JS 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	4/18/08	3	

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)

JS 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **The unit is in Mode 5 with 'B' LPSI on Shutdown cooling.**
- **An "Emergency Boration" due to inadequate shutdown margin is required.**
- **Charging pumps B&E are inoperable.**

The CRS directs you to Emergency Borate per 40AO-9ZZ01, Section 3 Emergency Boration.

- **Inform the CRS when adequate flow is established.**
- **PC Cleanup is NOT on the RWT.**

CANDIDATE

JS 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1240050201 Implement SGTR instructions and contingencies

TASK STANDARD: Isolate a Ruptured Steam Generator

K/A: 4.2 037 AK3.06 K/A RATING: RO: 3.6 SRO: 4.1

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

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

REFERENCES: 40EP-9EO04, Steam Generator Tube Rupture

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: John Dedon Date: 5/15/2007

Revised By: Jordan Johnston Date: 4/22/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JS 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 55

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: The following commands are already in IC 55. If using IC 55, do NOT reload these commands. If IC 55 is not available, use *IC 4* and perform the following:

EVENT	COMMAND	DESCRIPTION
1.	cmAVFW04SGAUV175_4	Mechanical seizure of SG-175
2.	cmAVFW04SGBUV135_4	Mechanical seizure of SG-135
	Perform the following to set up:	
	Open SG-HS-1144	
	Jog open SG-HS-1145 10%	
	Open SGA-UV-1133	
	Open SGA-UV-1134	
	Open SGB-UV-1135A/B	
	Open SGB-UV-1136A/B	

C. SPECIAL INSTRUCTIONS:

- **IC 55 is set up to run JS 3 and JS 4 for the 2008 NRC Exam**
- **Reset to IC 55**
- **Go to run, silence alarms, and go to freeze**
- **Go to run when examiners are ready.**

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:

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:

- **Unit 1 is in Mode 5.**
- **The Lower Mode Functional Recovery Procedure was entered due to a loss of inventory.**
- **The CRS directs you to perform Standard Appendix 248 to isolate SG #2.**

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.

JS 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 1: Ensure MSIVs are closed on the most affected SG.		MSIV's are already closed.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Step 2: Ensure that the Economizer valves are closed on the most affected SG.		Examinee closes Economizer valves using : SGA-HS-177C SGB-HS-137C **Examiner Note: SGA-HS-177A and SGB-HS-137A may also be used but will take much longer.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 3: Ensure that the Downcomer Isolation Valves are closed on the most affected SG.		Examinee attempts to close SGA-UV-175 and SGB-UV-135. **Examiner Note: These valves are failed open.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Step 3.1 Ensure that BOTH of the following valves are closed on the most affected SG SGN-HV-1144 SGN-HV-1145		**Examiner Note: Alternate path step**. Examinee closes SGN-HS-1144 and SGN-HS-1145.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Step 4: Ensure that the MSIV Bypass valve on the most affected SG is closed.		Examinee checks that SGE-UV-183 is closed
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Step 5: Ensure that the ADVs on the most affected SG are closed.		Examinee ensures that SGB-HIC-185 and SGA-HIC-179 have zero output.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7.	Step 6: Ensure that Aux Feed Pump A Steam Supply Valves are closed.		Examinee ensures SGA-UV-134 and SGA-UV-138 are closed.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8.	Step 7: Ensure Auxiliary Feedwater Isolation Valves to the most affected SG are closed.		Examinee checks closed: AFA-UV-37 AFB-UV-35
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 8: Ensure that the Blowdown Containment Isolation Valves are closed on the most affected SG.		Examinee closes: SGB-UV-500R SGA-UV-500S
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
10. *	Step 9: Ensure that BOTH of the steam trap isolation valves are closed on the most affected SG.	**Another operator will continue with the procedure.**	Examine closes: SGA-UV-1134 SGA-UV-1136A/B
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JS 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	4/22/2008	6	Modified for Mode 5 performance

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)

JS 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **Unit 1 is in Mode 5.**
- **The Lower Mode Functional Recovery Procedure was entered due to a loss of inventory.**
- **The CRS directs you to perform Standard Appendix 248 to isolate SG #2.**

CANDIDATE

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1250800201 Unload the Turbine Rapidly as Directed By ECC.

TASK STANDARD: Completes Appendix A Steps 1-9 to prepare for unloading.

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/SRO VALIDATION TIME: 15 minutes

REFERENCES: 40AO-9ZZ25 ECC Directed Turbine Unloading

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Tom Stahler Date: 4/1/2003

Revised By: Jordan Johnston Date: 4/22/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 56

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: This JPM has no malfunctions associated with it. If IC 56 is not available use *IC 20*, and load the commands for JS-6.

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

C. SPECIAL INSTRUCTIONS:

- **IC 56 is set up to run JS-5 and JS-6 on the 2008 NRC Exam**
- **Reset to IC 56**
- **Go to run, silence alarms, and then to freeze.**
- **Go to run when examiners are ready.**
- **Important Note: JS-6 requires being in freeze until after the cue is given and understood. Start JS-5 after JS-6 has been cued and gone to RUN.**

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:

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:

The following plant conditions exist:

- **You are in Unit 1.**
- **Reactor Power is 100%.**
- **ECC just requested that Palo Verde reduce generator output.**

The CRS directs you to align the unit to prepare for turbine unloading using 40AO-9ZZ25 Appendix A steps 1 through 9.

Peer checking is not required for the purposes of this JPM.

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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 <u>any</u> valves.

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 1: Direct operator to perform Appendix D	**Inform cue: "Another RO is performing Appendix D".**	
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Step 2: Log the required completion time.	**Inform cue: "The required completion time is 15 minutes from now."**	Examinee records completion time.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 3: Record Main Generator Gross MW.		Examinee records Main Generator Gross MW output in Appendix A.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4.	Record position of the Load Limit Potentiometer.		Examinee records current position of Load Limit Potentiometer.
SAT / UNSAT **Comments (required for UNSAT):**			

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
5. *	Step 5: Ensure that CEDMCS is NOT in Auto Sequential.		Examinee places CEDMCS out of Auto Sequential.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6. *	Step 6: Lower the Local Auto setpoint on SGN-PIC-1010 to 20 psig above the indicated actual pressure.		Examinee adjusts the black pen to 20 psig above the red pen on SGN-PIC-1010.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7. *	Step 7: Place SBCS Master Controller in Local Auto		Examinee performs the following steps: Pushes "Manual" pushbutton Slides lefthand bar to "Local" Pushes "Auto" pushbutton
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8.	Step 8: Ensure no Auto Demand signals are present for any SBCVs.		Examinee checks that output on SBCV individual controllers are all zero.
SAT / UNSAT **Comments (required for UNSAT):**			

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
9. *	Step 9: Give BOTH of the following a Manual Permissive: SGN-PV-1001 SGN-PV-1004		Examinee places SGN-HS-1001 and SGN-HS-1004 to "Manual".
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	4/22/2008	3	

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)

JS 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

The following plant conditions exist:

- **You are in Unit 1.**
- **Reactor Power is 100%.**
- **ECC just requested that Palo Verde reduce generator output.**

The CRS directs you to align the unit to prepare for turbine unloading using 40AO-9ZZ25 Appendix A steps 1 through 9.

Peer checking is not required for the purposes of this JPM.

CANDIDATE

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 0100010401 Operate the Pressurizer Pressure Control System

TASK STANDARD: Pressurizer pressure restored to 2250 ± 25 psia

K/A: 4.2.027.A1.01 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: 40AL-9RK4A, Panel B04A Alarm Responses

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Larry Wilhelm Date: 6/18/2002

Revised By: Jordan Johnston Date: 4/23/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*

PVAR # _____

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 56

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: The following commands are already in IC 56. If using IC 56, do NOT reload these commands. If IC 56 is not available, use *IC 20* and perform the following:

EVENT	COMMAND	DESCRIPTION
1.	IOR ZDRCNHS100 CH-X	Fails PPCS selector switch to the "X" position
2.	cmTRRC03RCNPT100X _1 1500	Fails Pressurizer Pressure Control Channel "X" to 1500 psia
	Allow RCS pressure to reach 2285, then freeze.	

C. SPECIAL INSTRUCTIONS:

- **IC 56 is set up to run JS-5 and JS-6 on the 2008 NRC Exam.**
- **Reset to IC 56**
- **Go to run, silence alarms, and go to freeze**
- **Go to run when examiners are ready.**
- **IMPORTANT!! In this setup, RCS pressure will move rapidly (70 psia in 3 minutes). Make sure cue is given and the Examinee is ready prior to "run".**

D. REQUIRED CONDITIONS:

- RCN-HS-100 in Channel X
- RCS pressure >2285 psia.
- Malfunctions in.

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:

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:

- **Pressurizer Pressure is >2285 psia and increasing.**
- **The CRS directs you to restore Pressurizer pressure to 2250 psia, in accordance with 40AL-9RK4A Window 4A01B for High Pressurizer Pressure.**

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.

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Step 1: Trip reactor if high pressure trip is impending (≥ 2383 psia) and proceed to 40EP-9EO01.		Examinee determines Pressurizer Pressure < 2383 psia. **Examiner Note: TERMINATE JPM, IF REACTOR IS TRIPPED. JPM would be UNSAT.** (Critical not to trip Reactor)
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Step 2: Verify Pressurizer pressure high alarm by observing RCN-PIC-100X and/or RCN-PIC-100Y on recorder RCN-PR-100 (B04).		Examinee determines actual high pressure condition exists.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 3: Verify controlling channel transmitter has not failed.		Examinee determines CH "X" is inaccurate.
SAT / UNSAT **Comments (required for UNSAT):**			

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
4.	Step 3: Switch to unaffected channel using RCN-HS-100.		Examinee selects Channel "Y " **Examiner Note: This will have no affect due to switch failure.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5. *	Step 4: Manually initiate Pressurizer spray flow using RCN-PIK-100, Pressurizer Spray Control to reduce pressure to normal band.		Examinee reduces RCS pressure with Main Spray. Pressure should be reduced to around 2250 psia (per the Initiating Cue).
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Second Priority Action, Step 2: Deenergize Pressurizer Heaters as required to limit pressure increases.	**INFORM CUE: Another RO will take actions to maintain Pressurizer Pressure at approximately 2250 PSIA.**	Examinee may or may not turn off heaters, as Main Spray will more than compensate for full heater input (such as boron equalization).
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
14	10/10/96	6	Format changes per OTG-02
15	06/18/02	3	Procedure revised
16	4/23/2008	6	Eliminated use of Aux Spray, reduced failures for credibility.

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)

JS 6

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **Pressurizer Pressure is >2285 psia and increasing.**
- **The CRS directs you to restore Pressurizer pressure to 2250 psia, in accordance with 40AL-9RK4A Window 4A01B for High Pressurizer Pressure.**

CANDIDATE

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1030011001 Place BOP ESFAS modules in Bypass

TASK STANDARD: FBEVAS 'A' BOP ESFAS module is in Bypass.

K/A: 3.7.016.A4.01 K/A RATING: RO: 2.9 2.8

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 15 minutes

REFERENCES: 40OP-9SA01, BOP ESFAS Modules Operation.

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Tom Stahler Date: 4/1/2003

Revised By: Jordan Johnston Date: 4/23/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 57

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: The following condition is already in IC 57. If IC 57 is not available, use *IC 20* and perform the following:

EVENT	COMMAND	DESCRIPTION
1.	N/A	Place FBEVAS B in bypass at BOP-ESFAS cabinets.
2.		
3.		
4.		

C. SPECIAL INSTRUCTIONS:

- **IC 57 is set up to run JS-7 and JS-8 on the 2008 NRC Exam.**
- **Reset to IC 57**
- **Go to run, silence alarms, and go to freeze**
- **Go to run when examiners are ready.**

D. REQUIRED CONDITIONS:

- **FBEVAS B in Bypass**
- **IMPORTANT!! Prior to administration of this JPM, ENSURE that no bulbs are burned out on both BOP-ESFAS panels.**

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:

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:

The following plant conditions exist:

*** The CRS has directed you to place BOP ESFAS FBEVAS 'A' in bypass in accordance with 40OP-9SA01 SECTION 4.6, due to RU-31 power supply degradation.**

*** Prerequisites have NOT been performed.**

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.

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Prerequisite Step 1: Applicable LCOs and the ODCM compensatory actions have been reviewed.	**If Requested CUE: The CRS and STA have reviewed applicable LCOs and ODCM requirements.**	
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Prerequisite Step 2: CRS has given permission to place 'A' FBEVAS in bypass.	**If Requested CUE: The CRS has directed you to place BOP ESFAS FBEVAS 'A' in bypass.**	Permission given in initiating cue
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Prerequisite Step 3: Checks redundant module in Train 'B' is not in bypass.	**If Requested CUE: CRS directs you to remove Train 'B' FBEVAS from bypass, then continue to bypass FBEVAS 'A'.**	Examinee identifies Train 'B' FBEVAS is in bypass.
SAT / UNSAT **Comments (required for UNSAT):**			

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
4.	Examinee goes to section 4.7		Section 4.7 removing BOP ESFAS Modules From Bypass is entered.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Prerequisites are met.		Examinee determines that the three prerequisites of 4.7.2 are met. **Examiner Note: FBEVAS B is in bypass but NOT tripped.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6.	Step 4.3.7.1: Perform a lamp test on BOP ESFAS 'B'		Lamp test is performed **Examiner Note: This JPM has no intentionally burned out bulbs. If a bulb is discovered to be out, the Examiner may let the Examinee replace the bulb or give a cue that the bulb has been replaced and the lamp check is satisfactory.**
SAT / UNSAT **Comments (required for UNSAT):**			

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
7.	Step 4.3.7.2: Perform the appropriate section below: 4.7.4 Removing FBEVAS, CREFAS and CPIAS Modules from Bypass.		Identifies section 4.7.4 as the appropriate section.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8.	If the BOP ESFAS module(s) is not tripped, then GO TO step 4.7.4.4.		Determines FBEVAS Train 'B' not tripped and goes to step 4.7.4.4.
SAT / UNSAT **Comments (required for UNSAT):**			

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
9. *	Remove Train 'B' FBEVAS module from bypass by performing all the following:	**If Requested CUE: Concurrent Verification has been performed**	
	1. Check that all lights except the 'BYPASS' light are clear (not lit) for module to be removed from Bypass.		Only the 'Bypass' light is lit.
	2. Turn Bypass key for the desired module counterclockwise approximately ¼ turn.		**Turn Bypass key for Train 'B' FBEVAS counterclockwise approximately ¼ turn.**
	3. Remove the key.		Key is removed.
	4. Check 'BYPASS' light is clear (not lit).		'BYPASS' light is out.
	5. Independently verify the module has been removed from bypass.	**If Requested Cue: IV has been performed.**	**Evaluator note: Critical nature of step is the channel is removed from bypass.**
	Return bypass key to key storage location		**Key may be used to bypass Train 'A' FBEVAS without returning it to the key locker.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
10.	Step 4.6.3.1: Examinee returns to Section 4.6. Ensures that the Sequencer is not in Auto Test.		Examinee determines that the Sequencer is not in Auto Test.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
11.	Step 4.6.3.2: If Dry Cask or Fuel Handling operations are in progress…	**CUE: No Dry Cask or Fuel Handling operations are in progress.**	Examinee N/As the step.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
12.	Step 4.6.3.3: If a radiation monitor is to be placed in local or bypass due to the transfer of radioactive material….	**If Requested, CUE: The monitor is being bypassed due to an erratic power supply.**	Examinee N/As the step.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
13.	Step 3.6.3.4 through 7: Performs a lamp test on BOP ESFAS train 'A' and replaces burned out bulbs.		Lamp test performed.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
14.	Step 4.6.3.8: Check That the redundant module (FBEVAS Train 'B') is not in bypass.		Addressed previously.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
15.	Step 4.6.3.9: If placing LOP/LS Relay in Bypass…		Examinee N/As the step.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
16.	Step 4.3.6.10: Place a check mark in the column provided for the module(s) to be placed in Bypass.		Examinee places check mark on RU-31/ FBEVAS 'A' row.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
17. *	Step 4.3.6.11: Bypass module(s) checked in step 4.6.3.10 by performing ALL of the following: Place Bypass key in key slot for the selected Module. Turn the key clockwise approximately ¼ turn or until the bypass light comes on.	**If Requested CUE: Independent verification is complete.**	Examinee places FBEVAS 'A' in bypass. Bypass light is lit.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	4/23/2008	3	Updated procedure and format change.

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)

JS 7

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

The following plant conditions exist:

* **The CRS has directed you to place BOP ESFAS FBEVAS 'A' in bypass in accordance with 40OP-9SA01 SECTION 4.6, due to RU-31 power supply degradation.**
* **Prerequisites have <u>NOT</u> been performed.**

CANDIDATE

JS 8

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1250030401, Perform Actions for Loss of NC

TASK STANDARD: RCPs are tripped, and Seal Bleedoff Isolated

K/A: 3.8-008-A4.01 K/A RATING: RO: 3.3 SRO: 3.1

K/A: 3.4.003.A2.02 K/A RATING: RO: 3.7 SRO: 3.9

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 8 minutes

REFERENCES: 40AO-9ZZ03, Loss of Cooling Water

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Tom Stahler Date: 4/25/2003

Revised By: Jordan Johnston Date: 4/23/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

JS 8

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

A. IC#: 57

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

NOTE: The following commands are already in IC 57. If using IC 57, do NOT reload these commands. If IC 57 is not available, use *IC 20* and perform the following:

EVENT	COMMAND	DESCRIPTION
1.	Close NCB-UV-403 on B07.	
2.	cmMVCC04NCBUV403_6	Mechanically fails NCB-UV403 in the closed position
3.	Acknowledge alarms.	
4.	Go to Freeze.	

C. SPECIAL INSTRUCTIONS:

- **IC 57 is set up to run JS-7 and JS-8 on the 2008 NRC Exam.**
- **Reset to IC 57**
- **Go to run, silence alarms, and go to freeze**
- **Go to run when examiners are ready.**

D. REQUIRED CONDITIONS:

- **NCB-UV403 closed**.

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:

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:

- **The plant is operating at 100% power.**
- **A Loss of Nuclear Cooling Water to the RCPs has occurred.**
- **The CRS directs you to perform Section 4 of 40AO-9ZZ03, Loss of Cooling Water.**
- **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.
- 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.

JS 8

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Step 4.1: 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 **ALL** of the following: Ensure that the Reactor is tripped. Stop all of the RCPs Isolate controlled bleedoff.		Examinee will note time. **Examiner Note: The examinee is only expected to note the time at this point and NOT trip the Reactor.** **START TIME: _____**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Step 4.2: If seal injection is NOT in service….		Examinee N/As this step since seal injection is in service.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 4.3: **IF no** Nuclear Cooling Water pumps are running, **AND** at least one is available, **THEN** perform **ALL** of the following to start a NC Pump.		Examinee determines that a NCW Pump is operating.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4.	Step 4.4: **IF** at least one Nuclear Cooling Water Pump is running, **AND** "NCWS PMPS DSCH HDR PRESS HI-LO" (7A07B) is in alarm due to low pressure, **THEN** perform **ANY** of the following:		Examinee will determine that operating NCW Pump is operating normally and no low discharge pressure alarm exists. Step is marked N/A
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5.	Step 4.5: **IF ANY** of the NC Containment Isolation Valves have failed closed, **AND** there is **NOT** a valid CSAS signal present, **THEN** perform **Both** of the following: Open **ANY** closed isolation valves.	If Examinee recommends locally operating NCB-UV-403 THEN: **INFORM CUE: The CRS has determined a containment entry can not be performed.**	Examinee will recognize that NCB-UV-403 has failed closed. Examinee will attempt to open NCB-UV-403. It will **not** open.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
6. *	Step 4.5, Contingency Action 1: **IF ANY** of the NC Containment Isolation Valves will **NOT** open, **THEN** perform **ALL** of the following: **1)** Close all NC CTMT isolation valves.		Examinee closes NC Containment Valves NCB-UV-401 and NCA-UV-402.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
7. *	Step 4.5, Contingency Action 2: Ensure that the Reactor is tripped.	**If requested cue**: another RO has verified Reactivity Control Safety function is met. **INFORM CUE: Another operator will perform SPTAs.**	Examinee trips the Reactor.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
8. *	Step 4.5, Contingency Action 3: Stop all of the RCPs.		Examinee stops all of the RCPs.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
9. *	Step 4.5, Contingency Action 4: Isolate seal bleedoff.	**Inform CUE: Another RO will complete this procedure.**	Isolate seal bleedoff from all RCPs **STOP TIME: _____** **NOTE:** JPM must be completed within 10 minutes.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

JS 8

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
01	02/08/97	6	New Format
02	11/06/97	6	Updated Steps and Cue's
03	01/28/98	6	Updated Steps and Cue's
04	04/25/03	6	Updated format; simulator commands.
05	4/23/2008	6	Updated format; simulator commands.

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)

JS 8

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **The plant is operating at 100% power.**
- **A Loss of Nuclear Cooling Water to the RCPs has occurred.**
- **The CRS directs you to perform Section 4 of 40AO-9ZZ03, Loss of Cooling Water.**
- **This is a Time Critical JPM.**

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1270057402 Direct Power Ascension Above 20%.

TASK STANDARD: Complete Appendix O of 40OP-9ZZ05 for planned power ascension from 40% to 60% at 4 EFPD. Calculated dilution 2152 ± 67 gallons.

K/A: 2.1.37 K/A RATING: RO: 4.3 SRO: 4.6

K/A: 2.1.20 K/A RATING: RO: 4.6 SRO: 4.6

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 30 minutes

REFERENCES: 40OP-9ZZ05, Power Operations

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Joe Allison Date: 3/10/99

Revised By: Jordan Johnston Date: 4/25/08

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[①]

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

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

C. SPECIAL INSTRUCTIONS:

- **Important!! When giving this JPM multiple times, the Boron OAP must be cleared from the last JPM.**

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:

- Core Data Book Unit 1 Cycle 14.
- Computer with Boron OAP.
- Clean, current copy of 40OP-9ZZ05, Appendix O.

TASK CONDITIONS

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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.

Given the following conditions in Unit 1:

- **The reactor is critical at 40% power, BOL, 4 EFPD following a Refueling Outage.**
- **Power ascension to 60% is planned from midnight to noon on 11/11/08. Current time is 2330.**
- **RCS Cold leg temperature for the power ascension is on program and will remain "On Program". Current RCS temperature is 561.4 degrees F.**
- **Tave is 573 degrees F. RCS pressure 2250 psia. Pressurizer level is 50%. VCT Level is 40%.**
- **RCS Boron Concentration is 1200 ppm. RWT Boron concentration is 4200 ppm.**
- **Assume equilibrium Xenon.**
- **Reactor Engineering has provided the following information:**

Parameter	Initial	Final
Reg CEA Position	150	150
PLCEA Position	150	150
[Xenon]	67.7%	66.4%
[Iodine]	40%	48.65%
Reactivity (Xe)	-1791	-1765
Boron worth	-7.32 pcm/ppm	-7.32 pcm/ppm

- **The Power Change Worksheet program is not available.**

You have been directed to calculate a dilution using 40OP-9ZZ05 Power Operations, Appendix O, Power Change Worksheet manual version.

INFORMATION FOR EVALUATOR'S USE:

2008 NRC Exam

* 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 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Enter the requested information on the Appendix O, Manual Power Change Worksheet.		**Examiner Note: Examinee transfers cue sheet information to Appendix O and must also refer to values in the Core Data Book to find the corresponding reactivity value/worth.** Examinee enters initial and final reactivity values for the following: RCS Boron Concentration (Given in initiating cue) • 1200 ppm. Xenon Worth (Given in initiating cue) • -1791 pcm Initial • -1765 pcm Final • **+26 pcm** Delta Xenon. Power Defect • Data obtained from the U1C14 Core Data Book Table 2.1.1 • -508 pcm initial (40%) • -770 pcm final (60%) • **-262 pcm** Delta Temperature Defect • Should be **0 pcm** Delta since RCS Temperature is maintained within the program band. Reg Group Worth • Should be **0 pcm** Delta since Reg Group CEA's are fully withdrawn Part Length Worth • Should be **0 pcm** Delta since Part Length CEA's are fully withdrawn
SAT / UNSAT **Comments (required for UNSAT):**			

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
2. *	Determines net pcm (total) and delta rho boron (pcm)		Determines net pcm of **-236 pcm** and delta rho boron of **+236 pcm** Adds +26+(-262) = -236 Delta rho = -(-236) = +236
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Determines delta ppm boron		**-32.2ppm** Delta ppm boron calculated Divides delta rho boron (+236 pcm) by Boron Worth (-7.32pcm/ppm) = **-32.2ppm**
SAT / UNSAT **Comments (required for UNSAT):**			

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
4. *	Examinee determines gallons for dilution amount using the BORON OAP		Examinee calculates a required dilution amount to be **2152 ± 67 gals**. **Note:** The following values are already given or calculated: • Initial conc.= 1200 ppm (given in cue) • Final conc.= 1167.8 ppm (1200 – 32.2ppm) **Examiner Note: The Boron OAP will automatically round the final concentration to 1168 ppm.**
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

RA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	3/10/99	6	New Admin Task JPM
1	8/12/99	6	Modified JPM steps to enhance CUE's, more clearly identify critical steps, and enhance required band of required dilution.
2	8/29/99	6	Modified Iodine numbers to represent actual numbers.
3	6/13/01	6	Modified JPM for 2001 Audit to require a Manual Calculation.
4	4/25/08	6	Modified to U1 Cycle 14.

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)

INITIATING CUE:

Given the following conditions in Unit 1:

- **The reactor is critical at 40% power, BOL, 4 EFPD following a Refueling Outage.**
- **Power ascension to 60% is planned from midnight to noon on 11/11/08. Current time is 2330.**
- **RCS Cold leg temperature for the power ascension is on program and will remain "On Program". Current RCS temperature is 561.4 degrees F.**
- **Tave is 573 degrees F.**
- **RCS pressure 2250 psia.**
- **Pressurizer level is 50%**
- **VCT Level is 40%.**
- **RCS Boron Concentration is 1200 ppm.**
- **RWT Boron concentration is 4200 ppm.**
- **Assume equilibrium Xenon.**
- **Reactor Engineering has provided the following information:**

Parameter	Initial	Final
Reg CEA Position	150	150
PLCEA Position	150	150
[Xenon]	67.7%	66.4%
[Iodine]	40%	48.65%
Reactivity (Xe)	-1791	-1765
Boron worth	-7.32 pcm/ppm	-7.32 pcm/ppm

- **The Power Change Worksheet program is not available.**

You have been directed to calculate a dilution using 40OP-9ZZ05 Power Operations, Appendix O, Power Change Worksheet manual version.

CANDIDATE

RA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1270010401 Operate the plant during a plant heatup from cold shutdown to hot standby.

TASK STANDARD: Evaluate 40ST-9RC01, determine heatup rate exceeded.

K/A: 2.1.18 K/A RATING: RO: 3.6 SRO: 3.8

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 30 minutes

REFERENCES: 40ST-9RC01, RCS and Pressurizer Heatup and Cooldown Rates

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 5/1/2008

Revised By: Date:

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 / UNSAT①

① *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

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- 40ST-9RC01 for reference
- Calculator
- Marked up copy of 40ST-9RC01 Appendix A, page 2.

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:

You are a Reactor Operator in Unit 1 with the following conditions:

- **The unit was in Mode 3, SDC secured, 3 RCPs operating**
- **Attached is a data sheet from 40ST-9RC01 documenting a heatup that occurred last night.**

You are to review the data and determine the following:

1. **List all guidelines or limits exceeded in 40ST-9RC01 or Tech Specs?**

2. **If guidelines or limits were exceeded, what actions were required and at what time were they required?**

Document all results on this page.

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 <u>any</u> valves.

RA 2
PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Were guidelines or limits exceeded?		Procedure step 6.8.1 - Examinee determines that at 0045, the equivalent hourly heat up rate was exceeded in 15 minutes (120 degrees in one hour projected). Tech Specs - At 0130, heat up for the prior hour was 85 degrees (TS limit 75 degrees/hour per table 3.4.3-1).
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Determine what actions should have been taken.		0045- Heat up should have been reduced to avoid exceeding the hourly rate. At 0130- Heat up should have been stopped and LCO 3.4.3 referred to. Restore parameters to within limits within 30 minutes (0200).
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

RA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

Answer Key

List all guidelines or limits exceeded in 40ST-9RC01 or Tech Specs?

40ST-9RC02

0045- The limit for 40ST-9RC01, exceeding the equivalent hourly heat up rate limit in a 15 minute period (120 degrees per hour projected).

Tech Specs

0030-0130 – in this hour, plant heat up was 80 degrees, exceeding the 75 degree T.S. limit.

If guidelines or limits were exceeded, what actions were required and at what time were they required?

40ST-9RC02

0045 – Reduce the heat up rate so the hourly limit is not exceeded.

Examiner: Procedure step 6.8.1 – reduce he heatup to a lower rate and maintain that lower rate for the remaining 15 minute intervals in that rolling hour.

Tech Specs

0130 – Stop the heat up rate and refer to LCO 3.4.3. LCO 3.4.3 – restore parameters to within limits within 30 minutes (0200).

INITIATING CUE:

You are a Reactor Operator in Unit 1 with the following conditions:

- **The unit was in Mode 3, SDC secured, 3 RCPs operating**
- **Attached is a data sheet from 40ST-9RC01 documenting a heatup that occurred last night.**

You are to review the data and determine the following:

1. **List all guidelines or limits exceeded in:**

- **40ST-9RC01**

- **Tech Specs?**

2. **If guidelines or limits were exceeded, what actions were required and at what time were they required?**

- **40ST-9RC01**

- **Tech Specs?**

Document all results on this page.

CANDIDATE

NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL Page 19 of 42

RCS AND PRESSURIZER HEATUP AND COOLDOWN RATES | 40ST-9RC01 | Revision 15

Appendix A Page 2 of 2

RCS/PRESSURIZER TEMPERATURE/PRESSURE DATA SHEET Date 11-10-08

RCS DATA								
Time	0000	0015	0030	0045	0100	0115	0130	
PZR Press (psia)	1210	1205	1210	1220	1250	1255	1260	
Next Transition Temperature								
RCS Tcold (°F)	355	365	370	400	415	430	450	
Previous Tcold (°F)		355	365	370	400	415	430	
Change in Tcold (°F/15 min.) (+ or -)		10	5	30	15	15	20	
Change in Tcold X 4 = RCS H/U or C/D (°F/Hr)		40	20	120	60	60	80	
Allowable Heatup/Cooldown Rate	75	75	75	75	75	75	75	
Comment Reference Number								
INITIALS								
PZR DATA								
Time								
PZR Temp (°F)								
Previous PZR Temp (°F)								
Change in PZR Temp (°F/15 min) (+ or -)								
Change in PZR Temp (°F) x 4 equals PZR H/U (+) or C/D (-) (°F/Hr)								
Comment Reference Number								
INITIALS								

COMMENTS: _____

CANDIDATE

RA-3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1280010801 Perform Surveillance Test

TASK STANDARD: Perform Appendix B of 41ST-1ZZ02, determine acceptance criteria not met.

K/A: 2.2.12 K/A RATING: RO: 3.7 SRO: 4.1

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

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

REFERENCES: 41ST-1ZZ02, Inoperable Power Sources Action Statement

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 5/15/2008

Revised By: Date:

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 / UNSAT①

① *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

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- Print of Board 1 showing:
  - NBN-S01C closed
  - PBA-S03K closed
  - PBA-S03L open
  - PL-972 open
  - PL-975 open
- Blank copy of 41ST-1ZZ02

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:

Given the following conditions:

- **You are a Reactor Operator in Unit 1.**
- **The Unit is at 100% power.**
- **All plant equipment is operable with the exception of RU-30, which is in bypass for maintenance.**
- **Hassayampa-Palo Verde Line number 2 is out for maintenance. ECC has just verified all other lines available and powered up.**

- **5 minutes ago DG A was declared inoperable due to an Engineering Department evaluation of the K-1 relay.**

The CRS has directed you to perform Appendix B of 41ST-1ZZ02, Step 1 (Steps 1.1 through 1.4 ONLY).

Note: the procedure you are being handed is the current revision.

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 <u>any</u> valves.

RA-3
PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Appendix B, Step 1.1 – Record breaker positions		Examinee circles "Closed" on all breakers/disconnects EXCEPT: PBA-S03L PBB-S04L NAN-S05D NAN-S06F PL-972 PL-975 The above breakers are marked as "Open". Voltage Indicated on PBA-S03 and PBB-S04 should be marked YES.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Step 1.2 – Obtain information from ECC.		Examinee checks "Yes" on all lines except Hassayampa-Palo Verde #2. Examiner note: Given in initial cue.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3.	Step 1.3 – Determine number of lines available.		Examinee should record "6" in Step 1.3.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Step 1.4 – Acceptance Criteria.		Examinee determines that two acceptance criterion are not met: PBA-S03K not open NBN-S01C not open
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

RA-3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

RA-3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

Given the following conditions:

- **You are a Reactor Operator in Unit 1.**
- **The Unit is at 100% power.**
- **All plant equipment is operable with the exception of RU-30, which is in bypass for maintenance.**
- **Hassayampa-Palo Verde Line number 2 is out for maintenance. ECC has just verified all other lines available and powered up.**
- **5 minutes ago DG A was declared inoperable due to an Engineering Department evaluation of the K-1 relay.**

The CRS has directed you to perform Appendix B of 41ST-1ZZ02, Step 1 (Steps 1.1 through 1.4 ONLY).

Note: the procedure you are being handed is the current revision.

CANDIDATE

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

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

TASK STANDARD: Determine proper REP task, determine RCA entry requirements.

K/A: 2.3.7 K/A RATING: RO: 3.5 SRO: 3.6

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

APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 25 minutes

REFERENCES: NGW01, Initial Radiation Worker Practices.

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Tom Stahler Date: 5/3/2003

Revised By: Jordan Johnston Date: 5/6/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

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 REP 2-3516H.
- A copy of the Pressurizer Spray Valve galleries RP survey maps.

- A copy of 40TD-9RC01, Section 3.

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:
A COPY OF THE FOLLOWING IS ATTACHED:

- **REP # 2-3516H.**
- **Pressurizer Spray Valve galleries RP survey maps.**
- **40TD-9RC01 section 3.**

Given the following initial conditions:

- **Unit 2 is in a refueling outage.**
- **Pressurizer Spray Valve RCE-PV-0100F has been isolated.**
- **You have been directed to drain and depressurize the Loop 1B Pressurizer Spray Valve RCE-PV-100F using 40TD-9RC01 Reactor Coolant System Step 3.2.6.**

Your tasks are to:

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. **Determine proper task for this evolution.**
2. **Determine if a RP Pre-Job Brief is required prior to entering Pressurizer spray valve RCE-PV-100F valve gallery.**
3. **Determine RP coverage during job performance.**
4. **Determine dress-out requirements.**
5. **Determine required EPD settings.**

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 <u>any</u> valves.

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Examinee reviews REP and survey and determines task he can enter on.		Examinee determines entry on task 2 is required. **Note:** Only one REP was given to the examinee. PVNGS operations have only one REP active for each unit, at a given time.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Examinee determines if RP pre-job Brief is required for entry into Pressurizer Spray valve RCE-PV-100F valve gallery.		Determines that a RP pre-job brief must be performed.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Examinee determines RP coverage requirements during job performance.		Under task 2, RP Leader will determine coverage for connect and disconnect of vent/drain equipment. Otherwise intermittent coverage is required.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Examinee determines dress-out requirements.		Clothing/protection requirements are Double set. Note: Full set for containment entry. Second set for valve gallery.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
5. *	Determine the REP Dosimetry requirements.		Examinee determines EPD settings of 25 mRem dose and 500 mREM/hr Dose Rate (as stated on the REP)
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	5/6/2008	6	New JPM format, updated to current REP

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)

ANSWER KEY

1. **Determine proper task for this evolution.**

   Task 2

2. **Determine if a RP Pre-Job Brief is required prior to entering Pressurizer spray valve RCE-PV-100F valve gallery?**

   Yes, RP must provide a brief.

3. **Determine RP coverage during job performance.**

   RPL to determine coverage for connect and disconnect of vent/drain equipment. Otherwise coverage can be intermittent.

4. **Determine dress-out requirements.**

   Double PC's are required for entry into the HCA

5. **Determine required EPD settings.**

   Dose Alarm – 25 mr

   Dose Rate alarm – 500 mr/hr

RA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

A COPY OF THE FOLLOWING IS ATTACHED:

- **REP # 2-3516H.**
- **Pressurizer Spray Valve galleries RP survey maps.**
- **40TD-9RC01 section 3.**

Given the following initial conditions:

- **Unit 2 is in a refueling outage.**
- **Pressurizer Spray Valve RCE-PV-0100F has been isolated.**
- **You have been directed to drain and depressurize the Loop 1B Pressurizer Spray Valve RCE-PV-100F using 40TD-9RC01 Reactor Coolant System Step 3.2.6.**

Your tasks are to:

1. **Determine proper task for this evolution.**
2. **Determine if a RP Pre-Job Brief is required prior to entering Pressurizer spray valve RCE-PV-100F valve gallery.**
3. **Determine RP coverage during job performance.**
4. **Determine dress-out requirements.**
5. **Determine required EPD settings.**

CANDIDATE

1. **Determine proper task for this evolution.**

2. **Determine if a RP Pre-Job Brief is required prior to entering Pressurizer spray valve RCE-PV-100F valve gallery.**

3. **Determine RP coverage during job performance.**

4. **Determine dress-out requirements.**

5. **Determine required EPD settings.**

CANDIDATE

SA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1270057402 Direct Power Ascension Above 20%.

TASK STANDARD: Review Dilution Calculation, find three errors.

K/A: 2.1.37 K/A RATING: RO: 4.3 SRO: 4.6

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

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

REFERENCES: 40OP-9ZZ05, Power Operations; U1C14 Core Data Book

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 4/25/08

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

SA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

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

C. SPECIAL INSTRUCTIONS:

- **Important!! When giving this JPM multiple times, the Boron OAP and Xenon OAP must be cleared from the last JPM.**

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:

- Core Data Book Unit 1 Cycle 14.
- Computer with Boron OAP and U1C14 Xerho program.
- Marked up copy of 40OP-9ZZ05, Appendix O, pages 4 and 5.

TASK CONDITIONS

SA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

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:

Given the following conditions:

- **The reactor is critical at 40% power, BOL, 4 EFPD following a Refueling Outage.**
- **Power ascension to 60% is planned from midnight to noon on 11/11/08. Current time is 2330.**
- **RCS temperature for the power ascension will remain "On Program", currently 561.4 degrees F.**
- **Tave is 573 degrees F. RCS pressure 2250 psia. Pressurizer level is 50%. VCT Level is 40%.**
- **RCS Boron Concentration is 1200 ppm. RWT Boron concentration is 4200 ppm.**
- **Assume equilibrium Xenon.**
- **Reactor Engineering has provided the following information:**

Parameter	Final	Initial
Reg CEA Position	150	150
PLCEA Position	150	150
[Xenon]	66.4%	67.7%
[Iodine]	48.65%	40%
Reactivity (Xe)	-1765	-1791

- **The Power Change Worksheet program is not available.**
- **A Reactor Operator has calculated a dilution using the manual method.**
- **Your job is to verify that the Manual Power Change Worksheet (40OP-9ZZ05, Appendix O) has been performed correctly.**

  Annotate any/all mistakes (non-clerical) you find on the cue sheet provided.

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.

SA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	First error – simple math error on Xenon Reactivity. Examiner Note: These mistakes may be addressed in any order.		Xenon reactivity should be **+26 pcm**.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Second error – wrong number used for final Power Defect.		Final Power Defect should be **-770 pcm**. (Cue sheet used 80% power from Table 2.1.1 instead of 60%) This makes the net reactivity change **-262 pcm** and the boron reactivity change **+236 ppm**.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	All errors carried forward Note: The correct Boron worth table is 2.3.4 for 50% power and 1200 ppm. This yields the 7.32 on the form		The correct final boron should be **1167.8 ppm**. The correct dilution amount is **2152 gallons. (± 67 gallons)**
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

SA 1

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

INITIATING CUE:

Given the following conditions:

- **The reactor is critical at 40% power, BOL, 4 EFPD following a Refueling Outage.**
- **Power ascension to 60% is planned from midnight to noon on 11/11/08. Current time is 2330.**
- **RCS temperature for the power ascension will remain "On Program", currently 561.4 degrees F.**
- **Tave is 573 degrees F.**
- **RCS pressure 2250 psia.**
- **Pressurizer level is 50%.**
- **VCT Level is 40%.**
- **RCS Boron Concentration is 1200 ppm.**
- **RWT Boron concentration is 4200 ppm.**
- **Assume equilibrium Xenon.**
- **Reactor Engineering has provided the following information:**

Parameter	Final	Initial
Reg CEA Position	**150**	**150**
PLCEA Position	**150**	**150**
[Xenon]	**66.4%**	**67.7%**
[Iodine]	**48.65%**	**40%**
Reactivity (Xe)	**-1765**	**-1791**

- **The Power Change Worksheet program is not available.**
- **A Reactor Operator has calculated a dilution using the manual method.**
- **Your job is to verify that the Manual Power Change Worksheet (40OP-9ZZ05, Appendix O) has been performed correctly.**

Annotate any/all mistakes (non-clerical) you find on the cue sheet provided.

CANDIDATE

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1290020301 Conduct of Shift Operations

TASK STANDARD: Area Operator determined to not be able to stand watch.
SRO determined to NOT meet overtime limitation exception criteria.

K/A: 2.1.5 K/A RATING: RO: 2.9 SRO: 3.9

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

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

REFERENCES: 01DP-9EM01, OVERTIME LIMITATIONS

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Phil Capehart Date: 6/8/2005

Revised By: Jordan Johnston Date: 5/2/2008

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- **Blank copy** of 01DP-9EM01, OVERTIME LIMITATIONS, Rev. 6.
- Calculator
- Access to the Operations 72 hour calculator on the intranet is not allowed for this JPM.

TASK CONDITIONS

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

- You may use any source of information normally available.

INITIATING CUE:

1. The following Unit 1 outage working hour history is given for you as the CRS and one of your Area Operators.

Date	CRS	Area Operator
11/2 (Day 1)	12 hrs (DS)	12 hrs (NS)
11/3	12 hrs (DS)	OFF
11/4	12 hrs (DS)	OFF
11/5	OFF	12 hrs (DS)
11/6	12 hrs (DS)	12 hrs (DS)
11/7	12 hrs (DS)	12 hrs (DS)
11/8	12 hrs (DS)	12 hrs (DS)
11/9	12 hrs (DS)	12 hrs (DS)
11/10	12 hrs (DS)	12 hrs (DS)

DS=Dayshift NS=Nightshift

2. You and the Area Operator are scheduled to work dayshift today, 11/11

INITIATING CUE:

- **You are to evaluate the working hour history for yourself and the Area Operator to determine whether both of you can work a full dayshift of 12 hours on 11/11. Explain the basis for each of your conclusions.**
- **Access to the Operations 72 hour calculator table on the intranet is not available for this task.**

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.

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1.	Obtain 01DP-9EM01, Overtime Limitations	**If candidate requests access to the Operations 72 hour calculator, CUE: the calculator is not available.**	Obtains 01DP-9EM01, Overtime Limitations. Note: Access to the Operations 72 hour calculator on the intranet is not allowed for this JPM.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	The number of hours worked shall be controlled in accordance with the limitations set in 01DP-9EM01, Overtime Limitations.		Assess hours worked and conclude the following: The SRO **can** work the entire 12 hour dayshift.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	The number of hours worked shall be controlled in accordance with the limitations set in 01DP-9EM01, Overtime Limitations.		Assess hours worked and conclude the following: The Area Operator can **NOT** take the shift unless an exception is given because the next hour worked will result in him exceeding 72 hours in a 168 hour period.
SAT / UNSAT **Comments (required for UNSAT):**			

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
4. *	The number of hours worked shall be controlled in accordance with the limitations set in 01DP-9EM01, Overtime Limitations.	**INFORM CUE:** **Assume you, the CRS, have just completed a 12 hour shift with a half hour turnover on November 11th and you are now in the break room. You receive a page from the Control Room that your help is needed in performing a routine Surveillance Test (ST) in containment for about 2 hours. Identify any working hour limits associated with this additional task.** **If requested CUE: Other operators are available to perform this ST.** **When requested, CUE (as appropriate): I understand the ST work may/may not be performed.**	Assesses whether the CRS can assist with the ST. Candidate concludes that the ST work may NOT be performed due to exceeding working hour limits of any one of the following: • 24 in 48 hrs • 72 in 168 hrs • 8 hr break between work periods **Examiner Note**: The work could be performed if an Overtime Limitation Exception Report is processed and approved. However for this scenario it should not be approved. This work could be reasonably performed by another operator.
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

SA 2

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	06/8/05	New	Original
1	7/1/05	NRC	Step 4 add cue that others can perform the ST.
2	5/2/08	3	Procedure now Rev 6.

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)

INITIATING CUE:

1. The following Unit 1 outage working hour history is given for you as the CRS and one of your Area Operators.

Date	CRS	Area Operator
11/2 (Day 1)	12 hrs (DS)	12 hrs (NS)
11/3	12 hrs (DS)	OFF
11/4	12 hrs (DS)	OFF
11/5	OFF	12 hrs (DS)
11/6	12 hrs (DS)	12 hrs (DS)
11/7	12 hrs (DS)	12 hrs (DS)
11/8	12 hrs (DS)	12 hrs (DS)
11/9	12 hrs (DS)	12 hrs (DS)
11/10	12 hrs (DS)	12 hrs (DS)

DS=Dayshift NS=Nightshift

2. You and the Area Operator are scheduled to work dayshift today, 11/11

INITIATING CUE:

- **You are to evaluate the working hour history for yourself and the Area Operator to determine whether both of you can work a full dayshift of 12 hours on 11/11. Explain the basis for each of your conclusions.**
- **Access to the Operations 72 hour calculator table on the intranet is not available for this task.**

CANDIDATE

SA 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1280010202 Review Surveillance Tests

TASK STANDARD: Identify three (3) errors

K/A: 2.2.12 K/A RATING: RO: 3.7 SRO: 4.1

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

APPLICABLE POSITION(S): SRO VALIDATION TIME: 15 minutes

REFERENCES: 41ST-1ZZ02, Inoperable Sources Action Statement

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 5/25/05

Revised By: Jordan Johnston Date: 5/2/08

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

SA 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- Completed copy of 41ST-1ZZ02 with three (3) errors.

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:

- **Unit 1 is in mode 1 with Emergency Diesel Generator 'A' inoperable due to a broken fuel line.**
- **41ST-1ZZ02, Inoperable Power Sources Action Statement, Appendix B, has been completed.**
- **The rest of the electric plant is in a normal 100% full power lineup.**

As the CRS your task is to:

- **Review a completed 41ST-1ZZ02, "Inoperable Power Sources Action Statement: Appendix B, One Diesel Generator Inoperable".**

- **Identify at least (3) errors (Non-clerical, not typos).**
- **Markup procedure as needed to assist in correcting mistakes.**

(If this is given in the simulator, the simulator indications are not part of this 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.
- 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.

SA 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Verify Appendix B, step 1.1 was completed.		Examinee notes that breaker NAN-S03A is marked as closed but PBA-S03 Voltage Indicated is marked NO. **This is the first error.** **NOTE:** Examinee may notice that at least one of the following breakers should be open (step 3 below) NBN-S01A/NBN-S02A/NBN-S01C. This is documented in step 1.4 at the bottom (Error #2).
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2.	Verify Appendix B, step 1.2 and 1.3 were completed.		Examinee notes that all applicable boxes are filled in properly.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Verify Appendix B, step 1.4 was completed.		Examinee notes acceptance criteria for train separation (last box) is incorrectly marked as satisfied (see Appendix B step 1.1 above). **This is the second error.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
4. *	Verify Appendix B, step 2.1 was completed.		Examinee notes H2 Recombiners are marked NA but they are required in Modes 1 and 2. **This is the third error.**
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

SA 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	5/24/05	6	Changed the error on step one to prevent examinees from counting two errors on the same step.
002	5/2/08	6	JPM format change.

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)

SA 3

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

- **Unit 1 is in mode 1 with Emergency Diesel Generator 'A' inoperable due to a broken fuel line.**
- **41ST-1ZZ02, Inoperable Power Sources Action Statement, Appendix B, has been completed.**
- **The rest of the electric plant is in a normal 100% full power lineup.**

As the CRS your task is to:

- **Review a completed 41ST-1ZZ02, "Inoperable Power Sources Action Statement: Appendix B, One Diesel Generator Inoperable".**
- **Identify at least (3) errors (Non-clerical, not typos).**
- **Markup procedure as needed to assist in correcting mistakes.**

(If this is given in the simulator, the simulator indications are not part of this JPM.)

CANDIDATE

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

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

TASK STANDARD: Determine dose limits and hold points

K/A: 2.3.7 K/A RATING: RO: 3.5 SRO: 3.6

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

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

REFERENCES: 75DP-9RP01, Radiation Exposure and Access Control

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 5/7/08

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- Calculator
- Pen and Paper
- 75DP-9RP01 (as well as other RP procedures in a reference book)

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.

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIATING CUE:

You are the Outage SRO. You will be assigning a job to one AO from a work pool of three (listed below).

The job is to depressurize and drain piping associated with Main Spray valve 100F.

RP surveys show the AO will be in a 200 mr/hr field. The job will take 45 minutes.

Evaluate the information about each AO below and answer the questions below.

2008 Exposure (in mrem)	L. Fine – RW Operator	B. Abbott – Shift AO	M. Howard – FIN Operator
1st Quarter	1627 Most exposure was from Spent resin operations	412	103
2nd Quarter	373	310	62
3rd Quarter	302	192	24
4th Quarter (to date)	52	982 Most exposure was from RCP lineups at outage beginning	1207 Most exposure was from EDT sludge lancing support.

List any hold point that may occur during this job (assuming each one performed the evolution).

List whose approval would be necessary for any hold points that would be exceeded.

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

Which AO would require the lowest level of management approval (if any) to do the job?

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 <u>any</u> valves.

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	Determine dose		Examinee calculates that 150 mrem will be accumulated on this job.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	Determine hold points.		Examinee determines hold points: **L. Fine** – would exceed 2500 mrem for the calendar year. **B. Abbott** – would exceed 2000 mrem for the calendar year. **M. Howard** – would exceed 1500 mrem for the calendar year.
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	Determine whose approval required		L. Fine – Alara committee B. Abbott – RP Director M. Howard – RP Dept. Leader
SAT / UNSAT **Comments (required for UNSAT):**			

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

	STEP	CUE	STANDARD
4. *	Which AO requires lowest approval		M. Howard- FIN operator. (RP Department Leader).
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: ____

NORMAL TERMINATION POINT

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

INITIATING CUE:

You are the Outage SRO. You will be assigning a job to one AO from a work pool of three (listed below).

The job is to depressurize and drain piping associated with Main Spray valve 100F.

RP surveys show the AO will be in a 200 mr/hr field. The job will take 45 minutes.

Evaluate the information about each AO below and answer the questions below.

2008 Exposure (in mrem)	L. Fine – RW Operator	B. Abbott – Shift AO	M. Howard – FIN Operator
1st Quarter	1627 Most exposure was from Spent resin operations	412	103
2nd Quarter	373	310	62
3rd Quarter	302	192	24
4th Quarter (to date)	52	982 Most exposure was from RCP lineups at outage beginning	1207 Most exposure was from EDT sludge lancing support.

List any hold point that may occur during this job (assuming each one performed the evolution).

List whose approval would be necessary for any hold points that would be exceeded.

Which AO would require the lowest level of management approval (if any) to do the job?

CANDIDATE

SA 4

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

Candidate Worksheet

2008 Exposure (in mrem)	L. Fine – RW Operator	B. Abbott – Shift AO	M. Howard – FIN Operator
1st Quarter	1627	412	103
2nd Quarter	373	310	62
3rd Quarter	302	192	24
4th Quarter (to date)	52	982	1207

List any hold point that may occur during this job (assuming each one performed the evolution).

L. Fine

B Abbott

M Howard

List whose approval would be necessary for any hold points that would be exceeded.

L. Fine

B Abbott

M Howard

Which AO would require the lowest level of management approval (if any) to do the job?

SA 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM BASIS INFORMATION

TASK: 1240100202 Classify events requiring emergency plan implementation

TASK STANDARD: Determine EALs and Classification

K/A: 2.4.41 K/A RATING: RO: 2.9 SRO: 4.6

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

APPLICABLE POSITION(S): SRO VALIDATION TIME: 15 minutes

REFERENCES: EPIP-99

SUGGESTED TESTING ENVIRONMENT: SIMULATOR [X] PLANT [ ]

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 4/24/2008

Revised By: Date:

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 / UNSAT①

① *For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation.*
PVAR # _____

SA 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

1. SIMULATOR SETUP:

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

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:

- EPIP-99

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:

The following events are occurring in Unit 1:

- **15 minutes ago the unit was tripped due to a locked rotor on RCP 1A.**
- **The reactor did not automatically trip; L3 and L10 had to be de-energized from B01.**
- **On the trip, offsite power was lost.**
- **DG B tripped on overspeed.**
- **DG A tripped on Generator Differential.**

- **AFA-P01 tripped on startup. The CRS implemented the Functional Recovery Procedure and operators have recovered (reset) AFA-P01 locally.**

Perform the three following tasks:

List ALL Emergency Action Levels that are CURRENTLY MET.

What is the Classification of this event?

List all EALs that are CURRENTLY DRIVING this classification.

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.

SA 5
PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

JPM START TIME: _____

	STEP	CUE	STANDARD
1. *	What EALs are met?		**5-4** Failure of RPS to initiate or complete an automatic reactor shutdown and manual shutdown was successful. **2-5** Loss of offsite and onsite AC power >15 minutes. **1-8** LOAF such that minimum feedwater cannot be maintained **Note: Candidate may list lower level EALs such as 2-1 (LOOP >15 min) as being met. There is no credit or loss for this.**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
2. *	What is the classification?		**Site Area Emergency**
SAT / UNSAT **Comments (required for UNSAT):**			

	STEP	CUE	STANDARD
3. *	What EALs are driving the classification?		**2-5**
SAT / UNSAT **Comments (required for UNSAT):**			

JPM STOP TIME: _____

NORMAL TERMINATION POINT

SA 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS

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)

SA 5

PVNGS JOB PERFORMANCE MEASURE

2008 NRC Exam

INITIAL CONDITIONS

INITIATING CUE:

The following events are occurring in Unit 1:

- **15 minutes ago the unit was tripped due to a locked rotor on RCP 1A.**
- **The reactor did not automatically trip; L3 and L10 had to be de-energized from B01.**
- **On the trip, offsite power was lost.**
- **DG B tripped on overspeed.**
- **DG A tripped on Generator Differential.**
- **AFA-P01 tripped on startup. The CRS implemented the Functional Recovery Procedure and operators have recovered (reset) AFA-P01 locally.**

Perform the three following tasks:

List ALL Emergency Action Levels that are CURRENTLY MET.

What is the Classification of this event?

List all EALs that are CURRENTLY DRIVING this classification.

Use this as your answer sheet.

CANDIDATE

Facility: PVNGS Scenario No.: 1 Op-Test No: 2008

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: IC #50, 100% power, MOC.

Turnover: Unit 1 has been at 100% power for the past 150 days. The alarm window on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days. Train B is protected equipment. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1	cmTRRX09RCCPDT125_1	I CO/SRO (TS)	After the crew performs the beginning of shift reactivity brief, SG 2 d/P Transmitter RCC-PDI-125C fails low. CO evaluates Alarm Response 41AL-1RK5A. SRO evaluates LCO 3.3.1. CO will bypass the parameter at the PPS cabinets.
2	mfRC03A f:1	C RO/SRO	RCP 1A Thrust Bearing oil level is low. RO refers to the Alarm Response procedure **40AL-9RJ01**. SRO directs restoring oil level above the alarm setpoint per **40OP-9RC01**.
3	mfRD02A	R CO/RO/SRO (TS)	CEA 14 drops completely into the core. Crew enters 40AO-9ZZ11. Crew begins a 20% downpower. **Critical Task – Begin downpower within 15 minutes**
4	cmCPRC02RCEP01A_1 Scenario file "atws"	M- ALL C RO/SRO	RCP 1A motor becomes uncoupled from the pump. The Reactor does NOT automatically trip. The Crew must open supply breakers to Load Centers 3 and 10 to Deenergize CEDMCS. **Critical Task –When reactor trip setpoints are exceeded with no automatic trip, manually trip (including deenergizing CEDMCS bus) the reactor prior to exiting SPTAs.**
5	mfED02 mfED13A	C CO/RO/SRO	The Unit loses Offsite power. The CRS enters 40EP-9EO07. Instrument bus NNN-D11 is lost, requiring manual operation of ADVs by the CO. The RO will secure RCP Seal Bleedoff. **Critical Task – Use spray and/or control Heat Removal to prevent lifting primary safeties.**
6	mfFW21A (AFN trip) **or** mfFW21B (AFB trip) **or** mfFW22 (AFA trip)	C-CO	The running Auxiliary Feedwater Pump trips. The CO shifts feed source to an unaffected pump.
End point			

* (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. MOC 250 EFPD. Normal Chiller A is tagged out for scheduled maintenance. Estimated return to service is 3 days.

Fuel Pool Cleanup is not recirculating the RWT.

Equipment out of service:

The alarm window on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

No other activities are planned.

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.

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

Op-Test No: _2008_ Scenario No.: 1 Event No: 1 Page 1 of 9

Event Description: Failed SG d/P transmitter, RCC-PDI-125C

Time	Position	Applicant's Actions or Behavior
T=0	CO	Evaluates alarm windows 12C and 12D per **41AL-1RK5A**. Determines that SG 2 Differential Pressure Transmitter RCC-PDI-125C has failed low.
	CRS	Evaluates T.S. LCO 3.3.1. Determines that the following parameters must be placed in bypass within 1 hour: • SG-2 Lo Flow, Ch C. The CRS may also evaluate LCOs 3.4.1 and 3.4.4 No actions required.
	CO	Bypasses affected channels at RPS. • Obtains key • Depresses bypass button for SG-2 Lo Flow at "C" PPS cabinets

Op-Test No: _2008_ Scenario No.: 1 Event No: 2 Page 2 of

Event Description: RCP 1A Thrust Bearing Oil low

Time	Position	Applicant's Actions or Behavior
T=8	RO	Recognizes RJ point in alarm on unit alarm screen. Determines that RCP 1A thrust bearing oil level is low.
	CRS	Directs RO to evaluate per 40AL-9RJ01, PMS Alarm Response.
	RO	40AL-9RJ01 will direct restoring thrust bearing oil level by using 40OP-9RC01. Uses Section 14.3.2 1. Check that the Oil Lift Tank has at least 8% level.(RCL131) 2. Start the RCP Oil Lift Pump using RCN-HS-10 for RCP 1A. 3. Monitor the Upper Thrust Bearing Oil Reservoir level for RCP 1A (RCL107P). 4. **WHEN** the Upper Thrust Bearing Oil Reservoir level is between 64%and 85%, (target level 78%) **THEN** stop the selected RCP Oil Lift Pump: * ____ RCN-HS-10 for RCP 1A *Examiner Note: the tank levels being monitored in this evolution are computer points, not board indications. The crew will monitor these on the Plant Computer or ERFDADS.*

Op-Test No: 2008 Scenario No.: 1 Event No: 3 Page 3 of

Event Description: CEA 14 drops into the core

Time	Position	Applicant's Actions or Behavior
T=20	Crew	Responds to alarms on Board 3, determines that a CEA 14 has slipped into the core
	CRS	Implement CEA Malfunction procedure, 40AO-9ZZ11. • Direct CEDMCS to Standby • Directs performance of Appendix E, Initial Actions.
	RO	Place CEDMCS in Standby using the Mode Select switch on the CEDMCS panel.
	CRS	Performs Reactivity Brief with crew on initial power reduction Directs lowering turbine load to raise Tave 3 degrees F greater than Tref within 10 minutes of the CEA slip. **Critical Task – Begin Downpower within 15 minutes**
	CO	Lowers Turbine load to raise Tave greater than Tref by 3 degrees F. **Evaluator note: The Critical Task is met when load is taken off the turbine.**
	CRS	Performs calculations for 20% power reduction Performs Reactivity Brief for lowering power to 80% Directs crew to perform unit downpower May contact ECC to inform them of downpower *Examiner note – boration amount should be around 900 gallons*
	RO	Places Pressurizer in boron equalization 1. Override and energize all pressurizer backup heaters by first going to "off" and then to "on" with the following handswitches: RCA-HS-100-4 RCB-HS-100-5 RCN-HS-100-6 RCN-HS-100-7 RCN-HS-100-8 RCN-HS-100-9 2. Lower the setpoint on RCNPIC-100, Pressurizer Pressure Controller

	RO	to 2220 psia. Borates the RCS for downpower using 40OP-9CH01 (basic steps the RO will perform) 7.3.6 Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 7.3.7 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. 7.3.8 **IF** the reactor is critical, **THEN** ensure CEDMCS is in the desired mode of operation per CRS direction. 7.3.12 **IF** borating directly to the VCT, **THEN** place CHN-HS-512, Makeup Inlet to VCT in the OPEN position. 7.3.10 Start the boration as follows: 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). 7.3.11 Check for **BOTH** of the following: • One boric acid pump started • CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 7.3.12 **IF** borating directly to the suction of the charging pumps, **THEN** ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open. 7.3.13 On CHN-FIC-210Y (Foxboro) check that "Process Flow" increases (middle bar graph) towards the Auto setpoint, overshoots the Auto setpoint and then stabilizes at the Auto setpoint. 7.3.14 Check proper flow indicated on CHN-FIC-210Y.
	CO	Lowers Turbine load to maintain temperature on program using the Turbine Load Limit potentiometer on Board 6.
	CRS	Enters LCO 3.1.5 Condition A and LCO 3.2.4 Condition B. *Examiner Note – Page 21 of 40AO-9ZZ11 addresses TS. CRS may o get to address L.C.O.s 3.1.5 and 3.2.4 within the timing of the event. This can be followed up after the scenario*

Op-Test No: 2008 Scenario No.: 1 Event No: 4 Page 5 of

Event Description: RCP 1A motor uncouples, ATWS
Loss of NNN-D11

Time	Position	Applicant's Actions or Behavior
T=40	Crew	Recognizes that reactor trip setpoints have been exceeded
	CO	Attempts to trip the reactor using pushbuttons on Board 5. (this will not trip the reactor)
	RO	Opens breakers supplying power to Load Centers 3 and 10 on Board 1. **Critical Task – When reactor trip setpoints are exceed with no automatic trip, manually trip (including de-energizing CEDMCS bus) the reactor prior to exiting SPTAs.**
	CRS	When the reactor trips, goes to **40EP-9EO01**, Standard Post Trip Actions (SPTAs). 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: a. Check that reactor power is dropping. b. Check that start-up rate is negative. c. Check that **ALL** full strength CEAs are inserted 5. Determine that Maintenance of Vital Auxiliaries acceptance criteria are met by the following: 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: • 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: a. Check that Pressurizer level meets **BOTH** of the following: • 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. • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by **BOTH** of the following: • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia

		6. Determine that Core Heat Removal acceptance criteria are met by **ALL** of the following: • 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: a. Check that at least one Steam Generator meets **BOTH** of the following conditions: • 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. 8. Determine that Containment Isolation acceptance criteria are met by the following: a. Check that Containment pressure is less than 2.5 psig. b. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 c. REFER TO Appendix 7, List of EOP Radiation Monitors and check **BOTH** of the following conditions: • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity 9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following: a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. 10. **IF** all acceptance criteria are met, **AND** no contingency actions were performed, **THEN** GO TO 40EP-9EO02, Reactor Trip. 11. **IF** any acceptance criteria are **NOT** met, **OR ANY** contingency action was taken, **THEN** GO TO Section 4.0, Diagnostic Actions to diagnose the event.
Lead Evaluator – Near the end of SPTAs, cue the next event (Loss AFW).		
		Observes that SBCS is not working and takes contingency actions for heat

<table>
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<td>CO</td>
<td>
removal by using ADVs.
Opens two permissives for each ADV used (one per SG):
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HS-184A</td><td>SGB-HS-178A</td><td>SGB-HS-185A</td><td>SGA-HS-179A</td></tr>
<tr><td>SGC-HS-184B</td><td>SGD-HS-178B</td><td>SGD-HS-185B</td><td>SGC-HS-179B</td></tr>
</table>
Opens selected ADVs using the appropriate contoller:
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HIC-184A</td><td>SGB- HIC-178A</td><td>SGB- HIC-185A</td><td>SGA- HIC-179A</td></tr>
</table>
Ensures SGs have adequate feed. At this point, Main Feed is still available and should be feeding in Reactor Trip Override.

Performs SPTAs. Responsible for the following Safety Functions/actions:

Reactivity report (either operator may give this)
Main Turbine and Generator output breaker report
RCS heat removal, including Tc, SG levels, SG pressures.
Containment Isolation: Containment pressure and radiation monitors (either operator may give this).
Containment Temperature and Pressure Control: Containment pressure and temperature (either operator may give this).

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<td>RO</td>
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Performs SPTAs. Responsible for the following Safety Functions/actions:

Maintenance of Vital Auxiliaries: Electric plant report, Board 1.
RCS Inventory Control: Pressurizer level, subcooling, and NCW flow to RCPs.
RCS Pressure Control: RCS Pressure
Core Heat Removal: RCP status, Loop ΔT, subcooling.

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Op-Test No: 2008 Scenario No.: 1 Event No: 5 Page 8 of

Event Description: Loss of Offsite Power

Time	Position	Applicant's Actions or Behavior
T=50	CRS	Diagnoses LOOP, enters **40EP-9EO07.**
	CO	Determines that power has been lost to support Main Feedwater operations Establishes a feed source using AFN-P01, AFB-P01 or AFA-P01. **AFB** • Starts AFB-P01 on Board 6. (AFB-HS-10) • Opens AFB-UV-34 and AFB-UV-35 on Board 6. (Using AFB-HS-34A and AFB-HS-35A) • Throttles open AFB-UV-30 and AFB-UV-31 to establish feed both SGs. (Using AFB-HS-30A and AFB-HS-30A) **AFA** • Starts AFA-P01 on Board 6 by opening steam supply valves (Using SGA-HS-134A and SGA-HS-138A) • Opens AFC-UV-36 and AFA-UV-37 on Board 6. (Using AFC-HS-36A and AFA-HS-37A) • Throttles open AFA-UV-32 and AFC-UV-33 to establish feed both SGs. (Using AFA-HS-32A and AFC-HS-33A) **AFN** • Opens AFN-P01 suction valves CT-HV-1 and CT-HV-4 on Board 6. (Using CT-HS-1 and CT-HS-4) • Starts AFN-P01 on Board 6. (AFA-HS-11) • Opens Downcomer Isolation valves for SG 1, SGA-UV-172 and SGB-UV-130. (Using SGA-HS-172 and SGB-HS-130) • Opens Downcomer Isolation valves for SG 2, SGA-UV-175 and SGB-UV-135. (Using SGA-HS-175 and SGB-HS-135)
	RO	Evaluates RCP operating criteria. • Determines that NCW and RCPs have been deenergized. • Shuts Containment Control Bleedoff Isolation valves CHA-UV-506, CHB-UV-505, and CHA-HV-507. (using CHA-HS-506, CHB-HS-505, and CHA-HS-507) Re-enables automatic operation of heaters (due to NNN-D11 loss) Takes RCN-HS-100-3 to the "X" position.

Op-Test No: 2008 Scenario No.: 1 Event No: 6 Page 9 of

Event Description: Trip AFW pump

Time	Position	Applicant's Actions or Behavior
T=55	CO	Establishes feed with another Auxiliary Feed Pump. Evaluator Note: the CO will lose whichever of the three AFW pumps he initially started. The actions below will cover starting any of the remaining pumps. **AFB** • Starts AFB-P01 on Board 6. (AFB-HS-10) • Opens AFB-UV-34 and AFB-UV-35 on Board 6. (Using AFB-HS-34A and AFB-HS-35A) • Throttles open AFB-UV-30 and AFB-UV-31 to establish feed both SGs. (Using AFB-HS-30A and AFB-HS-30A) **AFA** • Starts AFA-P01 on Board 6 by opening steam supply valves (Using SGA-HS-134A and SGA-HS-138A) • Opens AFC-UV-36 and AFA-UV-37 on Board 6. (Using AFC-HS-36A and AFA-HS-37A) • Throttles open AFA-UV-32 and AFC-UV-33 to establish feed both SGs. (Using AFA-HS-32A and AFC-HS-33A) **AFN** • Opens AFN-P01 suction valves CT-HV-1 and CT-HV-4 on Board 6. (Using CT-HS-1 and CT-HS-4) • Starts AFN-P01 on Board 6. (AFA-HS-11) • Opens Downcomer Isolation valves for SG 1, SGA-UV-172 and SGB-UV-130. (Using SGA-HS-172 and SGB-HS-130) • Opens Downcomer Isolation valves for SG 2, SGA-UV-175 and SGB-UV-135. (Using SGA-HS-175 and SGB-HS-135) **Critical Task – Stabilize secondary heat removal to avoid lifting Pressurizer safeties**
		NORMAL SCENARIO END POINT

Facility: PVNGS Scenario No.: 2 Op-Test No: 2008

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: IC #50, 100% power, MOC.

Turnover: Unit 1 has been at 100% power for the past 150 days. The alarm window on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days. Train B is protected equipment. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1	cmCNCV04CHNFIC244_2	C RO/SRO	After the crew performs the beginning of shift reactivity brief, Seal Injection Flow Controller CHN-FIC-244 (RCP 2B) starts controlling high out of the band. The SRO directs the RO to place the controller in manual to stabilize the system.
2	cmTRRX12SGDLT1113D_1	I CO/SRO (TS)	SG 1 Channel D Wide Range Level transmitter fails low. CO evaluates Alarm Response **41AL-1RK5A**. SRO evaluates LCO 3.3.1 and 3.3.5. CO will bypass parameters 7, 18, and 19 at the D PPS cabinet.
3	cmCPHV17HJNJ01A_2	C RO/SRO	The A Battery Room Normal Exhaust fan trips. RO refers to **41AL-1RK2A**. SRO directs RO to start the A Battery Room Essential Exhaust fan.
4	mfTH06B f:.4	C CO/RO/SRO (TS)	SG 2 develops a 5 gpm leak. SRO enters **40AO-9ZZ02**, Excessive RCS Leakrate. RO sets up for leak rate determination. CO minimizes release to environment. SRO evaluates LCO 3.4.14 for SG leakage.
5	mfTH06B f:50	M- ALL	The leaking tube completely fails on SG 2. The crew will recognize the increased leak rate and trip the reactor.
6	mfSI01B cmCPSI01SIAP02A_5	C-RO	HPSI B trips, HPSI A fails to start. RO starts HPSI A to establish Safety Injection flow. **Critical Task – Ensure adequate Safety Injection flow to meet Inventory Control Safety Function.**
7	mfMS03C	C CO/RO/SRO	SG 2 develops a steam leak in the MSSS. SRO enters the **Functional Recovery Procedure**. CO will be directed to feed SG 2 1360-1600 gpm. RO will secure two RCPs on low RCS pressure. **Critical Task – Feed a rupture and faulted SG 1360-1600 gpm prior to exiting the FRP.**
End point			

* (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. MOC 250 EFPD. Normal Chiller A is tagged out for scheduled maintenance. Estimated return to service is 3 days.

Fuel Pool Cleanup is not recirculating the RWT.

Equipment out of service:

The alarm window on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

No other activities are planned.

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.

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

Op-Test No: _2008_ Scenario No.: 2 Event No: 1 Page 1 of 11

Event Description: RCP Seal injection failure

Time	Position	Applicant's Actions or Behavior
T=0	RO	Evaluates alarm window 3A11B per **40AL-9RK4A**. Determines that Seal Injection Valve Controller CHN-FIC-244 has failed.
	CRS	May enter 40AO-9ZZ04, RCP Pump and Motor Emergencies. Directs RO to take manual control of valve controller and restore flow to the normal band per **40AL-9RK4A,** Secondary Priority Action 1.
	RO	Takes manual control of CHN-FIC-244 and returns flow to normal (~6.6 gpm).

Op-Test No: 2008 Scenario No.: 2 Event No: 2 Page 2 of

Event Description: SG 1 level SGD-LT-1113D fails low

Time	Position	Applicant's Actions or Behavior
T=7	CO	Evaluates alarm windows 5A9C and 5A9D per **41AL-1RK5A**. Determines that SG 1 Level Transmitter SGD-LT-1113D has failed low.
	CRS	Evaluates T.S. LCO 3.3.1 and 3.3.5. Determines that the following parameters on Channel D must be placed in bypass within 1 hour: • LO SG-1 Level (PPS) • LO SG-1 Level (ESFAS) • LO SG-2 Level (ESFAS) The CRS may also evaluate LCOs 3.3.2, 3.3.6, 3.3.11, and 3.3.10. No actions required.
	CO	Bypasses affected channels at RPS. Obtains key Depresses bypass buttons on Channel D at PPS cabinets • LO SG-1 Level (PPS) • LO SG-1 Level (ESFAS) • LO SG-2 Level (ESFAS)

Op-Test No: 2008 Scenario No.: 2 Event No: 3 Page 3 of

Event Description: Battery Room Normal Fan A fails

Time	Position	Applicant's Actions or Behavior
T=15	RO	Evaluates alarm window 2A01A per **41AL-1RK2A**.
	CRS	Directs RO to follow ARP
	RO	Starts Battery Room A Essential Exhaust fan using HJA-HS-81.

Op-Test No: 2008 Scenario No.: 2 Event No: 4 Page 4 of

Event Description: Steam Generator #2 Tube Leak

Time	Position	Applicant's Actions or Behavior
T=20	CO	Evaluates alarm on RMS per 74RM-9EF41.
	CRS	Enters ZZ02 Section 5. 1. **IF** pressurizer level is lowering, **THEN** ensure all available Charging Pumps are running. 2. **IF** all available Charging Pumps are running, **AND** pressurizer level is lowering, **THEN** isolate letdown. 3. **IF ALL** of the following conditions exist: • All available Charging Pumps are operating • Letdown is isolated • Pressurizer level is lowering **THEN** perform the following: a. Ensure that the Reactor is tripped. b. GO TO **ONE** of the following: • 40EP-9EO01, Standard Post Trip Actions • 40EP-9EO11, Lower Mode Functional Recovery 4. Ensure the event is being classified. 5. **IF** the unit is in Mode 1 - 4, **THEN** ensure compliance with LCO 3.4.14, RCS Operational Leakage. 6. Direct Chemistry to perform 74DP-9ZZ05, Abnormal Occurrence Checklist. 7. Notify Radiation Protection that an RCS leak exists. 8. Determine the leakrate using **ANY** of the following: • 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 9. REFER TO Appendix F, Steam Generator Tube Leak Guidelines. 10. **IF** the plant will be shutdown, **THEN** PERFORM 40OP-9ZZ05, Power Operations. 11. PERFORM Appendix C, Minimize Release to the Environment. 12. PERFORM 40DP-9ZZ14, Contaminated Water Management. 13. Direct an operator to PERFORM Appendix D, Aligning Turbine Building Sumps to LRS. 14. Direct Chemistry to sample the condensate and other connecting systems,

		including turbine building sumps for activity. 15. **IF** the unit is in Mode 1 - 4, **THEN** ensure compliance with LCO 3.7.16, Secondary Specific Activity.
	CO	*Examiner Note: this is a summary of the actions that the CO is expected to take in Appendix C* Perform Appendix C, Minimize Release to the Environment. 1. Ensure ARN-HS-19, Post FilterMode Select Switch, is in the"THRU FILTER MODE." 3. Select "OFF" on BOTH of the following switches: • SGN-HS-1007, Valve 7 Mode Select • SGN-HS-1008, Valve 8 Mode Select 4. Direct an operator to PERFORM Attachment C-1, Condensate Cross-Tie Isolation. 5. Throttle open CDN-HV-275, Demineralizer Water Feed to Condensate Service Header Valve, to maintain 50 - 100 psig on CDN-PI-201. 6. Direct an operator to close CDN-V099, "CONDENSATE SERVICE HDR SUPPLY REG VALVE CDN-PV-200 OUTLET ISOL VALVE".(110 ft. Turb Bldg between Cond Pumps & C Condenser on Platform) 7. Ensure that **BOTH** of the following Condensate Pump Overboard Valves are closed: • CDN-HV-29 • CDN-HV-30
	CRS	Determines a downpower is needed per 40AO-9ZZ02
	RO	Starts a boration or inserts CEAs for the downpower. (basic steps the RO will perform for boration) 7.3.6 Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 7.3.7 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. 7.3.8 **IF** the reactor is critical, **THEN** ensure CEDMCS is in the desired mode of operation per CRS direction. 7.3.9 **IF** borating directly to the VCT, **THEN** place CHN-HS-512, Makeup Inlet to VCT in the OPEN position. 7.3.10 Start the boration as follows: 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). 7.3.11 Check for **BOTH** of the following: • One boric acid pump started

		• CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 7.3.12 **IF** borating directly to the suction of the charging pumps, **THEN** ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open. 7.3.13 On CHN-FIC-210Y (Foxboro) check that "Process Flow" increases (middle bar graph) towards the Auto setpoint, overshoots the Auto setpoint and then stabilizes at the Auto setpoint. 7.3.14 Check proper flow indicated on CHN-FIC-210Y.
	CO	Reduces turbine load as necessary to maintain primary temperature as directed by the CRS.

Op-Test No: 2008 Scenario No.: 2 Event No: 5 Page 7 of

Event Description: Steam Generator #2 Rupture

Time	Position	Applicant's Actions or Behavior
T=35	RO	Determines that leak is now greater than makeup capacity.
	CRS	Determines that trip criteria is met, directs Reactor Trip. When the reactor trips, goes to **40EP-9EO01**, Standard Post Trip Actions (SPTAs). 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: 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: 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: • 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: a. Check that Pressurizer level meets **BOTH** of the following: • 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. • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by **BOTH** of the following: • 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: • 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: a. Check that at least one Steam Generator meets **BOTH** of the following conditions: • 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. 8. Determine that Containment Isolation acceptance criteria are met by the following: a. Check that Containment pressure is less than 2.5 psig. b. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 c. REFER TO Appendix 7, List of EOP Radiation Monitors and check **BOTH** of the following conditions: • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity 9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following: a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. 10. **IF** all acceptance criteria are met, **AND** no contingency actions were performed, **THEN** GO TO 40EP-9EO02, Reactor Trip. 11. **IF** any acceptance criteria are **NOT** met, **OR ANY** contingency action was taken, **THEN** GO TO Section 4.0, Diagnostic Actions to diagnose the event.
	CO	Performs SPTAs. Responsible for the following Safety Functions/actions:

		• Reactivity report (either operator may give this) • Main Turbine and Generator output breaker report • RCS heat removal, including Tc, SG levels, SG pressures. • Containment Isolation: Containment pressure and radiation monitors (either operator may give this). • Containment Temperature and Pressure Control: Containment pressure and temperature (either operator may give this).
	RO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Maintenance of Vital Auxiliaries: Electric plant report, Board 1. • RCS Inventory Control: Pressurizer level, subcooling, and NCW flow to RCPs. • RCS Pressure Control: RCS Pressure • Core Heat Removal: RCP status, Loop ΔT, subcooling.
	CRS	Diagnoses SGTR with a concurrent ESD from the faulted SG, **enters 40EP-9EO09**, Functional Recovery Procedure.

Op-Test No: 2008 Scenario No.: 2 Event No: 6 Page 10 of

Event Description: HPSI fails to start

Time	Position	Applicant's Actions or Behavior
T=40	RO	Determines that neither HPSI is running Checks SESS panel and verifies that HPSI B has tripped. Starts HPSI A to establish Safety Injection flow. (using SIA-HS-1) **Critical Task – Ensure Adequate Safety Injection flow to meet Inventory Control Safety Function.**

Op-Test No: _2008_ Scenario No.: 2 Event No: 7 Page 11 of

Event Description: ESD from Ruptured Steam Generator

Time	Position	Applicant's Actions or Behavior
T=50	Crew	Diagnoses that SG 2 has ESD.
	RO	Secures 2 RCPs when RCS pressure is less than 1837 psia.
	CRS	Enters Functional Recovery Procedure Performs Section 3. 1. Ensure the event is being classified. 2. Enter the EOP Entry Time: 3. **IF** pressurizer pressure remainsbelow the SIAS setpoint, **THEN** perform the following: a. Ensure **ONE** RCP is stopped in each loop. b. **IF** RCS subcooling is less than 24°F [44°F], **THEN** ensure all RCPs are stopped. 4. **IF** any RCPs are operating, **THEN** PERFORM Appendix 16, RCP Trip Criteria and check the RCP operating limits satisfied. 5. Perform the following: a. Ensure that the Steam Generator Sample Valves are open. b. Direct Chemistry to PERFORM 74DP-9ZZ05, Abnormal Occurrence Checklist. 6. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 7. Place the Hydrogen Analyzers in service. 8. Identify the success path(s) to be used to satisfy each safety function. REFER TO **BOTH** of the following: • Section 4.0, Safety Function Tracking • Section 6.0, Resource Assessment Trees Determines the Containment Isolation Safety Function is jeopardized. 4. **IF** a SGTR has occurred, **THEN** PERFORM the Heat Removal success path in use and isolate the most affected Steam Generator. Enters Success Path HR-2, Steam Generator with SI

		Examiner Note: the candidate should go to HR-2 Step 14 (continuously applicable) to commence feeding the faulted SG, although the first 13 steps MAY be performed as well. 14. **IF** the Steam Generator with the tube rupture has **ANY** of the following indications of an ESD: • Abnormal steam generator pressures • Abnormal steam generator levels • Abnormal RCS cold leg temperatures **AND** it is uncontrollably steaming to atmosphere, **THEN** ensure at least **ONE** of the following conditions is met: • The affected Steam Generator has level being restored by feedwater flow 1360 - 1600 gpm (0.8 - 0.92X106 lbm/hr) • The affected Steam Generator has level 45 - 60% [45 - 60%] NR with feedwater available to maintain level *Examiner Note: it will take 2 Auxiliary Feed Pumps to achieve 1360 gpm to the faulted SG.*
	CO	Starts second AFW pump and feeds 1360-1600 gpm **AFB** • Starts AFB-P01 on Board 6. (AFB-HS-10) • Opens AFB-UV-34 and AFB-UV-35 on Board 6. (Using AFB-HS-34A and AFB-HS-35A) • Throttles open AFB-UV-30 and AFB-UV-31 to establish feed both SGs. (Using AFB-HS-30A and AFB-HS-30A) **AFA** • Starts AFA-P01 on Board 6 by opening steam supply valves (Using SGA-HS-134A and SGA-HS-138A) • Opens AFC-UV-36 and AFA-UV-37 on Board 6. (Using AFC-HS-36A and AFA-HS-37A) • Throttles open AFA-UV-32 and AFC-UV-33 to establish feed both SGs. (Using AFA-HS-32A and AFC-HS-33A) **AFN** • Opens AFN-P01 suction valves CT-HV-1 and CT-HV-4 on Board 6. (Using CT-HS-1 and CT-HS-4) • Starts AFN-P01 on Board 6. (AFA-HS-11) • Opens Downcomer Isolation valves for SG 1, SGA-UV-172 and SGB-UV-130. (Using SGA-HS-172 and SGB-HS-130) • Opens Downcomer Isolation valves for SG 2, SGA-UV-175 and SGB-UV-135. (Using SGA-HS-175 and SGB-HS-135) **Critical Task – Feed a ruptured and faulted SG 1360-1600 gpm prior to exiting the FRP.**

Facility: PVNGS Scenario No.: 3 Op-Test No: 2008

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: IC #50, 100% power, MOC.

Turnover: Unit 1 has been at 100% power for the past 150 days. The alarm on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days. Train B is protected equipment. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1	cmTRRX06RCAPT101A_1 f:2500	I CO/SRO (TS)	After the beginning of shift Reactivity Brief, RCA-PT-101A (Channel A Pressurizer Pressure Narrow Range) fails high. The SRO evaluates LCO 3.3.1. CO evaluates Alarm Response **41AL-1RK5A** and bypasses parameters 3, 4, and 5 on PPS cabinet A.
2	cmBKED05NANS02G_5	C CO/RO/SRO	The main feeder breaker for Cooling Tower 2 trips. The SRO enters **40AO-9ZZ07**, Loss of Condenser Vacuum. The Crew will downpower to maintain vacuum.
3	cmCPTP01CENP01B_6 cmCPTP01CENP01A_5	C CO/SRO	Stator Cooling Pump B trips and the A pump fails to auto start. The SRO will direct starting A pump (Turbine trip occurs in 70 seconds).
4	mfTH01A k:4 f:0.01	C RO/SRO (TS)	A RCS leak develops (16 gpm). SRO will enter **40AO-9ZZ02**, Excessive RCS Leakrate. RO will perform CVCS manipulations to determine leak size. SRO will evaluate LCO 3.4.14.
5	mfTH01B k:5 r:5:00 f:100 Scenario file "NoSICI"	M- ALL C CO/RO/SRO	The LOCA degrades and the Reactor trips. SIAS fails to initiate automatically. RO will stop RCPs on loss of subcooling. Crew performs **40EP-9EO01,** Standard Post Trip Actions. **Critical Task -When the SIAS setpoint is exceeded, ensure adequate Safety Injection (per Appendix 2 curves) prior to completions of the SPTAs.**
6	cmCPRH02SIAP01_6 cmMVRH06SIBUV615_6 cmMVRH06SIBUV625_1 e:"SIAS CH C"	C RO/SRO	When SIAS is actuated, LPSI A pump will trip. On the LPSI B system, injection valve SIB-UV-625 will trip its control power fuse. SIB-UV-615 will mechanically bind. The SRO will enter **40EP-9EO09,** Functional Recovery Procedure, to line up Containment Spray Pump A to the LPSI header. **Critical Task -When LPSI injections fails, ensure adequate make up to meet Safety Function requirements (per Appendix 2 curves) prior to the completion of the IC success path.**
End point			Containment Spray Pump A lined up to the LPSI header.

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

Supplemental Turnover

Plant conditions:

Plant conditions:

Unit 1 has been at 100% power for the past 150 days. MOC 250 EFPD. Normal Chiller A is tagged out for scheduled maintenance. Estimated return to service is 3 days.

Fuel Pool Cleanup is not recirculating the RWT.

Equipment out of service:

The alarm on Board 1 is due to Normal Chiller A being tagged out for scheduled maintenance. Estimated return to service is 3 days.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

No other activities are planned.

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.

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

Op-Test No: _2008_ Scenario No.: 3 Event No: 1 Page 1 of 10

Event Description: Pressurizer Pressure Narrow Range RCA-PT-101A fails low

Time	Position	Applicant's Actions or Behavior
T=0	CO	Evaluates alarm window 5A5A per 41AL-1RK5A. Determines that RCA-PT-101A has failed high.
	CRS	Evaluates LCO 3.3.1. Determines that parameters 3, 4, and 5 must be bypassed on Channel A PPS in one hour.
	CO	Obtains PPS key and pushes the bypass buttons for parameters 3, 4, and 5 on PPS Channel A (outside of Control Room).

Op-Test No: _2008_ Scenario No.: 3 Event No: 2 Page 2 of

Event Description: Breaker NANS02G trips, de-energizing Cooling Tower 2 fans.

Time	Position	Applicant's Actions or Behavior
T=9	RO	Evaluates alarm window **1B13B** per **41AL-1RK1A**. (1A10D, 11D, 12D alarm as well)
	Crew	Determines that Cooling Tower 2 fans are de-energized.
	CO	Reports that vacuum is degrading.
	CRS	Implements 40AO-9ZZ07, Loss of Condenser Vacuum, Section 4. (may implement 40AO-9ZZ12, Degraded Electrical first) *Examiner Note: only the pertinent steps for this event are listed.* 2. Ensure that **ALL** available Air Removal Pumps are in operation. 7. Determine **BOTH** of the following: • The magnitude of the power reduction (min 5%) _____ % • The rate to reduce power _____%/time 8. Calculate the reactivity needed using **ANY** of the following (STA Reactivity Worksheet use is acceptable): • Total gallons of boric acid and the boric acid addition rate: _____ gal _____ gpm • CEA insertion _____ inches 9. Perform the following to reduce power: a. **IF** using boration to reduce power, **THEN** commence borating at the desired rate. b. Lower turbine load at the desired rate. c. Maintain Tavg / Tref mismatch 5°F or less by **ANY** of the following: • Boration • CEA insertion

		10. **IF** Tave/Tref can **NOT** be maintained 5°F or less, **THEN** perform the following: a. Ensure CEDMCS is **NOT** in Auto Sequential "AS". b. **IF** it desired to use SGN-PV-1007/1008, SBCS Valves, **THEN** perform the following: 1). Place the Mode Select switch for SGN-PV-1007 or 1008 to the "MANUAL" position (permissive). 2). Transfer the SBCS to Local/Auto. c. Operate SBCS Valves or the ADVs as needed to maintain **BOTH** of the following: • Steam generator pressure less than the SBCS automatic setpoint • RCS temperature + 3°F (REFER TO Appendix D, Temperature Control Program)
		Examiner Note: a 8% downpower should be enough to stabilize vacuum below 5 inches. The CRS may brief a larger reduction and stop when vacuum is under control.
	RO	Operates CEAs or starts a boration as directed by the CRS. Boration steps: 7.3.6 Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 7.3.7 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. 7.3.8 **IF** the reactor is critical, **THEN** ensure CEDMCS is in the desired mode of operation per CRS direction. 7.3.9 **IF** borating directly to the VCT, **THEN** place CHN-HS-512, Makeup Inlet to VCT in the OPEN position. 7.3.10 Start the boration as follows: 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). 7.3.11 Check for **BOTH** of the following: • One boric acid pump started • CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 7.3.12 **IF** borating directly to the suction of the charging pumps, **THEN** ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open. 7.3.13 On CHN-FIC-210Y (Foxboro) check that "Process Flow" increases (middle bar graph) towards the Auto setpoint, overshoots the Auto setpoint and then stabilizes at the Auto setpoint. 7.3.14 Check proper flow indicated on CHN-FIC-210Y.
	CO	Lowers Turbine load using the Load Limit Pot. (Board 6).

Op-Test No: 2008 Scenario No.: 3 Event No: 3 Page 4 of

Event Description: Stator Cooling Pump B trips, A pump fails to auto start.

Time	Position	Applicant's Actions or Behavior
T=25	CO	Announces alarms on Board 6 (particularly 7B, "Gen Stator Clg Wtr Lo Press/Hi Temp Trip") Recognizes that the A Stator Cooling pump did not start
	CRS	Directs the CO to start the standby Stator Cooling pump.
		Examiner Note: The next event takes ~6 minutes before alarms come in.

Op-Test No: 2008 Scenario No.: 3 Event No: 4 Page 5 of

Event Description: RCS leak into Containment

Time	Position	Applicant's Actions or Behavior
T=35	CO	Evaluates alarm on RMS per 74RM-9EF41
	CRS	Enters ZZ02 Section 3. *Examiner Note: Steps 1-3 will apply at the end of this event when the leak gets bigger.* 1. **IF** pressurizer level is lowering, **THEN** ensure all available Charging Pumps are running. 2. **IF** all available Charging Pumps are running, **AND** pressurizer level is lowering, **THEN** isolate letdown. 3. **IF ALL** of the following conditions exist: • All available Charging Pumps are operating • Letdown is isolated • Pressurizer level is lowering **THEN** perform the following: a. Ensure that the Reactor is tripped. b. GO TO **ONE** of the following: • 40EP-9EO01, Standard Post Trip Actions • 40EP-9EO11, Lower Mode Functional Recovery 4. Ensure the event is being classified. 5. **IF** the unit is in Mode 1 - 4, **THEN** ensure compliance with LCO 3.4.14, RCS Operational Leakage. 6. Direct Chemistry to perform 74DP-9ZZ05, Abnormal Occurrence Checklist. 7. Notify Radiation Protection that an RCS leak exists. 8. Determine the leakrate using **ANY** of the following: • 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
	RO	1. Ensure Tc is constant (±1°F). 2. Check that pressurizer pressure is stable between 2235 psia and 2265 psia. 2.1 **IF** pressurizer pressure is less than 2235 psia,

		THEN restore pressurizer pressure to the initial value for the final reading. 3. Ensure Chemistry is **NOT** drawing samples from the RCS or CVCS. 4. Ensure that **ONE** of the following conditions exist: • Letdown is aligned to the VCT • Letdown is isolated 5. Ensure that **ONE** of the following conditions exist: • Charging pump suction is aligned to the VCT • Charging pumps are stopped 6. Place CHN-FIC-210X, Reactor Makeup Water to VCT, in "MANUAL" with zero output. 7. Place CHN-FIC-210Y, Boric Acid Makeup to VCT, in "MANUAL"with zero output. 8. Place CHN-HS-527, Make-up to Charging Pumps (VCT Bypass) Valve, in "CLOSED". 9. **WHEN** CHN-UV-527 indicates closed, **THEN** place CHN-HS-210, Makeup Mode Select Switch, in "MANUAL". 10. Select the "RCS LEAK RATE" box on the SPDS Overview screen. 11. Select the "TREND-1" button on the Analog Point Attributes screen for point SPDS5047. 12. Ensure **BOTH** of the following on the trend screen for SPDS5047: • Range; - 20 to 80 gpm • Trend length 30 mins 13. **IF** conditions (such as leakrate getting worse) require restoration of VCT Makeup prior to completing data collection, **THEN** GO TO step 16. 14. Allow the trend to run for at least 15 minutes, **OR** until VCT level has lowered to 15%.
	CRS	When the leak size is quantified, determines that a shutdown is required.

Op-Test No: 2008 Scenario No.: 3 Event No: 5 Page 7 of

Event Description: LOCA into Containment

Time	Position	Applicant's Actions or Behavior
T=55	RO	Determines that leak is now greater than makeup capacity.
	CRS	Determines that trip criteria is met, directs Reactor Trip. *Examiner Note: the leak is very large, the reactor may trip automatically.* When the reactor trips, goes to **40EP-9EO01**, Standard Post Trip Actions (SPTAs). 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: 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: 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: • 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: a. Check that Pressurizer level meets **BOTH** of the following: • 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. • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by **BOTH** of the following: • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia 6. Determine that Core Heat Removal acceptance criteria are met by **ALL** of the following: • 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: a. Check that at least one Steam Generator meets **BOTH** of the following conditions: • 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. 8. Determine that Containment Isolation acceptance criteria are met by the following: a. Check that Containment pressure is less than 2.5 psig. b. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 c. REFER TO Appendix 7, List of EOP Radiation Monitors and check **BOTH** of the following conditions: • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity 9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following: a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. 10. **IF** all acceptance criteria are met, **AND** no contingency actions were performed, **THEN** GO TO 40EP-9EO02, Reactor Trip. 11. **IF** any acceptance criteria are **NOT** met, **OR ANY** contingency action was taken, **THEN** GO TO Section 4.0, Diagnostic Actions to diagnose the event.
	CO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Reactivity report (either operator may give this) • Main Turbine and Generator output breaker report • RCS heat removal, including Tc, SG levels, SG pressures. • Containment Isolation: Containment pressure and radiation monitors (either operator may give this). • Containment Temperature and Pressure Control: Containment pressure and temperature (either operator may give this).
	RO	Performs SPTAs. Responsible for the following Safety Functions/actions:

		• Maintenance of Vital Auxiliaries: Electric plant report, Board 1. • RCS Inventory Control: Pressurizer level, subcooling, and NCW flow to RCPs. • RCS Pressure Control: RCS Pressure • Core Heat Removal: RCP status, Loop ΔT, subcooling. STOPS RCPs on loss of Subcooling.
	CO (possibly RO)	Manually imitates SIAS and CIAS when setpoints are exceeded. Manually initiates feed due to MSIS. **Critical Task -When the SIAS setpoint is exceeded, ensure adequate Safety Injection prior to completions of the SPTAs.**

Op-Test No: 2008 Scenario No.: 3 Event No: 6 Page 10 of

Event Description: Failure of LPSI system

Time	Position	Applicant's Actions or Behavior
T=65	RO	Determines that LPSI A has tripped and both injection valves on LPSI B have failed to actuate.
	CRS	Enters Functional Recovery Procedure Performs Section 3. 1. Ensure the event is being classified. 2. Enter the EOP Entry Time: 3. **IF** pressurizer pressure remainsbelow the SIAS setpoint, **THEN** perform the following: a. Ensure **ONE** RCP is stopped in each loop. b. **IF** RCS subcooling is less than 24°F [44°F], **THEN** ensure all RCPs are stopped. 4. **IF** any RCPs are operating, **THEN** PERFORM Appendix 16, RCP Trip Criteria and check the RCP operating limits satisfied. 5. Perform the following: a. Ensure that the Steam Generator Sample Valves are open. b. Direct Chemistry to PERFORM 74DP-9ZZ05, Abnormal Occurrence Checklist. 6. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 7. Place the Hydrogen Analyzers in service. 8. Identify the success path(s) to be used to satisfy each safety function. REFER TO **BOTH** of the following: • Section 4.0, Safety Function Tracking • Section 6.0, Resource Assessment Trees *Examiner Note: Step 13 is continuously applicable and the candidate may perform it immediately.*
	CRS	Determines that Success Path IC-2 is jeopardized

	RO	13.1 **IF** pressurizer pressure can **NOT** be maintained above 220 psia [220 psia], **AND ALL** of the following conditions exist: • CS Pump is **NOT** needed to meet the CTPC or CCGC success path • CS Pump is required for Inventory Control • RAS has **NOT** actuated **THEN** PERFORM Appendix 107, Aligning a Containment Spray Pump for Injection 1. **IF** CS Pump A will be used for inventory control, **AND** RAS has **NOT** actuated, **AND** CS Pump A is **NOT** needed to meet the CTPC or CCGC success path, **THEN** perform the following: a. Ensure **BOTH** of the following pumps are stopped: • CS Pump A • LPSI Pump A b. Ensure SIA-HV-688, Containment Spray-Shutdown Cooling Heat Exchanger A Bypass Valve, is closed. c. Open SIA-HV-685, LPSI-CS to Shutdown Heat Exchanger A Cross-tie Valve. d. Ensure SIA-HV-686, Shutdown Heat Exchanger A Outlet to RC Loops 1A/1B Valve is closed. e. Close SIA-HV-687, LPSI-CS from Shutdown Heat Exchanger A Cross-tie Valve. f. Ensure SIA-HV-306, LPSI Shutdown Cooling Heat Exchanger A Bypass Valve is open. g. Ensure SIA-UV-672, Train A Containment Spray Header Isolation is closed. h. Ensure SIA-HV-684, SDHX Isolation is open. i. Ensure SIA-HV-678, SDHX Isolation is open. j. Close LPSI A Injection Valves k. Start CS Pump A. l. Throttle LPSI A Injection Valves to establish flow to the RCS. **Critical Task -When LPSI injections fails, ensure adequate make up to meet Safety Function requirements prior to the completion of the IC success path.**

Facility: PVNGS Scenario No.: 4 Op-Test No: 2008

Examiners: _____ Operators: _____

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Initial Conditions: IC #14, 14% power, MOC.

Turnover: Unit 1 is at 14% power after a startup. The unit was shutdown for a week while repairing the C Class Battery Inverter. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1		R CO/RO/SRO	After briefing the power maneuver, the Crew increases power to 17-19%.
2	cmTRCV19RCALT110X_1	I RO/SRO (TS)	Train A Pressurizer Level transmitter fails low. RO uses 40AL-9RK4A and selects the unaffected channel. SRO evaluates Tech Specs 3.3.10 and 3.3.11.
3	mfED11C	C RO/SRO (TS)	PBB-S04 bus trips on ground fault. SRO enters **40AO-9ZZ12**, Degraded Electrical. SRO evaluates LCO 3.8.9 (among many others). RO starts the standby Charging Pump or performs actions for loss of Letdown.
4	mfFW19A	M- ALL	Main Feedwater Pump A trips. The Crew realizes that no Feedwater is now available and trips the reactor. The Crew performs Standard Post Trip Actions.
5	cmTRMS02SGNPT1024_4 mfRD03I mfRD03K	I-CO C RO/SRO	On the trip, SGN-PT-1024 fails low. The CO must establish heat removal with ADVs or SBCS in Manual. CEAs 57 and 66 will stick out, requiring the RO to borate the RCS **Critical Task – Establish secondary heat removal prior to lifting primary safeties.** **Critical Task – With two or more CEAs stuck out, ensure adequate boration prior to the completion of the SPTAs.**
6	cmMVMC04CTAHV1_6	C CO/SRO	AFN-P01 will have a suction valve stuck closed, requiring the CO to use AFA-P01.
7	mfFW22	C CO/RO/SRO	AFA-P01 will trip after running two minutes. The SRO will enter **40EP-9EO06**, Loss of Feedwater. The RO stops RCPs per the LOAF procedure. The SRO will direct the CO to establish feed water using the B MFP. **Critical Task – Establish Feedwater to at least one SG prior to drying out both SGs.**
End point			

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

Supplemental Turnover

Plant conditions:

Unit 1 is at 14% power after a startup. MOC, 250 EFPD. The unit was shutdown for a week while repairing the C Class Battery Inverter. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Main Turbine is on line carrying 90 MW.

Circ water pumps A and C are running.

Condensate Demineralizers A, B, and C are in service. D, E, and F are in Standby.

MFP A is in service.

MFP B is in Hot Standby.

Heater Drain Pumps are secured.

CEDMCS is in Manual Sequential

Pressurizer is in boron equalization.

Economizer lines have been warmed.

Fuel Pool Cleanup is not on the RWT.

Equipment out of service:

All equipment is available for operation.

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

Currently, you are in 40OP-9ZZ04, Step 4.3.70.

The crew is to raise power to 17-19% power and hold at Step 4.3.72 until the Mode Change Checklist for exceeding 20% power is complete.

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.

Op-Test No: _2008_ Scenario No.: 4 Event No: 1 Page 1 of 13

Event Description: Power Ascension to 19%

Examiner Note: the briefing may take 12 minutes.

Time	Position	Applicant's Actions or Behavior
T=0	CRS	Briefs crew on power ascension Uses 40OP-9ZZ04 starting at 4.3.70 Refers to Appendix C for swapover. 1. Stabilize the plant at 13.5% - 14.5% reactor power using JSCALOR with Tc stable. (NKBDELT may be used if JSCALOR is unavailable) 2. Ensure the Control Channels are reading within 2% of JSCALOR. (NKBDELT may be used if JSCALOR is unavailable) 3. Ensure CPC ASI (CPC pt ID 0266) is within (+)0.45 to (-)0.45 prior to swapover. (Take corrective action per Appendix H, Low Power ASI Control (if necessary) to maintain ASI (+)0.45 to (-)0.45 throughout the swapover.) 4. Check Feedwater Control System controller alignments: • FWCS Master Controllers are in Auto set for 40%. • Downcomer valve controllers are in Auto. (N/A if directed by the CRS) • Economizer valve controllers are in Auto. • Feedwater pump speed controllers are in Manual or Auto. 5. Adjust reactor power to increase temperature while smoothly increasing turbine load. 6. **WHEN** the swapover occurs, **THEN** continue to raise turbine load to 17% - 19% reactor power using JSCALOR, ensuring both steam generators swapover and remain on the economizer. 7. **IF** Downcomer valve controllers are in Manual, **THEN** place the Downcomer valve controllers in Auto. 8. After the feedwater valve swapover, check economizer flow by total feed flow indicator, and adjust main feedwater pump speed as necessary to maintain steam generator level and feedwater control valve differential pressure. 9. Check that the steam bypass control valves remain closed. 10. Allow sufficient time for RCS parameters to stabilize. 11. Adjust Tc as necessary.

		12. Return to the body of the procedure at step 4.3.72.
	RO	Performs CEA manipulations for power ascension.
	CO	Performs Turbine load adjustments for power ascension.

Op-Test No: 2008 Scenario No.: 4 Event No: 2 Page 3 of

Event Description: RCA-LT-110X (Pressurizer level) fails low

Time	Position	Applicant's Actions or Behavior
T=35	RO	Evaluates alarm window **4A1A** and **4A2B** per **40AL-9RK4A**. Determines that RCA-LT-110X has failed low.
	CRS	Evaluates T.S. LCO 3.3.10 and 3.3.11. • Determines both are 30 day actions.
	RO	Directs the RO to select the unaffected channel per the Alarm Response • RCN-HS-110 to the "Y" position • RCN-HS100-3 to the "Y" position.

Op-Test No: 2008 Scenario No.: 4 Event No: 3 Page 4 of

Event Description: PBB-S04 trips

Time	Position	Applicant's Actions or Behavior
T=40	CRS	Enters procedure 40AO-9ZZ12, Degraded Electrical. 1. **IF** the Diesel Generator is running with its output breaker open, **THEN** PERFORM Appendix N, DG B Running with the Output Breaker Open. **Appendix N steps** 3. Check that the 86 relays are **NOT** actuated for **BOTH** of the following breakers: • PBB-S04K, PBB-S04 Normal Supply Breaker • PBB-S04L, PBB-S04 Alternate Supply Breaker 3.1 **IF** an 86-lockout condition exists, **THEN** reset the 86-lockout. REFER TO 40DP-0OP02, Relay Resetting. 3.2 **IF** an 86-lockout can **NOT** be reset, **THEN** GO TO step 6.1 to shutdown the Diesel Generator. 6.1 Perform the following: a. Direct an operator to emergency stop the Diesel Generator. b. Ensure that the Diesel Generator has stopped rotating. c. Direct maintenance to investigate the cause of the breaker failure. **End of Appendix N** 2. Check that **BOTH** of the following are energized: • NNN-D12 • NNN-D16 3. Check that **BOTH** of the following are energized: • PNB-D26 • PND-D28 4. **IF** additional charging pumps need to be started, **THEN** perform the following as appropriate: a. **IF** letdown is isolated **OR** CHN-PIC-201, Letdown Backpressure Control, setpoint is 220 psig or less, **THEN** start additional charging pumps as needed.

		b. **IF** letdown is in service, **AND** CHN-PIC-201 setpoint is greater than 220 psig, **THEN** PERFORM Appendix O, Starting Additional Charging Pumps. 5. Ensure adequate CTMT Normal cooling for present plant conditions. 6. Ensure adequate CEDM Normal cooling for present plant conditions. 7. **IF** PCB-P01, Spent Fuel Cooling Pump, was running, **THEN** direct an operator to PERFORM 40OP-9PC01, Fuel Pool Cooling, to start PCA-P01. 8. Ensure in-plant communications is aligned to its normal source, within two hours of the initial power loss, using manual transfer switch QFN-U01. 9. **Unit 1 only -** Ensure SA UPS Cabinet QFN-N02 is aligned to its alternate source using manual transfer switch QFN-U0141. (120' Control Bldg Inverter Room) 10. **IF** the Unit is in Mode 1 - 4, **THEN** PERFORM **BOTH** of the following: • 4XST-XZZ02, Inoperable Power Sources Action Statement •40ST-9EC03, Essential Chilled Water & Ventilation Systems Inoperable Action Surveillance 11. Determine other actions needed to cope with the loss of the bus. REFER TO table PBB-S04 Loads. 12. **IF** PBB-S04 will **NOT** be energized at this time, **THEN** perform the following: a. **IF** power to PBB-S04 will **NOT** be restored within 90 minutes, **THEN** bypass all parameters on Channel B or D that are **NOT** bypassed on Channels A or C. b. GO TO Section 3.0, Instructions/Contingency Actions, Step 3.
	RO	Performs one of the following actions: **Starts Standby Charging Pump** • Takes CHA-HS-218A to start OR **Performs actions for loss of Letdown**. 2. Place RCN-LIC-110, PLCS Master Controller, in "MAN" and close the selected Letdown Control Valve(s). 3. Check that letdown backpressure is less than setpoint. 4. **IF** pressurizer level is 33% or more and rising, **THEN** ensure no more than one Charging Pump is running.
		5. **IF BOTH** of the following conditions exist: • The unit is in Mode 1, 2 or 3

		• pressurizer level is 56% or more and rising **THEN** perform the following: a. Enter LCO 3.4.9, Pressurizer, Condition A. b. Initiate actions in preparation for a Unit shutdown within 6 hours. 14. **IF** a plant shutdown or cooldown is **NOT** needed, **THEN** PERFORM Appendix C, Extended Loss of Letdown. **Appendix C** 4. **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: a. **IF** the unit is in Mode 1, 2 or 3, **THEN** ensure compliance with LCO 3.4.9, Pressurizer. b. Ensure controlled bleedoff is isolated on all **standby** RCP's prior to Seal 2 Outlet Temperature exceeding 250°F. c. Close the Seal Injection Flow Control Valves. d. Place all Charging Pumps in "PULL TO LOCK".

Op-Test No: _2008_ Scenario No.: 4 Event No: 4 Page 7 of

Event Description: MFP A trip

Time	Position	Applicant's Actions or Behavior
T=50	CO	Recognizes that MFP A has tripped
	CRS	Directs crew to trip the reactor due to loss of all feedwater.
	CO	Pushes Reactor Trip pushbuttons on Board 5.

Op-Test No: 2008 Scenario No.: 4 Event No: 5 Page 8 of

Event Description: SGN-PT-1024 fails low
CEAs 57 and 66 stick out

Time	Position	Applicant's Actions or Behavior
T=50	RO	Determines two CEAs are stuck out, commences boration. Examiner Note: the RO may borate by three different methods: **Gravity Feed** 1. Opens CHN-HS-536 2. Closes CHN-HS-501 **CHN-HV-514 with BAMP** 1. Start either Boric Acid Makeup Pumps (CHN-HS-206 or 207) 2. Open CHN-HS-514 3. Closes CHN-HS-501 **Normal Boration** (basic steps the RO will perform for boration) 7.3.6 Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 7.3.7 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. 7.3.8 **IF** the reactor is critical, **THEN** ensure CEDMCS is in the desired mode of operation per CRS direction. 7.3.9 **IF** borating directly to the VCT, **THEN** place CHN-HS-512, Makeup Inlet to VCT in the OPEN position. 7.3.10 Start the boration as follows: 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). 7.3.11 Check for **BOTH** of the following: • One boric acid pump started • CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 7.3.12 **IF** borating directly to the suction of the charging pumps, **THEN** ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open.

		7.3.13 On CHN-FIC-210Y (Foxboro) check that "Process Flow" increases (middle bar graph) towards the Auto setpoint, overshoots the Auto setpoint and then stabilizes at the Auto setpoint. 7.3.14 Check proper flow indicated on CHN-FIC-210Y. **Critical Task – With two or more CEAs stuck out, ensure adequate boration prior to the completion of the SPTAs.**
	CRS	When the reactor trips, goes to **40EP-9EO01**, Standard Post Trip Actions (SPTAs). 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: 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: 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: • 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: a. Check that Pressurizer level meets **BOTH** of the following: • 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. • Seal injection • Nuclear Cooling Water 5. Determine that RCS Pressure Control acceptance criteria are met by **BOTH** of the following: • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia 6. Determine that Core Heat Removal acceptance criteria are met by **ALL** of the following: • 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: a. Check that at least one Steam Generator meets **BOTH** of the following conditions: • 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. 8. Determine that Containment Isolation acceptance criteria are met by the following: a. Check that Containment pressure is less than 2.5 psig. b. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 c. REFER TO Appendix 7, List of EOP Radiation Monitors and check **BOTH** of the following conditions: • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity 9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following: a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. 10. **IF** all acceptance criteria are met, **AND** no contingency actions were performed, **THEN** GO TO 40EP-9EO02, Reactor Trip. 11. **IF** any acceptance criteria are **NOT** met, **OR ANY** contingency action was taken, **THEN** GO TO Section 4.0, Diagnostic Actions to diagnose the event.
	CO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Reactivity report (either operator may give this) • Main Turbine and Generator output breaker report • RCS heat removal, including Tc, SG levels, SG pressures. • Containment Isolation: Containment pressure and radiation monitors (either operator may give this). • Containment Temperature and Pressure Control: Containment pressure and temperature (either operator may give this).
	RO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Maintenance of Vital Auxiliaries: Electric plant report, Board 1.

<table>
<tr><td></td><td></td><td>

RCS Inventory Control: Pressurizer level, subcooling, and NCW flow to RCPs.
RCS Pressure Control: RCS Pressure

Core Heat Removal: RCP status, Loop ΔT, subcooling.
</td></tr>
<tr><td></td><td>CO</td><td>
Establishes Heat Removal with SBCS or ADVs due to failure of SGN-PT-1024.
SBCS in manual at the Master Controller

Depresses “MAN” pushbutton on SGN-PT-1010
Uses slide bar on bottom of controller to operate SBCS

SBCS in Manual/Manual

Takes SGN-HS-1001 to “manual”
Moves slidebar on SGN-PIK-1001 down to the “M” position.
Rolls thumbwheel on SGN-PIK-1001 up to operate SBCS valve 1001

ADVs
Opens two permissives for each ADV used (one per SG):
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HS-184A</td><td>SGB-HS-178A</td><td>SGB-HS-185A</td><td>SGA-HS-179A</td></tr>
<tr><td>SGC-HS-184B</td><td>SGD-HS-178B</td><td>SGD-HS-185B</td><td>SGC-HS-179B</td></tr>
</table>
Opens selected ADVs using the appropriate contoller:
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HIC-184A</td><td>SGB- HIC-178A</td><td>SGB- HIC-185A</td><td>SGA- HIC-179A</td></tr>
</table>
Critical Task – Establish secondary heat removal prior to lifting primary safeties.
</td></tr>
</table>

Op-Test No: 2008 Scenario No.: 4 Event No: 6 Page 12 of

Event Description: CTA-HV-1 fails to open

Time	Position	Applicant's Actions or Behavior
T=60	CO	*Examiner Note: the CO may start AFA-P01 prior to starting AFN-P01, but it will trip after running 2 minutes.* Recognizes that a suction valve for AFN-P01 will not open. Starts AFA-P01 on Board 6 • opens steam supply valves (Using SGA-HS-134A and SGA-HS-138A) • Opens AFC-UV-36 and AFA-UV-37 on Board 6. (Using AFC-HS-36A and AFA-HS-37A) • Throttles open AFA-UV-32 and AFC-UV-33 to establish feed both SGs. (Using AFA-HS-32A and AFC-HS-33A)

Op-Test No: 2008 Scenario No.: 4 Event No: 7 Page 13 of

Event Description: Loss of All Feed

Time	Position	Applicant's Actions or Behavior
T=65	CRS	Enters **40EP-9EO06**, Loss of Feedwater. 2. Ensure the event is being classified. 3. Open the Placekeeper and enter the EOP Entry Time. 4. Stop all RCPs. 5. Conserve Steam Generator inventory by performing the following: a. Close the Blowdown Containment Isolation Valves. b. Close the Steam Generator Sample Valves. 6. Restore feed to at least one Steam Generator using **ANY** of the following: **MAIN FEEDWATER** • Appendix 43, Restarting MFPs
	RO	Stops all RCPs : • RCN-HS-1 • RCN-HS-2 • RCN-HS-3 • RCN-HS-4
	CO	Performs Appendix 43 to start the B MFP 1. Check that Main Condenser vacuum indicates a value of less than 13.5 inches HgA. 2. **IF ONLY** Steam Generator #1 has level indicated, **THEN** GO TO step 5. 3. **IF ONLY** Steam Generator #2 has level indicated, **THEN** GO TO step 6. 4. Determine which Steam Generator(s) will be fed by considering **ALL** of the following: • Steam Generator pressure • Steam Generator wide range level • Ability to be fed from the Condensate System 5. **IF** Steam Generator #1 was selected, **THEN** perform the following: a. Open **BOTH** Downcomer Isolation Valves: • SGA-UV-172 • SGB-UV-130 b. Place the Downcomer Control Valve in "MANUAL" and close valve SGN-FV-1113. c. **IF** S/G Downcomer Block Valve will be used to feed the Steam Generator, **THEN** open SGN-HV-1142, SG Downcomer Block Valve.

		d. Close SGN-HV-1143, SG Downcomer Bypass Valve. e. **IF** a MSIS has **NOT** occurred, **THEN** fast close **ALL** of the Economizer FWIVs: **SG 1** • SGA-UV-174 • SGB-UV-132 **SG 2** • SGA-UV-177 • SGB-UV-137 f. **IF** using the Downcomer Bypass Valve to feed the Steam Generator, **THEN** ensure SGN-HV-1142, SG Downcomer Block Valve, is closed. 6. **IF** Steam Generator #2 was selected, **THEN** perform the following: a. Open **BOTH** Downcomer Isolation Valves: • SGA-UV-175 • SGB-UV-135 b. Place the Downcomer Control Valve in "MANUAL" and close valve SGN-FV-1123. c. **IF** S/G Downcomer Block Valve will be used to feed the Steam Generator, **THEN** open SGN-HV-1144, SG Downcomer Block Valve. d. Close SGN-HV-1145, SG Downcomer Bypass Valve. e. **IF** a MSIS has **NOT** occurred, **THEN** fast close **ALL** of the Economizer FWIVs: **SG 1** • SGA-UV-174 • SGB-UV-132 **SG 2** • SGA-UV-177 • SGB-UV-137 f. **IF** using the Downcomer Bypass Valve to feed the Steam Generator, **THEN** ensure SGN-HV-1144, SG Downcomer Block Valve, is closed. 7. Ensure one set or more of the following High Pressure Feedwater Heater isolation valves are open: • Heater A string HV-73 Inlet & HV-101 Outlet valves • Heater B string HV-74 Inlet & HV-102 Outlet valves 8. Ensure one set or more of the following Low Pressure Feedwater Heater isolation valves are open: • Heater A string CDN-UV-214A Inlet & 214B Outlet valves • Heater B string CDN-UV-215A Inlet & 215B Outlet valves • Heater C string CDN-UV-216A Inlet & 216B Outlet valves 9. **IF ANY** Condensate Pumps are running, **THEN** GO TO step 11. 12. **IF** "B" FWPT has been selected to feed the Steam Generator(s),

		THEN perform the following: a. Place FTN-HS-54, Manual Speed Control, to the fully counter clockwise position. b. Place FTN-HS-100, FWPT Manual/Auto Selector, in the "MANUAL" position. c. **IF** "B" FWPT is tripped, **AND** the cause of the trip is known, **THEN** reset "B" FWPT trip. d. **IF** "B" FWPT is tripped, **AND** the cause of the trip is **NOT** known, **THEN** consider using **ONE** of the following: • The other FWPT • An alternate method to feed the Steam Generators e. Ensure "A" FWPT is tripped by pressing FTN-HS-51. 13. Close the Turbine Stop Valve Before Seat Drain Valves, MTN-HV-242/243/244/245. 15. Check that the appropriate FWPT Discharge Valve, is open: **FWPT A** • FWN-HV-31 16. Adjust FWPT speed to obtain pump discharge pressure 100 psig greater than Steam Generator pressure. 17. **IF** Steam Generator #1 was selected, **THEN** perform the following: a. **IF** Steam Generator #1 is dry, **THEN** maintain feed flow rate of less than or equal to 1000 gpm (0.5x106 lbm/hr). b. **IF** using Downcomer Control valve, **THEN** throttle open SGN-FV-1113. c. **IF** using Downcomer Bypass valve, **THEN** throttle open SGN-HV-1143. 18. **IF** Steam Generator #2 was selected, **THEN** perform the following: a. **IF** Steam Generator #2 is dry, **THEN** maintain feed flow rate of less than or equal to 1000 gpm (0.5x106 lbm/hr). b. **IF** using Downcomer Control valve, **THEN** throttle open SGN-FV-1123. c. **IF** using Downcomer Bypass valve, **THEN** throttle open SGN-HV-1145. 19. Determine adequate feed flow by the following: • Indicated feed flow • Steam Generator level increasing • RCS temperature dropping or stable 20. Restore selected Steam Generator(s) level to between 45 - 60% NR.

Facility: PVNGS Scenario No.: 5 Op-Test No: 2008

Examiners: _____ Operators: _____

Initial Conditions: IC #50, 100% power, MOC.

Turnover: Unit 1 has been at 100% power for the past 150 days. RCS sampling is in progress. Train B is protected equipment. Normal Shiftly Surveillances are complete. Risk Management Action Level is Green.

Event No.	Malf. No.	Event Type*	Event Description
1	diRC_ZDSSAHS204A f:open	C CO/SRO (TS)	After the crew performs the beginning of shift reactivity brief, Chemistry calls to say that the sample lineup can be secured. SSA-UV-204 will not close when operated. SRO enters LCO 3.6.3.
2	mfRP06H1	C CO/RO/SRO (TS)	B Train CSAS occurs. SRO enters 40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations. RO will override and stop equipment. CO overrides NCW valves to restore flow to RCPs. LCO 3.6.6 entered when equipment is overridden.
3	cmCPFW10EDNP01A_6	C RO/CO/SRO	Heater Drain Pump A trips. SRO/CO lower turbine load to raise Main Feedpump suction pressure to greater than 300#
4	mfTC13	M-ALL	Turbine Trip/ Load Reject/ Reactor Power Cutback. SRO enters 40A0-9ZZ08 (Load Reject).
5	mfRD11B	C RO/SRO	CEAs continue to insert requiring a manual Reactor trip. **Critical Task –When control of CEAs is lost, manually trip the reactor prior to exiting the CEA Malfunction AOP.**
6	cmTRMS02SGNPT1027_4	I CO	Steam Bypass Control System instrument failure, CO takes action to restore heat removal. (SGN-PT-1027 fails low) **Critical Task – Establish secondary heat removal prior to lifting primary safeties.**
7	cmHXCV16RCEE05D_2 e:RPSCHC r:300 f:100.0	C CO/RO/SRO	Inter-system LOCA on the 2B RCP. Crew takes actions to isolate the 2B RCP. **Critical Task -When an intersystem LOCA exists, ensure adequate Containment Isolation to meet Safety Function requirements prior to exiting the LOCA procedure.**
End point			RCP 2B Hi pressure cooler isolation valves are closed

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

Supplemental Turnover

Plant conditions:

Unit 1 is MOC 250 EFPD. Reactor power has been at 100% power for the past 150 days. RCS sampling is in progress.

Fuel Pool Cleanup is not on the Spent Fuel Pool.

Equipment out of service:

Risk Management Action Level is GREEN.

Train B is protected equipment.

Planned shift activities:

Normal, shiftly surveillance's are complete.

No other activities are planned.

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.

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

Op-Test No: _2008_ Scenario No.: 5 Event No: 1 Page 1 of 11

Event Description: SSA-UV-204 fails to close.

Time	Position	Applicant's Actions or Behavior
T=0	CO	CO is directed to close SSA-UV-204 and SSB-UV-201. Informs CRS that SSA-UV-204 did not close.
	CRS	Enters LCO 3.6.3, Condition A. Requires isolation of penetration within 4 hours.

Op-Test No: 2008 Scenario No.: 5 Event No: 2 Page 2 of

Event Description: Inadvertent B train SIAS

Time	Position	Applicant's Actions or Behavior
T=13	CO	Evaluates Alarm Window 5B2B per 40AL-9RK5B.
	CRS	Enters 40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations. 1. Record the time of the CSAS Actuation. 2. **IF ANY** Containment Spray Pump is running, **AND BOTH** of the following conditions exist: • Containment Spray Pump is **NOT** being used for SDC • SIAS has actuated **THEN** override and stop the Containment Spray Pump. *Examiner Note: Since SIAS has not actuated, Step 2 is N/A, but is often misread.* 3. **IF ANY** Containment Spray Pump is running, **AND BOTH** of the following conditions exist: • Containment Spray Pump is **NOT** being used for SDC • SIAS has **NOT** actuated **THEN** place the Containment Spray Pump hand switch in "STOP" to anti-pump the CS Pump. 4. Override and close all open Containment Spray Header Isolation Valves. 5. **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. 6. Open **ANY** of the following as needed to restore Nuclear Cooling Water to Containment: • 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 10. **IF ANY** Control Room Essential AHUs started, **THEN** override and stop the running fans. 11. **IF** RCP Seal Bleedoff isolated to the VCT, **THEN** override and open the closed RCP Seal Bleedoff Isolation Valves.
		14. Perform the following:

		a. PERFORM Appendix C, PPS-ESFAS Check, steps 1 and 2 to check that equipment actuated as expected. b. Document components that failed to actuate in the Control Room Log. c. Ensure compliance with Technical Specifications for components that failed to actuate or were overridden. *Examiner Note: When the Containment Spray Pump is overridden, LCO 3.6.6 is applicable.*
	RO	Stops Containment Spray Pump B by using SIB-HS-6 Restores Control Bleedoff for RCPs using CHB-HS-505
	CO	Restores NCW to Containment by using: • NCB-HS-401 • NCB-HS-403

Op-Test No: 2008 Scenario No.: 5 Event No: 3 Page 4 of

Event Description: Heater Drain Pump A trips

Time	Position	Applicant's Actions or Behavior
T=30	CO	Responds to alarms on Board 6, recognizes that HDP A has tripped.
	CRS	*Examiner Note: if the CRS elects to trip the reactor instead of downpowering, immediately insert the next malfunction (Turbine Trip)* Recognizes that power must be reduced to clear FWP suction alarms. Calculates downpower. Examiner Note: This calculation may be done several ways: • Using information at beginning of shift brief for reactivity • Using a maneuvering box gameplan. Directs RO to borate or use CEAs during the downpower Directs CO to reduce turbine load during the downpower.
	RO	Uses either CEAs or boration to control RCS temperature. **Normal Boration** (basic steps the RO will perform for boration) 7.3.6 Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y. 7.3.7 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. 7.3.8 **IF** the reactor is critical, **THEN** ensure CEDMCS is in the desired mode of operation per CRS direction. 7.3.9 **IF** borating directly to the VCT, **THEN** place CHN-HS-512, Makeup Inlet to VCT in the OPEN position. 7.3.10 Start the boration as follows: 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). 7.3.11 Check for **BOTH** of the following:

		• One boric acid pump started • CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 7.3.12 **IF** borating directly to the suction of the charging pumps, **THEN** ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open. 7.3.13 On CHN-FIC-210Y (Foxboro) check that "Process Flow" increases (middle bar graph) towards the Auto setpoint, overshoots the Auto setpoint and then stabilizes at the Auto setpoint. 7.3.14 Check proper flow indicated on CHN-FIC-210Y.
	CO	Uses Turbine Potentiometer to reduce Reactor Power.

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Event Description: Main Turbine Trip

Time	Position	Applicant's Actions or Behavior
T=43	CO	Recognizes that Main Turbine has tripped.
	CRS	Enters 40AO-9ZZ09 *Examiner Note: the CRS should not have time to take any actions from this procedure due to the CEAs driving in.*

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Event Description: CEAs continue to drive in, crew trips the reactor.

Time	Position	Applicant's Actions or Behavior
T=67	RO	Determines that CEAs are inserting uncontrollably. Recommends reactor trip to the CRS. Trips Reactor by pushing Rx Trip Pushbuttons on Board 5 when directed by the CRS. **Critical Task – When control of CEAs is lost, manually trip the reactor prior to exiting the CEA Malfunction AOP.**
	CRS	*Examiner Note: the CRS may enter 40AO-9ZZ11, CEA Malfunctions, or just direct the action out of it to trip the reactor.* Directs tripping of the reactor when CEAs are moving uncontrollably. When the reactor trips, goes to **40EP-9EO01**, Standard Post Trip Actions (SPTAs). 1. Open the placekeeper and enter the EOP Entry Time. 2. Determine that Reactivity Control acceptance criteria are met by the following: 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: 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: • 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: a. Check that Pressurizer level meets **BOTH** of the following: • 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. • Seal injection • Nuclear Cooling Water

		5. Determine that RCS Pressure Control acceptance criteria are met by **BOTH** of the following: • Pressurizer pressure is 1837 - 2285 psia • Pressurizer pressure is trending as expected to 2225 - 2275 psia 6. Determine that Core Heat Removal acceptance criteria are met by **ALL** of the following: • 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: a. Check that at least one Steam Generator meets **BOTH** of the following conditions: • 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. 8. Determine that Containment Isolation acceptance criteria are met by the following: a. Check that Containment pressure is less than 2.5 psig. b. **IF** CIAS has actuated, **THEN** override and open **BOTH** of the following: • HPA-HS-1, Control System A Supply Isolation Valve UV-1 • HPB-HS-2, Control System B Supply Isolation Valve UV-2 c. REFER TO Appendix 7, List of EOP Radiation Monitors and check **BOTH** of the following conditions: • No valid containment area radiation monitor alarms or unexplained rise in activity • No valid steam plant activity monitor alarms or unexplained rise in activity 9. Determine that Containment Temperature, Pressure, and Combustible Gas Control acceptance criteria are met by the following: a. Check that containment temperature is less than 117°F. b. Check that containment pressure is less than 2.5 psig. 10. **IF** all acceptance criteria are met, **AND** no contingency actions were performed, **THEN** GO TO 40EP-9EO02, Reactor Trip. 11. **IF** any acceptance criteria are **NOT** met, **OR ANY** contingency action was taken, **THEN** GO TO Section 4.0, Diagnostic Actions to diagnose the event.
	CO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Reactivity report (either operator may give this)

		• Main Turbine and Generator output breaker report • RCS heat removal, including Tc, SG levels, SG pressures. • Containment Isolation: Containment pressure and radiation monitors (either operator may give this). • Containment Temperature and Pressure Control: Containment pressure and temperature (either operator may give this).
	RO	Performs SPTAs. Responsible for the following Safety Functions/actions: • Maintenance of Vital Auxiliaries: Electric plant report, Board 1. • RCS Inventory Control: Pressurizer level, subcooling, and NCW flow to RCPs. • RCS Pressure Control: RCS Pressure Core Heat Removal: RCP status, Loop ΔT, subcooling.

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Event Description: SGN-PT-1027 fails low

<table>
<tr><th>Time</th><th>Position</th><th>Applicant's Actions or Behavior</th></tr>
<tr><td>T=70</td><td>CO</td><td>
Examiner Note: there are several ways to establish heat removal in this case.
Establishes Heat Removal with SBCS or ADVs due to failure of SGN-PT-1027.
Insert Manual Permissive to individual valves:
1. Takes SGN-HS-1001 to "manual" (or other equivalent valves)
SBCS in manual at the Master Controller
1. Depresses "MAN" pushbutton on SGN-PT-1010
2. Uses slide bar on bottom of controller to operate SBCS
SBCS in Manual/Manual
1. Takes SGN-HS-1001 to "manual"
2. Moves slide bar on SGN-PIK-1001 down to the "M" position.
3. Rolls thumbwheel on SGN-PIK-1001 up to operate SBCS valve 1001
ADVs
Opens two permissives for each ADV used (one per SG):
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HS-184A</td><td>SGB-HS-178A</td><td>SGB-HS-185A</td><td>SGA-HS-179A</td></tr>
<tr><td>SGC-HS-184B</td><td>SGD-HS-178B</td><td>SGD-HS-185B</td><td>SGC-HS-179B</td></tr>
</table>
Opens selected ADVs using the appropriate controller:
<table>
<tr><th>ADV 184</th><th>ADV 178</th><th>ADV 185</th><th>ADV 179</th></tr>
<tr><td>SGA-HIC-184A</td><td>SGB- HIC-178A</td><td>SGB- HIC-185A</td><td>SGA- HIC-179A</td></tr>
</table>
Critical Task – Establish secondary heat removal prior to lifting primary safeties.
</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

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Event Description: High Pressure Seal Cooler leak into Nuclear Cooling Water

Time	Position	Applicant's Actions or Behavior
T=85	CRS	Diagnoses that a Loss of Coolant Accident is in progress. 3. Open the Placekeeper and enter the EOP Entry Time. 4. **IF** pressurizer pressure drops to the SIAS setpoint, **THEN** check that SIAS is actuated. 5. **IF** SIAS has actuated, **THEN** perform the following: a. Check that the HPSI and LPSI Pumps have started. b. Check that safety injection flow is adequate. REFER TO Appendix 2, Figures. 6. **IF** SIAS has actuated, **THEN** perform the following: a. **IF** it is determined that RWT level may lower to less than 73% during the event, **OR** it is desired to align Charging Pump suction through an alternate suction path, **THEN** PERFORM **ONE** of the following: • Appendix 10, Charging Pump Alternate Suction to the RWT / Restoration • Appendix 11, Charging Pump Alternate Suction to the SFP / Restoration b. **IF** RWT level is above 73%, **AND** it is desired to align Charging Pump suction through CHE-HV-536 or CHN-UV-514, **THEN** PERFORM Appendix 103, RWT Makeup / Emergency Boration. 7. **IF** pressurizer pressure remains below the SIAS setpoint, **THEN** perform the following: a. Ensure **ONE** RCP is stopped in each loop. b. **IF** RCS subcooling is less than 24°F [44°F], **THEN** ensure all RCPs are stopped. 8. **IF ANY** RCPs are operating, **THEN** PERFORM Appendix 16, RCP Trip Criteria and check the RCP operating limits satisfied. 8.1 Stop RCP(s) which do **NOT** satisfy RCP operating limits. 9. Attempt to isolate the LOCA by performing the following:

		a. Ensure that the letdown line is isolated. b. Ensure that the RCS sample lines are isolated. 10. **IF ANY** of the following conditions exist: • RU-6, Nuclear Cooling Water Radiation Monitor alarming • An abnormal rise in Nuclear Cooling Water surge tank level **THEN** perform the following: a. Stop all RCPs. b. Close the Nuclear Cooling Water Containment Isolation Valves. c. Isolate controlled bleedoff from the RCPs. d. Energize the RCP HP Cooler Isolation Valves for **ANY** leaking RCP High Pressure Cooler(s). REFER TO Appendix 36, RCP HP Seal Cooler Breaker List. e. Close the RCP HP Cooler Isolation Valves for ANY leaking High Pressure Cooler(s). f. Direct Chemistry to sample the Nuclear Cooling Water System for activity. g. **IF** the LOCA has been isolated by the isolation of any RCP HP Cooler, **AND** restoration of Nuclear Cooling Water to CTMT is desired, **THEN** open the Nuclear Cooling Water Containment Isolation Valves.
	RO	Stops RCPs. Closes Bleedoff from RCPs on Board three using: Directs AO to close breakers for 2B RCP per Standard Appendix 36. Closes valves on Board 4 to stop LOCA: RCN-HS-449, RCP 2B HP Cooler E05D Inlet RCN-HS-453, RCP 2B HP Cooler E05D Outlet **Critical Task – When an intersystem LOCA exists, ensure adequate Containment Isolation to meet Safety7 Function requirements prior to exiting the LOCA procedure.**
	CO	Closes NCW to Containment Isolation valves: NCB-UV-401 NCA-UV-402 NCB-UV-403