



**A-1
PVNGS JOB PERFORMANCE MEASURE**

JPM BASIS INFORMATION

TASK:	1230050101 Perform a shutdown margin calculation					
TASK STANDARD:	Determine required boron concentration post trip with one CEA stuck out and any required communication.					
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):	SRO	VALIDATION TIME:	15 minutes			
REFERENCES:	72ST-9RX14, Rev 15, Core Data Book Unit 2 Cycle 16					
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR	X	PLANT			

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 10/08/2004
 Revised By: Alan Malley Date: 04/28/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EPIP-99 form 0800 and forwarded to Emergency Planning organization for resolution.



A-1
PVNGS JOB PERFORMANCE MEASURE

- 1. SIMULATOR SETUP:**
 - None
- 2. SPECIAL TOOLS/EQUIPMENT:**
 - Need copy of 72ST-9RX14 Rev 15.
 - U2C16 Core Data Book (May be on the computer)



A-1
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

The following conditions exist:

- You are a reactor operator in Unit 2
- Unit 2 was manually tripped at 0700 today due to feedwater problem.
- All Reactor Trip breakers opened.
- One Full Strength CEA did not insert.
- The plant has been stabilized at 565 °F.
- Current boron concentration is 600 ppm from the latest chemistry sample taken at 0815 today.
- The Unit is at 230 EFPD.
- No cool down is planned.
- Assume this is the current revision of 72ST-9RX14.

The CRS has directed you to perform the initial Shutdown Margin Calculation per 72ST-9RX14 up to and including Step 8.2.3.7 to determine the Required RCS Boron and Untrippable CEA Boron Penalty and complete the table below.

This ST is to be completed for the next 24 hours.

Make note of any communications that are required by the procedure in the table below (if any are needed):

Any communication required by the procedure



A-1
PVNGS JOB PERFORMANCE MEASURE

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



A-1
PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	<p>Step 8.2.1:</p> <p>IF this is the initial SHUTDOWN MARGIN verification following a reactor trip and any FSCEA is not Fully Inserted, THEN:</p> <ul style="list-style-type: none"> • Notify the CRS that SHUTDOWN MARGIN requirement is NOT met. • Borate the RCS at greater than or equal to 26 gpm with a solution containing greater than 4000 ppm Boron or equivalent until the required SHUTDOWN MARGIN is restored. Boration shall continue until the surveillance requirement is satisfied (Step 8.2.8.). • Notify Reactor Engineering as soon as possible. 		<p>Examinee determines from the cue that this is the Initial Shutdown Margin Verification following a Reactor Trip and one FSCEA in not fully inserted.</p> <p>Examinee documents communication required to notify CRS that Shutdown Margin is NOT met.</p> <p>Examinee documents notifying Reactor Engineering as soon as possible (not critical).</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



A-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
2. *	<p>Step 8.2.2:</p> <p>Record ALL of the following information from Step 7.3:</p> <ul style="list-style-type: none"> RCS Boron from latest Chemistry sample: _____ ppm Date/Time of latest Chemistry sample: _____ / _____ Current EFPD: _____ EFPD Most Conservative Tcold (ref. Step 6.5): _____ °F 		<p>Examinee records data from step 7.3.</p> <p>Examiner Note: Critical portion of this step is that the examinee gets the boron concentration of 600 ppm, the current EFPD of 230 EFPD, and Most Conservative Tcold of 565°F. Getting the time and date of the last sample is NOT critical.</p>
<p>SAT / UNSAT /NA Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
3. *	<p>Step 8.2.3.1:</p> <p>Determine the penalty for Untrippable CEA(s) as follows:</p> <ul style="list-style-type: none"> Record the Required RCS Boron Concentration from Core Data Book curves 3.1.X for the Most Conservative Tcold from Step 8.2.2: Required RCS Boron Concentration: _____ ppm 		<p>Examinee determines the Required boron concentration for Curve 3.1.10 is <u>940</u> ppm (± 15 ppm) (correct curve for the current EFPD).</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



A-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4. *	<p>Step 8.2.3.2:</p> <p>Refer to Sections 2.15 and 2.16 of the Core Data Book for the appropriate EFPD, RCS Boron Concentration and Tcold and determine the One Untrippable CEA worth by subtracting the Worst Stuck CEA Worth from the Worst Stuck CEA Pair Worth:</p> <p>(-) ____ pcm (WS Pair) - (-) ____ pcm (WS CEA) = (-) ____ pcm (One Untrippable CEA)</p>		<p>Examinee determines WS Pair from table or curve 2.16 is -5560 pcm (\pm 10 pcm) for 600 ppm.</p> <p>Examinee determines WS CEA from table or curve 2.15 is -3430 pcm (\pm 10 pcm) for 600 ppm.</p> <p>The pcm for one Untrippable CEA is 2130 pcm (+ 20 pcm).</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
5. *	<p>Step 8.2.3.3:</p> <p>Refer to Section 4.3 of the Core Data Book for the appropriate EFPD, RCS Boron Concentration and Tcold and record the following:</p> <ul style="list-style-type: none"> • Boron Worth (-) ____ pcm/ppm 		<p>Examinee refers to table or curve 4.3.2 and determines that boron worth is 8.06 pcm/ppm (8.0 to 8.1 is acceptable).</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



A-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
6. *	<p>Step 8.2.3.4:</p> <p>Determine Untrippable CEA Boron Penalty for ONE Untrippable CEA by dividing the One Untrippable CEA Worth (Step 8.2.3.2) by the Boron Worth (Step 8.2.3.3):</p> <ul style="list-style-type: none"> (-) _____ pcm (Step 8.2.3.2) / (-) _____ pcm/ppm (Step 8.2.3.3) = (+) _____ ppm 		<p>Examinee determines Untrippable CEA Boron penalty for Untrippable CEA is <u>265</u> ppm (\pm 5 ppm)</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
7. *	<p>Step 8.2.3.5:</p> <p>Record the total number of Untrippable CEAs: _____.</p>		<p>Examinee records the total number of Untrippable CEAs as <u>1</u> (given in initiating cue).</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



A-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
8. *	<p>Step 8.2.3.6:</p> <p>Multiply the Boron Penalty for ONE Untrippable CEA (Step 8.2.3.4) by the number of Untrippable CEAs (Step 8.2.3.5) to determine total Untrippable CEA Boron Penalty:</p> <ul style="list-style-type: none"> • _____ 265 ppm (± 5 ppm) (Step 8.2.3.4) X ___1___ (Step 8.2.3.5) = ___ 265 ppm (± 5 ppm) ___ 		Examinee determines total Untrippable CEA Boron Penalty is 265 ppm (± 5 ppm).
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
9. *	<p>Step 8.2.3.7:</p> <p>Add the Untrippable CEA Boron Penalty (Step 8.2.3.6) to the Required RCS Boron (Step 8.2.3.1) to obtain the Required RCS Boron and Untrippable CEA Boron Penalty.</p> <ul style="list-style-type: none"> • ___ ppm (Step 8.2.3.6) + ___ ppm (Step 8.2.3.1) = ___ ppm 		Examinee determines Required RCS Boron and Untrippable CEA Boron Penalty total is 1200 ppm (± 20 ppm).
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post critique using EPIP-99 form 0800 and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



A-1
PVNGS JOB PERFORMANCE MEASURE

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	08/15/05	3	Upgraded for Cycle 13 Core data book.
002	08/07/2008	3, 6	Upgraded for Cycle 15 Core data book and new JPM format.
003	04/28/2010	3,6	Upgraded for Cycle 16 Core Data book and changed from a review ST to perform ST up to step 8.2.3.7.

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)



A-1
PVNGS JOB PERFORMANCE MEASURE

INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

The following conditions exist:

- You are a reactor operator in Unit 2
- Unit 2 was manually tripped at 0700 today due to feedwater problem.
- All Reactor Trip breakers opened.
- One Full Strength CEA did not insert.
- The plant has been stabilized at 565 °F.
- Current boron concentration is 600 ppm from the latest chemistry sample taken at 0815 today.
- The Unit is at 230 EFPD.
- No cool down is planned.
- Assume this is the current revision of 72ST-9RX14.

The CRS has directed you to perform the initial Shutdown Margin Calculation per 72ST-9RX14 up to and including Step 8.2.3.7 to determine the Required RCS Boron and Untrippable CEA Boron Penalty and complete the table below.

This ST is to be completed for the next 24 hours.

Make note of any communications that are required by the procedure in the table below (if any are needed):

Any communication required by the procedure

CANDIDATE

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

7.0 PREREQUISITES

Unit (circle):	1	<u>2</u>	3	Date:	TODAYS DATE
MODE (circle):	<u>3</u>	4	5		

A 7.1 This copy of this procedure is the most current revision.

A 7.2 SECTION 5.0 - LIMITATIONS AND PRECAUTIONS, and SECTION 6.0 - PERSONNEL INDOCTRINATION, have been read and understood by all personnel performing this test.

NOTE

A A CEA is considered Fully Inserted when either the rod bottom light or Lower Electrical Limit (LEL) indication exists. If a CEA was verified Fully Inserted previously when indications were available AND no actions were taken that would have re-positioned the CEA, THEN the CEA is considered to be Fully Inserted. Following installation of the Upper Guide Structure (UGS) in the Reactor Vessel, the CEAs may be verified that they are fully inserted by notification from the SRO or LSRO in containment that all CEAs have been verified to be unlatched from the UGS lift rig in accordance with the requirements of 31MT-9RC33, Reactor Vessel Upper Guide Structure Removal and Installation.

A 7.3 Record plant conditions below for which this test performance is applicable. These should be those conditions which will produce the highest SDM boron concentration for this surveillance period.

Most Conservative Tcold (ref. Step 6.5) for Surveillance period	<u>565</u> °F	
RCS Boron from Latest Chemistry Sample	<u>600</u> ppm, Date and Time <u>TODAY 10815</u>	
Current EFPD	<u>230</u> EFPD	
RTCB status (circle one)	<u>Open</u>	Closed
FSCEA Status (circle one)	Fully Inserted	<u>Not Fully Inserted</u>
Minimum Xenon Reactivity	(-) <u>2322</u> pcm	

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

A 7.4 Initial the procedure section to be performed. (N/A section not being performed).

N/A	Section 8.1	CEAs Fully Inserted.
A	Section 8.2	CEAs Not Fully Inserted - RTCBs Open.
N/A	Section 8.3	CEAs Not Fully Inserted - RTCBs Closed.
N/A	Section 8.4	Appendix J - RCS Boron Concentrations from 40OP-9ZZ23 "Outage GOP" or 40OP-9ZZ24 "SNOW Outage."
N/A	Section 8.5	RCS Borated to COLR Refueling Boron Concentration.

A 7.5 The Shift Manager/CRS has given permission to perform this procedure.

ANSWER KEY

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

8.2 CEAs Not Fully Inserted - RTCBs Open

NOTE

A If an RCS heatup or cooldown is planned or is in progress, then the anticipated RCS temperature with the Most Conservative required Boron concentration (Most Conservative Tcold) shall be used in the SHUTDOWN MARGIN verification to ensure that the SDM requirements remain satisfied (ref. Step 6.5).

A 8.2.1 **IF** this is the initial SHUTDOWN MARGIN verification following a reactor trip and any FSCEA is not Fully Inserted, **THEN:**

A 8.2.1.1 **Notify** the CRS that SHUTDOWN MARGIN requirement is **NOT** met.

A 8.2.1.2 **Borate** the RCS at greater than or equal to 26 gpm with a solution containing greater than 4000 ppm Boron or equivalent until the required SHUTDOWN MARGIN is restored. Boration shall continue until the surveillance requirement is satisfied (Step 8.2.8.).

A 8.2.1.3 **Notify** Reactor Engineering as soon as possible.

A 8.2.2 **Record** ALL of the following information from Step 7.3:

RCS Boron from latest Chemistry sample: 600 ppm

Date/Time of latest Chemistry sample: TODAY 10815

Current EFPD: 230 EFPD

Most Conservative Tcold (ref. Step 6.5): 565 °F

A 8.2.3 **Determine** the penalty for Unrippable CEA(s) as follows:

A 8.2.3.1 **Record** the Required RCS Boron Concentration from Core Data Book curves 3.1.X for the Most Conservative Tcold from Step 8.2.2:

Required RCS Boron Concentration: 940 (+15) ppm

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

A 8.2.3.2 Refer to Sections 2.15 and 2.16 of the Core Data Book for the appropriate EFPD, RCS Boron Concentration and Tcold and determine the One Untrippable CEA worth by subtracting the Worst Stuck CEA Worth from the Worst Stuck CEA Pair Worth:

(-) 5560 (+10) pcm - (-) 3430 (+10) pcm = (-) 2130 (+20) pcm

(WS Pair) (WS CEA) (One Untrippable CEA)

A 8.2.3.3 Refer to Section 4.3 of the Core Data Book for the appropriate EFPD, RCS Boron Concentration and Tcold and record the following:

Boron Worth (-) 8.06 pcm/ppm. (8.0 to 8.1 ACCEPTABLE)

A 8.2.3.4 Determine Untrippable CEA Boron Penalty for ONE untrippable CEA by dividing the One Untrippable CEA Worth (Step 8.2.3.2) by the Boron Worth (Step 8.2.3.3):

(-) 2130 (+20) pcm / (-) 8.06 (+8.0 to 8.1) pcm/ppm = (+) 265 (+5) ppm

(Step 8.2.3.2) (Step 8.2.3.3)

A 8.2.3.5 Record the total number of untrippable CEAs: 1.

8.2.3.6 Multiply the Boron Penalty for ONE Untrippable CEA (Step 8.2.3.4) by the number of untrippable CEAs (Step 8.2.3.5) to determine total Untrippable CEA Boron Penalty:

265 (+5) ppm X 1 = 265 (+5) ppm

(Step 8.2.3.4) (Step 8.2.3.5)

A 8.2.3.7 Add the Untrippable CEA Boron Penalty (Step 8.2.3.6) to the Required RCS Boron (Step 8.2.3.1) to obtain the Required RCS Boron and Untrippable CEA Boron Penalty.

265 (+5) ppm + 940 (+15) ppm = 1200 (+25) ppm

(Step 8.2.3.6) (Step 8.2.3.1)

8.2.3.8 IF the value of the Required RCS Boron and Untrippable CEA Boron Penalty (Step 8.2.3.7) exceeds the COLR Refueling Boron concentration, THEN perform both the following:

N/A the remainder of this section.

GO TO Section 8.5.



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1290080401 Perform Control Room Log taking					
TASK STANDARD:	PDIL portion of Control Room Data Sheets completed for the Regulating Group and Part Strength CEAs.					
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	VALIDATION TIME:	15 minutes			
40DP-9OP05, Control Room Data Sheet Instructions Rev 64						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT			

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 05/23/2007

Revised By: Alan Malley Date: 5/19/2010

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

PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Copy of 40DP-9OP05, Control Room Data Sheet Instructions, Rev 64
- Attached Information from Control Room log
- PDIL Sheets for Regulating Group and Part Strength CEAs with historical data
- Calculator
- Pen and paper



A-2

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

- **The B Main Feedwater Pump tripped and was recovered today in Unit 1.**
- **During that time, CEAs were below the Power Dependent Insertion Limits.**
- **The CRS directs you to use the pertinent information from the Control Room log and fill out the PDIL Insertion Time log per 40DP-9OP05, Control Room Data Sheet Instructions.**
- **Record Insertion time numbers to the 4th decimal point (i.e., 1.0061).**



A-2

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-2

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1.	Determine the total time the Regulating Groups were below the PDILs.		Examinee determines Regulating Group time to be 7.5 hours (450 minutes).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Determine total insertion time for Regulating Groups		Examinee should determine the insertion time to be 0.1719 EFPD $\frac{450 \text{ minutes} \times 55\% \text{ power}}{144,000} = 0.1719$
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Enter data into PDIL Insertion Time data sheets for the Full Strength CEAs.		Enters 0.1719
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4.	Determines the EFPD for the Full Strength CEAs		Enters 272.39 on the Insertion Log for the Full Strength CEAs. $\frac{6537.3}{24} = 272.39$
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	Determines Insertion time for the LAST 30 EFPD for the Full Strength CEAs.		Enters 0.3199 on the Insertion Log for the Full Strength CEAs. $0.1480 + 0.1719 = 0.3199$
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6. *	Determines Insertion time for the LAST 365 EFPD for the Full Strength CEAs.		Enters 0.3323 on the Insertion Log for the Full Strength CEAs. $0.1604 + 0.1719 = 0.3323$
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7. *	Determine total insertion time for the Part Strength/Part Length CEAs.		Examinee should determine the insertion time to be 0.0875 EFPD $\frac{180 \text{ minutes} \times 68\% \text{ power}}{144,000} = 0.085$
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8. *	Enter data into PDIL Insertion Time data sheets for the Part Strength/Part Length CEAs.		Enters 0.085.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
9.	Determines the EFPD for the Part Strength/Part Length CEAs.		Enters 272.39 on the Insertion Log for the Part Strength/Part Length CEAs. $\frac{6537.468}{24} = 272.39$
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
10. *	Determines Insertion time for the LAST 30 EFPD for the Part Strength/Part Length CEAs.		Enters 0.1050 on the Insertion Log for the Part Strength/Part Length CEAs. $0.0850 + 0.02 = 0.105$

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
11. *	Determines Insertion time for the LAST 365 EFPD for the Part Strength/Part Length CEAs.		Enters 0.1123 on the Insertion Log for the Part Strength/Part Length CEAs. $0.0850 + 0.0273 = 0.1123$

SAT / UNSAT

Comments (required for UNSAT):

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	5/23/2007	6	New issue.
1	9/02/2009	6	Revised format and numbers
2	5/18/2010	6	Revised to new format

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

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)



A-2

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

- **The B Main Feedwater Pump tripped and was recovered today in Unit 1.**
- **During that time, CEAs were below the Power Dependent Insertion Limits.**
- **The CRS directs you to use the pertinent information from the Control Room log and fill out the PDIL Insertion Time log per 40DP-9OP05, Control Room Data Sheet Instructions.**
- **Record Insertion time numbers to the 4th decimal point (i.e., 1.0061).**

CANDIDATE

Control Room Log

11-12-2010

Time	Entry
1100	Feedwater Pump Turbine B tripped. Reactor Power Cutback actuation occurred. Entered Power Dependant Insertion Limits for Regulating Group CEAs. Reactor power stabilized at 55%.
1700	Commenced inserting PSCEAs for ASI control while withdrawing Reg Group CEAs. Reactor power is being maintained at 55%.
1830	Exited PDIL for Reg Group CEAs. Computer point NKEFPH = 6537.3
1930	Entered PDIL for PSCEAs.
1940	Placed FWPT B in service in parallel with FWPT A following FWPT B repairs.
2000	Commenced raising Reactor power to 100%. Commenced withdrawal of PSCEAs for ASI control.
2230	Exited PDIL for PSCEA insertion. Reactor power is 68%. Computer point NKEFPH =6537.468.



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1280010801 Perform Surveillance Test					
TASK STANDARD:	Determine RCS Total System Leakrate, Identified Leakrate, Unidentified Leakrate and Acceptance Criteria 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	VALIDATION TIME:	25 minutes			
40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory Rev 24						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 03/24/2010

Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

PVAR # N/A

- Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



A-3

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Copy of attached 40ST-9RC08 (partially filled out)
- Attached copy of 74CH-9ZZ66, Determination of Primary-to-Secondary Leakrate, Appendix E
- Calculator
- Steam Tables



A-3

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

You are a Reactor Operator on Unit 1.

You have received turnover and have been given the following information:

- **Last shift the crew noticed the RDT level increasing.**
- **A containment entry was made and it was determined the increasing RDT level was due to a packing leak on RCE-PV-100F (which is still in service).**
- **ERFDADS is out of service.**
- **The CRS directs you to continue performance of 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory.**
- **Data was collected manually per Appendix A and is attached to the ST.**
- **Appendix E of 74CH-9ZZ66, Determination of Primary-to-Secondary Leakrate is attached.**
- **TSCCR #3881280 is written for connecting system leakage for a packing leak on the letdown flow control valve 110P which is in service. The leakrate is 0.2 gpm.**
- **This is NOT the first performance of RC08 for the current month.**

The CRS directs you to continue performance of 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory starting at step 8.7 to step 8.14



A-3

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Step 8.7 of 40ST-9RC08: Input the selected data into the OAP program titled "Leak7.exe", at H:\OPS\COMMON\EXCEL\LEAK7.		Examinee inputs data from appendix A into the OAP program.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 8.8 of 40ST-9RC08: IF Total System Leakrate is greater than 1 gpm, AND the computer printout shows an increase in RDT level, THEN perform the following: 1. Determine if the RDT level increase is from the RCS. 1. Parameters which indicate the source is from the RCS may be, but are not limited to, RDT temperature increase or Pressurizer safety valve tailpiece temperature increase. 2. IF it is determined that the RDT inleakage is from the RCS, THEN continue as prompted in the computer calculation.		Examinee determines from initiating cue that leakage into the RDT is from the RCS and continues in the procedure.
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3.	Step 8.9 of 40ST-9RC08: IF any leakage identified on a TSCCR is documented as charging pump leakage, AND the associated charging pump has been rebuilt since performance of the last RCS water inventory balance, THEN evaluate the leakage identified against the rebuilt charging pump (i.e. close the TSCCR or reevaluate the actual charging pump leakage)		Examinee N/As this step.
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

Note before step 8.10

Leak Rates may change over time. Management has directed that known Leak Rates on RCS connecting systems should be re-verified on a monthly basis.

	STEP	CUE	STANDARD
4.	<p>Step 8.10 of 40ST-9RC08:</p> <p>IF any leakage has been identified in a TSSCR on a connecting system for the current RC08 alignment, AND the connecting system leakage would affect the RC08 calculation, THEN perform the following:</p> <p style="padding-left: 40px;">8.10.1 IF this performance of RC08 is the first leakrate performance in the current month, THEN perform the following:</p> <ol style="list-style-type: none"> 1. Re-quantify all known leak rate(s) that are documented on a TSSCR. 2. Update the TSSCR. <p style="padding-left: 40px;">8.10.2 Record the total known leak rate(s) _____ gpm.</p> <p style="padding-left: 40px;">8.10.3 Record TSSCR number(s) _____</p>		<p>Examinee N/As step 8.10.1 and records 0.2 in step 8.10.2.</p> <p>Examinee enters TSSCR number</p> <p>Examinee documents the known leak rate from the TSSCR #3881280 in step 8.10.3 as 0.2.</p>

SAT / UNSAT

Comments (required for UNSAT):



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>5. *</p>	<p>Step 8.11 of 40ST-9RC08:</p> <p>Evaluate the Steam Generator Primary-to-Secondary Leak Rate as follows:</p> <ol style="list-style-type: none"> 1. Direct Effluents to perform 74CH-9ZZ66, Determination of Primary-to-Secondary Leakrate, and forward the completed procedure to the control room. 2. Record the results of 74CH-9ZZ66, Determination of Primary-to-Secondary Leakrate. <p style="padding-left: 40px;">_____ gpd Total Primary-to-Secondary Leakrate</p> <ol style="list-style-type: none"> 3. Acceptance Criteria: Total Primary to Secondary Leakrate is less than 150 gpd. <p style="padding-left: 40px;">Acceptance Criteria Satisfied: Yes / No _____ (Init)</p> <ol style="list-style-type: none"> 4. IF the Total Primary-to-Secondary Leakrate greater than 150 gpd, THEN comply with LC0 3.4.14. 		<p>Examinee transfers leakrate of 3 gpd from 74CH-9ZZ66 Appendix E to step 8.11 and determines acceptance criteria is satisfied.</p> <p>Examinee N/As substep 4.</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



PVNGS JOB PERFORMANCE MEASURE

Note before step 8.12

Leakage used from a TSCCR must apply to the current system alignment being used for the leak rate determination.

	STEP	CUE	STANDARD
6. *	<p>Step 8.12 of 40ST-9RC08:</p> <p>IF any leakage has been identified in a TSCCR on a connecting system that is in the current RC08 alignment, (charging, letdown, seal injection, etc.) THEN determine the corrected Total RCS Leak Rate.</p>		<p>Examinee enters Total System Leak Rate from OAP as 2.12 gpm. Examinee subtracts 0.2 gpm from the Total System Leakrate to get a Corrected Total RCS Leak Rate of 1.92 gpm</p>
	<p style="text-align: center;"> Total System Leak Rate (from OAP printout) _____ 2.12 _____ gpm - RCS Connecting System Leakrate (Total from step 8.10.2) _____ 0.2 _____ gpm = Corrected Total RCS Leak Rate _____ 1.92* _____ gpm </p> <p>*Critical portion of 8.12</p>		
	<p>8.12.1 IF the connecting system Leak Rate is greater than 0.3 gpm, THEN initiate corrective action to repair the leak(s).</p>		<p>Examinee N/As step 8.12.1.</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7. *	<p>Step 8.13 of 40ST-9RC08:</p> <p>Evaluate the Identified Leak Rate obtained from the computer calculation by performing the following steps:</p> <ol style="list-style-type: none"> 1. Record Identified Leak Rate (from computer printout) _____ gpm 2. Acceptance Criteria: Identified Leak Rate is less than 10.0 gpm. Acceptance Criteria Satisfied: Yes / No _____ (Init) 3. IF the Identified Leak Rate is greater than 10.0 gpm, THEN comply with LC0 3.4.14. 		<p>Examinee records Identified Leak Rate from printout as 1 gpm and determines Acceptance Criteria is satisfied.</p> <p>Examinee N/As substep 3.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
8. *	<p>Step 8.14 of 40ST-9RC08:</p> <p>Evaluate the Unidentified Leak Rate by performing the following steps:</p> <p>8.14.1 IF any leakage has been identified in a TSCCR on a connecting system and was used to correct the Total RCS Leak Rate, THEN correct the Unidentified Leak Rate:</p>		<p>Examinee enters Corrected Total RCS Leak Rate from step 8.12 as 1.92, and then subtracts the Identified Leak Rate from OAP of 1 gpm to equal 0.92 gpm Unidentified Leak Rate.</p>
<p style="text-align: center;"> Corrected Total RCS Leak Rate (step 8.12) - Identified Leak Rate (from OAP printout) = Unidentified Leak Rate <u>1.92</u> gpm - <u>1.0</u> gpm = <u>0.92*</u> gpm *Critical portion of 8.14 </p>			
	<p>8.14.2 Record Unidentified Leak Rate (step 8.14.1 or from computer printout) _____ gpm</p> <p>Acceptance Criteria Satisfied: Yes / No (Init)</p> <p>8.14.3 Acceptance Criteria: Unidentified Leak Rate is less than 1.0 gpm.</p> <p>8.14.4 IF the Unidentified Leak Rate is greater than 1.0 gpm, THEN comply with LC0 3.4.14.</p>		<p>Examinee uses Unidentified Leak Rate from step 8.14.1 of 0.92 and determines Acceptance Criteria is satisfied.</p> <p>Examinee N/As step 8.14.4.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:



A-3

PVNGS JOB PERFORMANCE MEASURE

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



A-3

**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	03/24/2010	6	Record Created

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

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)



A-3

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

You are a Reactor Operator on Unit 1.

You have received turnover and have been given the following information:

- **Last shift the crew noticed the RDT level increasing.**
- **A containment entry was made and it was determined the increasing RDT level was due to a packing leak on RCE-PV-100F (which is still in service).**
- **ERFDADS is out of service.**
- **The CRS directs you to continue performance of 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory.**
- **Data was collected manually per Appendix A and is attached to the ST.**
- **Appendix E of 74CH-9ZZ66, Determination of Primary-to-Secondary Leakrate is attached.**
- **TSCCR #3881280 is written for connecting system leakage for a packing leak on the letdown flow control valve 110P which is in service. The leakrate is 0.2 gpm.**
- **This is NOT the first performance of RC08 for the current month.**

The CRS directs you to continue performance of 40ST-9RC08, OAP (Backup) Calculation of RCS Water Inventory starting at step 8.7 to step 8.14

CANDIDATE

DETERMINATION OF PRIMARY-TO-SECONDARY LEAK RATE

74CH-9ZZ66

Revision 21

Appendix E Page 1 of 1

Appendix E - 40ST-9RC02 Support Worksheet

Unit 1

Section 1 is N/A:

[]

Section 1 - Monitor Reading Method (Section 9.0)

MONITOR CHANNEL CHECK

Acceptance criteria:

Monitor/channel ON-LINE and REACHABLE

- a. No equipment fail alarms; AND
b. Current reading updating and consistent with plant conditions; AND
c. Hourly trends updating (as applicable); AND
d. Hourly trend data consistent with plant conditions (as applicable).

SAT UNSAT N/A

JO INITIALS

RU-141 Channel 2 Monitor*

Reading 6.17 E-06

RU-141 Channel 2 Leak Rate*

Reading 3 gpd

*Record the current value from the SG Tube Leak Screen. If the displayed leak rate is less than the most recent channel sensitivity value as determined by 74RM-9EF42, THEN record the sensitivity value as the leak rate reading.

MONITOR SOURCE CHECK

Acceptance criteria:

- a. IAW Step 9.2.1.

SAT UNSAT N/A

JO INITIALS

Section 2 is N/A:

[]

Section 2 - CVE Gas Grab Sample Analysis Method (Section 6.1)

Date Sampled: Time Sampled: Number:

Leak Rate Result gpd (from worksheet ZZ66/01a or ZZ66/01b)

Section 3 is N/A:

[]

Section 3 - Tritium Grab Sample Analysis Method (Section 6.2, 6.3 or 6.4)

Date Sampled: Time Sampled: Number:

Leak Rate Result gpd (from worksheet ZZ66/04, ZZ66/05, or ZZ66/05a)

Joe Operator Date/Time

Tom Superivan Date/Time



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1290020301 Conduct On Shift Operations IAW Conduct of Shift Operations					
TASK STANDARD:	Determine total dose, authorization needed to receive dose, and area posting level					
K/A:	2.3.13	K/A RATING:	RO:	3.4	SRO:	3.8
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	RO	VALIDATION TIME:	15 minutes			
75DP-9RP01 (Radiation Exposure and Access Control) Rev 17 and 75RP-0RP01 (Radiological Posting and Labeling) Rev 29						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 05/18/2010

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 / UNSAT[Ⓞ]

Ⓞ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation. PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Calculator
- Access to 75DP-9RP01 (Radiation Exposure and Access Control)
- Access to 75RP-0RP01 (Radiological Posting and Labeling)



**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

Your total dose exposure this year has been 1127 mrem.

You have been tasked with entering the Radiation Control Area (RCA) to perform a task which you are the only qualified person on site to perform this task.

The radiation dose rate in the area is 700 mrem/hr.

The task will take 43 minutes.

- **What is your total dose upon completion of this task?**
- **Whose permission is required to receive this amount of dose?**
- **Should this area be posted as a Radiation area, High Radiation area, Locked High Radiation area, or Very High Radiation area?**

Record your answers in the area provided below:

1. Total dose *for the year* upon completion of this task - _____
2. Whose permission is required to receive this dose- _____
3. This area should be posted as a _____ area



PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-4

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Examinee determines total dose after completion of this task.		Examinee determines total dose is 1629 mrem ± 10 mrem. 1127 + (700mr/hr * 1hr/60 minutes * 43 minutes) = 1628.66
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Examinee determines whose permission is required to exceed receive this dose.		Examinee determines that a RP Department Leader approval is required to receive this dose since the total dose would exceed the 1500 mrem/yr administrative exposure limit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Examinee determines the posting for the area.		Examinee should determine that this area should be posted as a High Radiation area since it is ≥ 100 mrem/hr and < 1000 mrem/hr.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:
 Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.



A-4

PVNGS JOB PERFORMANCE MEASURE

NORMAL TERMINATION POINT



A-4

PVNGS JOB PERFORMANCE MEASURE

ANSWER KEY

1. Total dose for the year upon completion of this task - 1629 mrem (± 10)
2. Whose permission is required to receive this dose - RP Department Leader
3. This area should be posted as a High Radiation Area (HRA)

ANSWER KEY



A-4

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

Your total dose exposure this year has been 1127 mrem.

You have been tasked with entering the Radiation Control Area (RCA) to perform a task which you are the only qualified person on site to perform this task.

The radiation dose rate in the area is 700 mrem/hr.

The task will take 43 minutes.

- **What is your total dose upon completion of this task?**
- **Whose permission is required to receive this amount of dose?**
- **Should this area be posted as a Radiation area, High Radiation area, Locked High Radiation area, or Very High Radiation area?**

Record your answers in the area provided below:

4. Total dose *for the year* upon completion of this task - _____
4. Whose permission is required to receive this dose _____
5. This area should be posted as a _____ area

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1230050101 Perform a Shutdown Margin Calculation					
TASK STANDARD:	Review a Shutdown Margin Calculation, identify 3 errors, annotate corrections					
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			
72ST-9RX14, Shutdown Margin – Modes 3, 4, and 5 Rev 15, Core Data Book Unit 2 Cycle 16						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT			X

JPM TYPE

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

APPROVAL

Developed By: Phil Capehart Date: 06/08/2005

Revised By: Alan Malley Date: 05/27/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

Ⓢ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation. PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Copy of attached Shutdown Margin Calculation, 72ST-9RX14
- Copy of Unit 2 Cycle 16 Core Data Book
- Calculator



A-5

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.



A-5

PVNGS JOB PERFORMANCE MEASURE

INITIATING CUE:

- Unit 2 is in mode 4 in a short notice outage. (Cycle 16)
- The Core is at 230 EFPD
- RCS Boron = 925 ppm per sample
- Current RCS Temperature (Tcold) is 300°F
- All CEAS are fully inserted, RTSG breakers are open
- The Reactor has been shutdown for 100 hours
- Shutdown Cooling is in service
- Mode 5 with an RCS Tcold of 150°F is expected to be reached in about six hours.
- A shutdown margin ST (72ST-9RX14), for the expected mode 5 temperature of 150°F (Tcold) has been completed. It was not initiated from Appendix J, RCS Boron Concentrations, of 40OP-9ZZ24.

Your tasks are to:

1. Review the attached shutdown margin calculation.
2. Identify and document below 3 errors (non-clerical, non-typos)
3. Provide the correct information for the 3 errors.

Provide your answers in the form on the next page



A-5

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-5

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Examinee reviews Shutdown Margin Calculation.		Examinee determines that Most Conservative Tcold is 150 °F not 300 °F. Examinee may discover this in step 7.3 or step 8.1.2. (Error #1)
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Examinee reviews Shutdown Margin Calculation.		Examinee determines minimum boron concentration should be ~ 1026 (±5) ppm vice 947.5 ppm. (Error #2)
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Examinee reviews Shutdown Margin Calculation.		Examinee determines that Acceptance Criteria is NOT met (Step 8.1.9) or that RCS Boron is not greater than the Required Boron Concentration. (Error #3)
SAT / UNSAT Comments (required for UNSAT):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4. *	Examinee determines actions required if Acceptance Criteria is not met.		<p>Examinee determines that the following actions are required per Step 8.1.11:</p> <ol style="list-style-type: none"> 1. Notify the CRS 2. Borate the RCS at greater than or equal to 26 gpm with a solution containing greater than 4000 ppm Boron or equivalent until SHUTDOWN MARGIN is restored 3. Notify Reactor Engineering <p>Critical portion of this step is to identify the need to borate. Since this calculation was performed for a planned cooldown, it is only necessary to raise the boron concentration prior to the cooldown.</p> <p>Shutdown Margin is met for the current plant condition.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



PVNGS JOB PERFORMANCE MEASURE

ANSWER KEY

Error:	Correct Information:	Action Required (if any)
#1 Most conservative Tcold is listed as 300 °F (either step 7.3 or step 8.1.2)	Correct conservative Tcold should be 150 °F.	None
#2 Minimum boron concentration on is not correct (step 8.1.3)	Correct minimum boron concentration should be 1026 ppm (\pm 5).	None
#3 Acceptance criteria is marked as met (RCS Boron is > Required Boron Concentration)(step 8.1.4 or 8.1.9)	Acceptance criteria is not met or RCS Boron is NOT > Required Boron Concentration.	Notify the CRS Borate the RCS * Notify Reactor Engineering as soon as possible
		* Critical portion of the action required

ANSWER KEY



A-5

**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	05/27/2010	6	Updated to new format and changed numbers to match current Unit 2 cycle.

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)



A-5

PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

- Unit 2 is in mode 4 in a short notice outage. (Cycle 16)
- The Core is at 230 EFPD
- RCS Boron = 925 ppm per sample
- Current RCS Temperature (Tcold) is 300°F
- All CEAS are fully inserted, RTSG breakers are open
- The Reactor has been shutdown for 100 hours
- Shutdown Cooling is in service
- Mode 5 with an RCS Tcold of 150°F is expected to be reached in about six hours.
- A shutdown margin ST (72ST-9RX14), for the expected mode 5 temperature of 150°F (Tcold) has been completed. It was not initiated from Appendix J, RCS Boron Concentrations, of 40OP-9ZZ24.

Your tasks are to:

4. Review the attached shutdown margin calculation.
5. Identify and document below 3 errors (non-clerical, non-typos)
6. Provide the correct information for the 3 errors.
7. Determine and document in the space below any required action(s) that need to be done as a result of these errors.

Provide your answers in the form on the next page

CANDIDATE



A-5

PVNGS JOB PERFORMANCE MEASURE

CANDIDATE

Error:	Correct Information:	Action Required (if any)
#1		
#2		
#3		

CANDIDATE



A-5

PVNGS JOB PERFORMANCE MEASURE

For 2010 NRC Exam Only

PVNGS SURVEILLANCE TEST PACKAGE REVIEW SHEET

1	CHECK THE APPLICABLE UNIT NUMBER(S) <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	ST PROCEDURE NO. 72ST-9RX14	STWO (If required by 73DP-9ZZ14, otherwise NA)
----------	--	--------------------------------	--

ACCEPTANCE REVIEW

2 Plant MODE(s) when ST was performed:
 1 2 3 4 5 6 Defueled

Mark the appropriate blocks. For each block marked "NO," explain in the space provided.
Refer to 73DP-9ZZ14, Appendix A for instructions. (CRDR 250252.04)

3 Check the appropriate block(s) based on the testing performed.

3a Train A Train B Train C Train D Other _____

3b Shiftly, Daily, or 72 hour Surveillance Test, or:

3c Scheduled Conditional Retest (Explain) Other (Explain)
Performed in preparation for RCS cooldown

4 YES NO
 Are all applicable Technical Specification Acceptance Criteria satisfactory for the equipment tested?
Comments _____

4a YES NO
 The potential for Preconditioning was evaluated and determined to be not applicable.
Comments _____
If "NO," provide PVAR Number _____

5 YES NO NA
 Should Work Management reset the performance of the Surveillance Test?
(If unknown, check "NO" and explain.)
Comments _____

6 YES NO NA
 I&C: Was all "AS FOUND" data recorded within its specified tolerance?
If "NO," ensure necessary data is forwarded to the STA/Engineer.
Comments _____

SIGNATURES REQUIRED FOR (7) THROUGH (11)

7	ACCEPTANCE REVIEWER <i>Joe Smith</i>	DATE 11/10/2010	TIME 0747
8	SWMS STATUS ENTERED/UPDATED BY		

TEST STATUS REVIEW

9	TEAM LEADER (CRS/SM for all Operations STs and 96 hour review)	DATE	TIME
10			

WORK MANAGEMENT

11	RECEIVED BY	DATE	SWMS CLOSING DATA ENTERED
-----------	-------------	------	---------------------------

For 2010 NRC Exam Only

SURVEILLANCE TEST LOG CONTINUATION SHEET

PAGE
1 of 1

Test: 725T-9RX14

Discarded unused pages 1-6, 11, 13-26 and 28
Joe Smith 11/10/2010

NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

7.0 PREREQUISITES

Unit (circle):	1	<u>2</u>	3	Date: <u>11/10/2010</u>
MODE (circle):	3	<u>4</u>	5	

- A 7.1 This copy of this procedure is the most current revision.
- A 7.2 SECTION 5.0 - LIMITATIONS AND PRECAUTIONS, and SECTION 6.0 - PERSONNEL INDOCTRINATION, have been read and understood by all personnel performing this test.

NOTE

A A CEA is considered Fully Inserted when either the rod bottom light or Lower Electrical Limit (LEL) indication exists. If a CEA was verified Fully Inserted previously when indications were available AND no actions were taken that would have re-positioned the CEA, THEN the CEA is considered to be Fully Inserted. Following installation of the Upper Guide Structure (UGS) in the Reactor Vessel, the CEAs may be verified that they are fully inserted by notification from the SRO or LSRO in containment that all CEAs have been verified to be unlatched from the UGS lift rig in accordance with the requirements of 31MT-9RC33, *Reactor Vessel Upper Guide Structure Removal and Installation*.

- A 7.3 Record plant conditions below for which this test performance is applicable. These should be those conditions which will produce the highest SDM boron concentration for this surveillance period.

Most Conservative Tcold (ref. Step 6.5) for Surveillance period	<u>300</u> °F	
RCS Boron from Latest Chemistry Sample	<u>965</u> ppm, Date and Time <u>11/10/2010 0600</u>	
Current EFPD	<u>230</u> EFPD	
RTCB status (circle one)	<u>Open</u>	Closed
FSCEA Status (circle one)	<u>Fully Inserted</u>	Not Fully Inserted
Minimum Xenon Reactivity	(-) <u>0</u> pcm	

For 2010 NRC Exam Only

NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL

Page 8 of 28

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

A 7.4 Initial the procedure section to be performed. (N/A section not being performed).

<u>A</u>	Section 8.1	CEAs Fully Inserted.
<u>N/A</u>	Section 8.2	CEAs Not Fully Inserted - RTCBs Open.
<u>N/A</u>	Section 8.3	CEAs Not Fully Inserted - RTCBs Closed.
<u>N/A</u>	Section 8.4	Appendix J - RCS Boron Concentrations from 40OP-9ZZ23 "Outage GOP" or 40OP-9ZZ24 "SNOW Outage."
<u>N/A</u>	Section 8.5	RCS Borated to COLR Refueling Boron Concentration.

A 7.5 The Shift Manager/CRS has given permission to perform this procedure.

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

8.0 INSTRUCTIONS

8.1 CEAs Fully Inserted

NOTE

A CEA is considered Fully Inserted when either the rod bottom light or Lower Electrical Limit (LEL) indication exists. If a CEA was verified Fully Inserted previously when indications were available AND no actions were taken that would have re-positioned the CEA, THEN the CEA is considered to be Fully Inserted. Following installation of the Upper Guide Structure (UGS) in the Reactor Vessel, the CEAs may be verified that they are fully inserted by notification from the SRO or LSRO in containment that all CEAs have been verified to be unlatched from the UGS lift rig in accordance with the requirements of 31MT-9RC33, *Reactor Vessel Upper Guide Structure Removal and Installation*.

A

NOTE

If an RCS heatup or cooldown is planned or is in progress, then the anticipated RCS temperature with the Most Conservative required Boron concentration (Most Conservative Tcold) shall be used in the SHUTDOWN MARGIN verification to ensure that the SDM requirements remain satisfied (ref. Step 6.5).

A

8.1.1 IF ANY FSCEA meets ANY of the following conditions:

N/A

the CEA is not Fully Inserted

N/A

the CEA can not be verified Fully Inserted

N/A

the CEA will be moved (e.g., Rx Startup or Rod Testing) during the surveillance interval of this ST,

THEN GO TO the appropriate section of this procedure.

For 2010 NRC Exam Only

NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL

Page 10 of 28

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

- A 8.1.2 **Record ALL** of the following information from Step 7.3:
- RCS Boron from latest Chemistry sample: 965 ppm
- Date/Time of latest Chemistry sample: 11/10/2010 0600
- Current EFPD: 230 EFPD
- Most Conservative Tcold (ref. Step 6.5): 300 °F
- A 8.1.3 **Perform ONE** of the following to **obtain** the required RCS Boron Concentration:
- A **IF** RTCBs are **OPEN**,
THEN determine the Xenon Free Required RCS Boron Concentration from Core Data Book Curves 3.1.X, **using** the current EFPD and the Most Conservative Tcold from Step 8.1.2:
- Required RCS Boron Concentration: 947.5 ppm
- N/A **IF** RTCBs are **CLOSED**,
THEN determine the Xenon Free Required RCS Boron Concentration from Core Data Book Curves 3.2.X, **using** the current EFPD and the Most Conservative Tcold from Step 8.1.2:
- Required RCS Boron Concentration: N/A ppm
- A 8.1.4 **IF** RCS Boron from latest Chemistry sample (Step 8.1.2) is greater than the Required RCS Boron Concentration (Step 8.1.3),
THEN GO TO Step 8.1.9.

For 2010 NRC Exam Only

NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL

Page 12 of 28

SHUTDOWN MARGIN - MODES 3, 4, AND 5

72ST-9RX14

Revision
15

- A 8.1.9 **ACCEPTANCE CRITERIA:**
Current RCS Boron (Step 8.1.2) is **greater than** one of the following:
- Required RCS Boron (Step 8.1.3)
 - Xenon Adjusted Required RCS Boron (Step 8.1.8).

Acceptance Criteria Satisfied (circle one): YES / NO A (Init.)

- A 8.1.10 Obtain Independent Verification of all performed steps in this procedure.

Joe Smith
I.V. SIGNATURE

JS 11/10/2010 0745
INITIAL DATE / TIME

- N/A 8.1.11 **IF** Acceptance Criteria is not satisfied,
THEN perform ALL of the following:

N/A 8.1.11.1 Notify the CRS.

N/A 8.1.11.2 **Borate** the RCS at greater than or equal to 26 gpm with a solution containing greater than 4000 ppm Boron or equivalent until the required SHUTDOWN MARGIN is restored. Boration shall continue until the surveillance requirement is satisfied.

N/A 8.1.11.3 Notify Reactor Engineering as soon as possible.

9.0 SYSTEM RESTORATION

- N/A* 9.1 **IF** XeRho was used to determine Xenon reactivity,
THEN log the use of XeRho in SEATS (Software Error and Activity Tracking System)(Reference 2.2.7)
- 9.1.1 Type SEATS into the address bar of Internet Explorer.
 - 9.1.2 Select the "Search" tab located in the upper left corner under the header.
 - 9.1.3 Enter XERHO for software name. With the "Search for" button selected, click the SEARCH button.
 - 9.1.4 Click/Select the Unit/Cycle version of XeRho used.
 - 9.1.5 Select the "Use Log" tab located near the top of the page.
 - 9.1.6 Click the "Add Use Record" button.
 - 9.1.7 Complete the "Description of Use" field. Enter 72ST-9RX14, STWO# if assigned and date and time completed.
 - 9.1.8 Enter your SWMS password in the "PIN" field. Click the "Add Use Record" button.
 - 9.1.9 Verify by clicking on "[Click here to return to list...](#)" and finding new entry in Use Log.
- N/A* 9.2 **IF** SEATS is unavailable for logging use of XeRho,
THEN, N/A Step 9.1 and send e-mail to "rxeng" with the "Description of Use" information.

10.0 CONTINGENCIES

- 10.1 In the event that any Technical Specification surveillance requirement is not satisfied:
- 10.1.1 Notify the CRS.
 - 10.1.2 **Borate the RCS at greater than or equal to 26 gpm with a solution containing greater than 4000 ppm Boron or equivalent until the required SHUTDOWN MARGIN is restored. Boration shall continue until the surveillance requirement is satisfied.**
 - 10.1.3 Notify Reactor Engineering as soon as possible.



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1290020301 Conduct of Shift Operations					
TASK STANDARD:	Determine that Unit 1 and 3 Shift Manning is below minimum.					
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:	15 minutes			
40DP-9OP02, Conduct of Shift Operations, Rev 53, Technical Specification, 10CFR						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 5/20/2007

Revised By: Alan Malley Date: 7/27/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

Ⓢ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation. PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Technical Specifications
- 40DP-9OP02, Conduct of Shift Operations, Rev 53
- 10CFR50



A-6

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.



PVNGS JOB PERFORMANCE MEASURE

INITIATING CUE:

The time is 1900. All unit crews turned over 30 minutes ago. The statuses of all units are as follows:

Unit 1 is at 100% power. Current manning:

- Shift Manager
- Control Room Supervisor is leaving now to respond to an emergency at home
- 3 Reactor Operators (one is designated as Fire Team Advisor)
- 4 AO's covering Areas 1-4
- Radwaste operator (assigned Units 2 and 3)
- Demin operator performing resin regeneration
- A Senior Reactor Operator has been called out but will not arrive until 2045

Unit 2 is in a refueling outage. The core is offloaded. Current Manning:

- Shift Manager
- Control Room Supervisor
- 1 Reactor Operator in the Control Room
- 1 Reactor Operator attending a briefing in Unit 1 Ops Support
- 1 STA
- Primary Log taking AO
- Secondary Log taking AO
- 5 other AO's for outage support
- Radwaste operator (Evaporator is running)
- Demin operator offloading resin from Service Vessel F to a poly container
- 3 Reactor Operators being utilized as Outage Coordinators

Unit 3 is in short notice outage due to a Main Turbine Lube Oil problem. The plant is currently in Mode 5 awaiting parts. Current manning;

- Shift Manager,
- Control Room Supervisor
- 2 Reactor Operators
- 1 STA assigned to Unit 2
- 1 STA assigned to Unit 3 assisting with mode change paperwork
- Primary Log taking AO
- Secondary Log taking AO

Your task is to evaluate staffing for each unit and determine if it meets the requirements of:

- Technical Specifications
- Station procedures.

Provide your answers in the spaces on the next page.



A-6

PVNGS JOB PERFORMANCE MEASURE

	Meets the requirements of Tech Specs	Meets the requirements of station procedures
	(Circle one)	(Circle one)
UNIT 1	Yes / No	Yes / No
UNIT 2	Yes / No	Yes / No
UNIT 3	Yes / No	Yes / No



A-6

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-6

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1.	Evaluate Technical Specifications for all Units		<p>Note: The examinee may request a copy of 10CFR50.54(m) to complete the evaluation.</p> <p>Examinee should determine that no unit is violating Technical Specifications.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
2. *	Evaluate Conduct of Shift Operations for Unit 1		<p>Unit 1- Although the CRS will be absent, this is allowed for up to two hours. There is no AO for area 9. This Unit does not meet procedure requirements.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3. *	Evaluate Conduct of Shift Operations for Unit 2		<p>The examinee should conclude the following:</p> <p>Unit 2- Although there is only 1 RO in the Control Room, this is allowed by Conduct of Shift Operations.</p> <p>Unit 3- this unit is in violation because there are not 3 AOs “within the unit” as defined in the note on page 12 of Conduct of Shift Operations.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
4. *	Evaluate Conduct of Shift Operations for Unit 3		<p>The examinee should conclude the following:</p> <p>Unit 3- this unit is in violation because there are not 3 AOs “within the unit” as defined in the note on page 12 of Conduct of Shift Operations.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



A-6

PVNGS JOB PERFORMANCE MEASURE

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



A-6

PVNGS JOB PERFORMANCE MEASURE

ANSWER KEY

	Meets the requirements of Tech Specs (Circle one)	Meets the requirements of station procedures (Circle one)
UNIT 1	Yes No	Yes Yes No
UNIT 2	Yes No	Yes / No
UNIT 3	Yes No	Yes Yes No

ANSWER KEY



A-6

**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	7/27/10	3,6	Updated to new format, changed unit status, and added requirement for Area 9

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)



A-6

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

The time is 1900. All unit crews turned over 30 minutes ago. The statuses of all units are as follows:

Unit 1 is at 100% power. Current manning:

- Shift Manager
- Control Room Supervisor is leaving now to respond to an emergency at home
- 3 Reactor Operators (one is designated as Fire Team Advisor)
- 4 AOs covering Areas 1-4
- Radwaste operator (assigned Units 2 and 3)
- Demin operator performing resin regeneration
- A Senior Reactor Operator has been called out but will not arrive until 2045

Unit 2 is in a refueling outage. The core is offloaded. Current Manning:

- Shift Manager
- Control Room Supervisor
- 1 Reactor Operator in the Control Room
- 1 Reactor Operator attending a briefing in Unit 1 Ops Support
- 1 STA
- Primary Log taking AO
- Secondary Log taking AO
- 5 other AO's for outage support
- Radwaste operator (Evaporator is running)
- Demin operator offloading resin from Service Vessel F to a poly container
- 3 Reactor Operators being utilized as Outage Coordinators

Unit 3 is in short notice outage due to a Main Turbine Lube Oil problem. The plant is currently in Mode 5 awaiting parts. Current manning;

- Shift Manager,
- Control Room Supervisor
- 2 Reactor Operators
- 1 STA assigned to Unit 2
- 1 STA assigned to Unit 3 assisting with mode change paperwork
- Primary Log taking AO
- Secondary Log taking AO

Your task is to evaluate staffing for each unit and determine if it meets the requirements of:

- Technical Specifications
- Station procedures.

Provide your answers in the spaces on the next page.

CANDIDATE



A-6

PVNGS JOB PERFORMANCE MEASURE

CANDIDATE

	Meets the requirements of Tech Specs (Circle one)	Meets the requirements of station procedures (Circle one)
UNIT 1	Yes / No	Yes / No
UNIT 2	Yes / No	Yes / No
UNIT 3	Yes / No	Yes / No

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1290190102 Ensure Compliance with Tech Specs					
TASK STANDARD:	Determine status of MSSV LCO conditions, required actions, and operational limits					
K/A:	2.2.22	K/A RATING:	RO:	4.0	SRO:	4.7
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	SRO	VALIDATION TIME:	15 minutes			
REFERENCES: Technical Specifications						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 09/03/2009
Revised By: Alan Malley Date: 05/26/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



A-7

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- None



A-7

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.



PVNGS JOB PERFORMANCE MEASURE

INITIATING CUE:

You are the CRS in Unit 1.

Unit 1 is at 100% power.

Engineering has just called to inform the Control Room that due to calculation errors the lift settings for the following Unit 1 Main Steam Safety Valves are as follows:

Main Steam Safety Valve	Lift setting (in psig)
SGE-PSV-555	1247
SGE-PSV-556	1360
SGE-PSV-561	1295
SGE-PSV-573	1288
SGE-PSV-575	1315
SGE-PSV-577	1314
SGE-PSV-578	1340
SGE-PSV-579	1292

You have been tasked by the Shift Manager to perform the following:

- **Determine any applicable LCO(s) and condition(s)**
- **Determine any required actions and specific operational limits associated with the LCO after the appropriate completion time and list those limits.**

LCO(s) and condition(s)	Required actions and specific operational limits associated with the LCO after the completion time



A-7

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-7

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Examinee determines applicable LCO(s) and condition(s)		Examinee determines that LCO 3.7.1 Condition A is applicable.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Examinee determines required action is to reduce power per Table 3.7.1-1 and reduce the VOPT high setpoint per table 3.7.1-1		Examinee determines the required action is to reduce power and the VOPT setpoint per table 3.7.1-1.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Examinee determines max power level allowed after completion time of the LCO.		Examinee determines the max power after LCO completion time is 68% RTP.
SAT / UNSAT Comments (required for UNSAT):			



A-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4. *	Examinee determines max Variable Overpower Trip Setpoint allowed after completion time of the LCO.		Examinee determines the Maximum Allowable Variable overpower Trip Setpoint after LCO completion time is 77.7% RTP power.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



A-7

PVNGS JOB PERFORMANCE MEASURE

ANSWER KEY

LCO(s) and condition(s)	Limits after completion time
LCO 3.7.1 Condition 'A'	Maximum Power – 68%
	Maximum Allowable VOPT Setpoint – 77.7%

ANSWER KEY



A-7

**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	05/26/2010	6	Updated format

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

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)



A-7

PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

You are the CRS in Unit 1.

Unit 1 is at 100% power.

Engineering has just called to inform the Control Room that due to calculation errors the lift settings for the following Unit 1 Main Steam Safety Valves are as follows:

Main Steam Safety Valve	Lift setting (in psig)
SGE-PSV-555	1247
SGE-PSV-556	1360
SGE-PSV-561	1295
SGE-PSV-573	1288
SGE-PSV-575	1315
SGE-PSV-577	1314
SGE-PSV-578	1340
SGE-PSV-579	1292

You have been tasked by the Shift Manager to perform the following:

- Determine any applicable LCO(s) and condition(s)
- Determine any required actions and specific operational limits associated with the LCO after the appropriate completion time and list those limits.

LCO(s) and condition(s)	Required actions and specific operational limits associated with the LCO after the completion time

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1290020301 Conduct On Shift Operations IAW Conduct of Shift Operations					
TASK STANDARD:	Determine hold points exceeded, approval needed, and which AO will perform the task					
K/A:	2.3.4	K/A RATING:	RO:	3.2	SRO:	3.7
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	SRO	VALIDATION TIME:	20 minutes			
REFERENCES:	75DP-9RP01, Radiation Exposure and Access Control, Rev 17					
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Jordan Johnston Date: 05/07/2008

Revised By: Alan Malley Date: 05/26/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

PVAR # N/A

o Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



A-8

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Calculator
- Pen and Paper
- Access to 75DP-9RP01 (as well as other RP procedures from the computer).



A-8

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.



PVNGS JOB PERFORMANCE MEASURE

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. (Assume authorization for current dose levels have already been obtained.)

Ascertain which AO will perform the job based on total dose.

Use the worksheet on the following page to document answers.



A-8

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



A-8

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

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

	STEP	CUE	STANDARD
2. *	Examinee determines the hold points that will be exceeded for each operator.		Examinee determines hold points exceeded are: 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):			



PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3. *	Examinee determines whose approval required		Examinee determines the approval need for each operator is as follows: L. Fine – Alara committee B. Abbott – RP Director M. Howard – RP Dept. Leader
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4. *	Examinee ascertains which Auxiliary Operator will perform the job based on ALARA criteria.		Examinee determines M. Howard- FIN operator has the lowest year to date exposure.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:
 Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



PVNGS JOB PERFORMANCE MEASURE

ANSWER KEY

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

- 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

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

- L. Fine Alara committee

- B. Abbott RP Director

- M. Howard RP Department Leader

Ascertain which AO will perform the job based on ALARA criteria:

AO to perform work M. Howard

ANSWER KEY



PVNGS JOB PERFORMANCE MEASURE

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	05/26/2010	6	Updated format
2	07/01/2010	6	Added answer sheet

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)



PVNGS JOB PERFORMANCE MEASURE

INITIAL CONDITIONS

CANDIDATE

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
1 st Quarter	1627 Most exposure was from Spent resin operations	412	103
2 nd Quarter	373	310	62
3 rd Quarter	302	192	24
4 th 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 person performed the evolution):

List whose approval would be necessary for any hold points that would be exceeded. (Assume authorization for current dose levels have already been obtained.)

Ascertain which AO will perform the job based on exposure:

(Use the worksheet on the following page to document answers)

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

Candidate Worksheet

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

Ascertain which AO will perform the job based on total dose:

AO to perform work _____

Candidate Worksheet



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1240100202 Classify events requiring emergency plan implementation					
TASK STANDARD:	Emergency Action Level (EAL) is identified as a Site Area Emergency, PAR is determined, and Emergency Exposure Limit is determined.					
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			
EPIP-01 – Satellite Technical Support Center Actions Rev 34, EPIP-99, EPIP Standard Appendices						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 05/27/2010
Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



A-9

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: N/A
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- Access to EPIP-01
- Access to EPIP-99
- EAL charts



A-9

**PVNGS JOB PERFORMANCE MEASURE
TASK CONDITIONS**

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.



PVNGS JOB PERFORMANCE MEASURE

INITIATING CUE:

- A sheared shaft occurred on 1B Reactor Coolant Pump causing a 100 gpm leak.
- Three Charging pumps are running and letdown is isolated.
- Pressurizer level is increasing.
- All 4 channels of PPS received a trip signal due to low SG DP.
- Reactor Trip Switchgear Breakers A and C did not open.
- The crew entered the Standard Post Trip Actions (SPTAs) and attempted to open the B2 breakers for NGN-L03 and L10.
- The B2 breaker for NGN-L10 did not open.
- Reactor Power is 50% and stable.

Your task is to determine the following:

1. Classification Level and applicable EAL (inform the proctor when classification is completed)
2. Protective Action Recommendations
3. Emergency Exposure Limit (TEDE) for Protecting Valuable Property

Provide your answers below.

THIS IS A TIME CRITICAL JPM.

Classification and EAL:

Protective Action Recommendations (PARs)

Emergency Exposure Limit



A-9

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Examinee reviews EAL chart and basis in Appendix A of EPIP-99 to determine classification level.		<p>Examinee determines the classification is a Site Area Emergency based on EAL MS2.1</p> <p>Time starts when examinee is given Initiating Cue: _____</p> <p>Time stops when examinee determines classification: _____</p> <p>Time start to classification \leq 15 minutes.</p>

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
2. *	Examinee determines PARS per Appendix B of EPIP-99.		Examinee determines PAR is to "SHELTER 2 Mile Radius".

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
3. *	Examinee determines Emergency Exposure Limit for Protecting Valuable Property per Appendix K of EPIP-99.		Examinee determines Emergency Exposure Limit for protecting valuable property is 10 mrem per event.

SAT / UNSAT

Comments (required for UNSAT):

JPM STOP TIME:



A-9

PVNGS JOB PERFORMANCE MEASURE

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

- A sheared shaft occurred on 1B Reactor Coolant Pump causing a 100 gpm leak.
- Three Charging pumps are running and letdown is isolated.
- Pressurizer level is increasing.
- All 4 channels of PPS received a trip signal due to low SG DP.
- Reactor Trip Switchgear Breakers A and C did not open.
- The crew entered the Standard Post Trip Actions (SPTAs) and attempted to open the B2 breakers for NGN-L03 and L10.
- The B2 breaker for NGN-L10 did not open.
- Reactor Power is 50% and stable.

Your task is to determine the following:

1. Classification Level and applicable EAL (inform the proctor when classification is completed)
2. Protective Action Recommendations
3. Emergency Exposure Limit (TEDE) for Protecting Valuable Property

Provide your answers below.

THIS IS A TIME CRITICAL JPM.

Classification and
EAL:

Protective Action
Recommendations
(PARs)

Emergency Exposure
Limit

CANDIDATE



JS-1
PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 105
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS
 - None (already in IC)
- C. SPECIAL INSTRUCTIONS:
 - This JPM is set to run with JS2 for the 2010 NRC exam
 - Run Scenario “NRC 2010 JS1-JS2” from the exam jump drive
- D. REQUIRED CONDITIONS:
 - RU-4 in HIGH alarm
 - SG Blowdown in service.
- 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 74RM-9EF41, RMS Alarm Response, Page for RU-4
- A copy of 40OP-9SG03, Operating the SG Blowdown System

If IC-105 is not available, reset to any at power IC and perform the following:

- IMF TH06A f:0.4
- Wait for RU-4 to alarm
- Run Scenario file NRC 2010 JS1-JS2” from the exam jump drive
- Wait for RU-4 to alarm



JS-1
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

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

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

A Steam Generator Tube Leak has occurred on SG #1.

The CRS has directed you to respond to the RU-4 alarm per 74RM-9EF41, RMS Alarm Response Procedure.



JS-1 PVNGS JOB PERFORMANCE MEASURE

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-1
PVNGS JOB PERFORMANCE MEASURE
JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 1 of the Operations Response section of 74RM-9EF41: If currently in HIGH alarm, secure blowdown to the affected Steam Generator using 40OP-9SG03.	Examiner Note: When examinee has obtained 40OP-9SG03, give the examinee yellow copies of Section 5.0 of 40OP-9SG03 that are included in the JPM package.	Examinee obtains 40OP09SG03 to secure blowdown.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 5.2 of 40OP-9SG03: Chemistry has been notified that Steam Generator 1 Blowdown will be secured.	INFORM CUE: Chemistry has been notified that Blowdown will be secured.	Examinee simulates calling Chemistry to notify Chemistry that SG blowdown will be secured. Examiner Note: Examinee will probably tell Chemistry that blowdown will be secured to both SGs.
SAT / UNSAT Comments (required for UNSAT):			

Note prior to step 5.3.1.1:
 Instructions for changing blowdown constants with the new CMC are contain in Appendix O - Inserting Blowdown Constants with the New CMC.



**JS-1
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
3. *	<p>Step 5.3.1.1 of 40OP-9SG03:</p> <p>Concurrent Verification is required for this step. Insert zero for the Blowdown COLSS Constant (NKBMF1 for SG 1) into the Core Monitoring Computer.</p>	<p>INFORM CUE:</p> <p>Assume Concurrent Verification is being performed.</p>	<p>Examinee inserts zero for COLLS constant in the Core Monitoring Computer.</p> <p>For the new CMC the examinee performs the following per Appendix O:</p> <p>From the CMC Operations Menu</p> <p>1.1 Select the desired Steam Generator Blowdown button.</p> <p>1.2 Select the set button for the desired blowdown flowpath.</p> <p>1.3 WHEN the pop up window asks if you are sure, THEN select the appropriate response.</p> <p>1.4 Verify BOTH of the following:</p> <ul style="list-style-type: none"> • The correct constant has been inserted in the center box. • The selected blowdown path turns red. <p>1.5 Return to the body of the procedure to record the verification signatures.</p>

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
4. *	<p>Step 5.3.1.2 of 40OP-9SG03:</p> <p>Concurrent Verification is required for this step. Insert zero for the Blowdown COLSS Constant (NKBMF1 for SG 1) into the Plant Monitoring Computer.</p>	<p>INFORM CUE:</p> <p>Assume Concurrent Verification is being performed.</p>	<p>Examinee inserts zero for COLLS constant in the Plant Monitoring Computer.</p> <p>The examinee calls up the point or has the point already on the screen.</p> <p>The examinee hits Change point.</p> <p>The examinee hits INS</p> <p>The examinee enters zero.</p>

SAT / UNSAT
Comments (required for UNSAT):



JS-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
5. *	Step 5.3.1.3 of 40OP-9SG03: Place SCN-HS-1, Steam Generator 1 Blowdown Path Selector, to the OFF position.		Examinee places SCN-HS-1 on B07 to the OFF position.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6.	Step 5.3.1.4 of 40OP-9SG03: PERFORM Appendix G - Blowdown Verifications to ensure normal system response.		Examinee performs Appendix G to ensure normal system response.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7.	Step 5.3.2 of 40OP-9SG03: Direct a Nuclear Operator to perform Appendix I - Securing Steam Generator 1 Blowdown. (N/A at CRS/Shift Managers discretion if blowdown stopped for short duration)	INFORM CUE: The Nuclear Operator has come to the Control Room and has been briefed to perform Appendix I.	Examinee directs a Nuclear Operator to perform Appendix I.
SAT / UNSAT Comments (required for UNSAT):			

Note above Step 5.3.3:

When the BFT cools down, water could flow from the feedwater heaters through SCNLV3A into the BFT causing water hammers.



JS-1
PVNGS JOB PERFORMANCE MEASURE

STEP	CUE	STANDARD
<p>8. Step 5.3.3 of 40OP-9SG03:</p> <p>IF ALL of the following conditions exists:</p> <ul style="list-style-type: none"> • Blowdown flow to the BFT has been secured, • The BFT will be secured over shift change, • CRS/Shift Manager directs, <p>THEN close SCN-V057, BFT Drain to Feedwater Heaters.</p>	<p>INFORM CUE:</p> <p>The CRS does not want to close SCN-V057 at this time.</p>	<p>The examinee N/As this step.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>		

Caution above step 5.3.4:

Initiating blowdown flow when the containment isolation valves have been closed and the downstream lines are drained or have become voided due to system leakage, may result in severe water hammer to the downstream piping.



JS-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
9. *	Step 5.3.4 of 40OP-9SG03: At the discretion of the CRS/Shift Manager, close the following valves: <ul style="list-style-type: none"> • SGA-UV-500P, Steam Generator 1 Common Upstream Isolation using SGA-HS-500P. • SGB-UV-500Q, Steam Generator 1 Common Downstream Isolation using SGB-HS-500Q. • SGE-HV-43, Steam Generator 1 Hot Leg Isolation Valve using SGN-HS-43. • SGE-HV-41, Steam Generator 1 Cold Leg Isolation Valve using SGN-HS-41. • SGE-HV-47, Steam Generator 1 Downcomer Isolation Valve using SGN-HS-47. 	INFORM CUE: The CRS directs you to perform step 5.3.4.	Examinee closes the following valves: <ul style="list-style-type: none"> • SGA-UV-500P using HS-500P • SGB-UV-500Q using HS-500Q • SGE-HV-47 using HS-47.
SAT / UNSAT Comments (required for UNSAT):			

Caution above step 5.3.5:

If the Blowdown Heat Exchanger is not allowed to cool down prior to isolation of the cooling water flow, isolating cooling water flow to the Blowdown Heat Exchanger may result in severe water hammer to the downstream piping.



**JS-1
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
00	4/21/2010	6	Record created
1	6/2/2010	6	Revised cue
2	7/21/10	6	Revised cue and removed SG 2 material
3	07/27/10	6	Made minor corrections

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
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

A Steam Generator Tube Leak has occurred on SG #1.

The CRS has directed you to respond to the RU-4 alarm per 74RM-9EF41, RMS Alarm Response Procedure.

CANDIDATE



JS 2
PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

A. IC#: 105 and run JPM listed under Special Instructions (For 2010 NRC Exam only)

Driver Actions Required

STEP	COMMAND	DESCRIPTION
17	None	When the examinee directs the area operator to check the boric acid filter D/P report the following: If a BAMP is running report the filter D/P is pegged high. If a BAMP is NOT running report the filter D/P is 0 psid.
18	Wait 5 minutes then: Mrf rfCV43 OPEN and report CHN-V164 is open	When directed to bypass the boric acid filter by opening CHN-V164 Waiting 5 minutes guarantees the Timer Lockout will actuate which ensures the candidate will have to take actions after the filter is bypassed.

B. SPECIAL INSTRUCTIONS:

- This JPM is set to run with JS1 for the 2010 NRC exam
- Run Scenario “NRC 2010 JS1-JS2” from the exam jump drive
- Set the boric acid totalizer to 1000 gpm
- Set CHN-FIC-210Y to 40 gpm.
- Set the camera so the driver can see the BAMP pumps or use the Simulator panel display for B03 or the simulator diagram CV8 to determine if BAMPs are running for filter D/P report

C. REQUIRED CONDITIONS:

- mF CV09 linked to trigger

D. 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:

- White copy of 40AL-9RK3A (page 38) to replace used pages after JPM.

If IC-105 is unavailable, reset to IC-20 (or any at power IC) and perform the following:

- Link command imf mfCV09 with a ramp time of 1 minute and final severity of 100 to event trigger “ch510”. (this will clog the boric acid filter 1 minute after CHN-UV-510 closes).
- Set the boric acid totalizer to 1000 gpm
- Set CHN-FIC-210Y to 40 gpm.



JS 2
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

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

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The Unit is at 100% power.**
- **The CRS directs you to borate the RCS by using 40OP-9CH01 Section 7.0.**
- **The quantity to be added has been determined to be 100 gallons from the RWT at a rate of 30 gpm.**
- **Use CHN-FIC-210Y in automatic to the charging pump suction.**
- **All Prerequisites are complete.**



JS 2

PVNGS JOB PERFORMANCE MEASURE

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
JPM START TIME:

Note above step 7.3.1:
 Boron addition calculations are to be considered approximate.

	STEP	CUE	STANDARD
1.	Step 7.3.1 of 40OP-9CH01: IF the reactor is critical, THEN determine the gallons of boric acid to be added using any of the following: <ul style="list-style-type: none"> • STA reactivity worksheet • Reactor Engineering game plan • Power Change Worksheet • Boron Operator Assistance Program (OAP) • Core Data Book 		Examinee determines that 100 gallons is the total to be added since this was given in the Initiating Cue.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 7.3.2 of 40OP-9CH01: IF the reactor is not critical, THEN perform the following:		Examinee NAs this step since the reactor is critical.
SAT / UNSAT Comments (required for UNSAT):			



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3.	Step 7.3.3 of 40OP-9CH01: IF , at any time, letdown is diverted to CVCS HUT, THEN notify Radiation Protection to evaluate impact on current radiation levels near the HUT.		Examinee NAs this step since it should not be applicable due to only adding 100 gallons to the RCS.
SAT / UNSAT Comments (required for UNSAT):			

Note above step 7.3.4
Operation of the gas stripper should be considered when RCS activity levels indicate the possibility of failed fuel.

	STEP	CUE	STANDARD
4.	Step 7.3.4 of 40OP-9CH01: WHEN diverting CVCS Letdown, THEN perform ONE of the following:	IF requested cue: Gas Stripper operation is not required.	Examinee NAs this step since it should not be applicable due to only adding 100 gallons to the RCS.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	Step 7.3.5 of 40OP-9CH01: IF makeup is in manual as directed in step 4.3.3.1, AND it is desired to perform this makeup in Automatic, THEN perform ALL of the following:		The examinee NAs this step since makeup is not in manual.
SAT / UNSAT Comments (required for UNSAT):			



**JS 2
PVNGS JOB PERFORMANCE MEASURE**

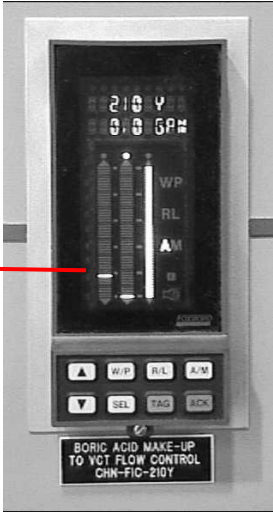
Notes and Cautions above Step 7.3.6:

NOTE - Digital flow totalizer/counter CHN-FQIS-210Y will operate with flow rates as low as 2.0 gpm.

NOTE - Digital makeup will operate satisfactorily at flow rates less than 2 gpm. The threshold for actuation of alarm window 3A04B, CVCS Makeup Flow is 3 gpm. The alarm will not activate until flow is equal to or greater than 3 gpm.

NOTE - CHN-FIC-210Y, Boric Acid Makeup Flow Controller, is tuned to provide optimal system response for flows in the 5 - 40 gpm range. Operation of the controller in automatic with an initial controller setpoint of greater than 40 gpm will cause controller instability and should be avoided.

CAUTION - Alarm window 3A04B, CVCS Makeup Flow is set at 3 gpm. It's function is to alert the operator that flow exists through CHN-FQIS-210X and/or CHN-FQIS-210Y. It is an indication that reactivity management may be in jeopardy. When operating with less than 3 gpm, the operator does not have this alarm function available to alert

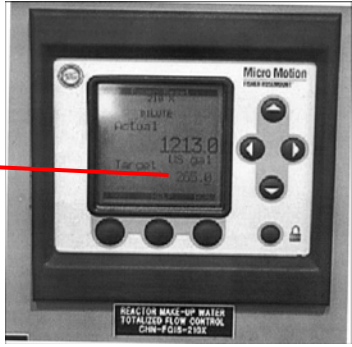
	STEP	CUE	STANDARD
6. *	Step 7.3.6 of 40OP-9CH01: Set the desired boric acid makeup flow rate on the Foxboro controller, CHN-FIC-210Y.	<div style="border: 2px solid red; padding: 5px; display: inline-block; margin: 20px auto;">Flow Setpoint</div>	The examinee sets CHN-FIC-210Y to 30 gpm. (This is the left number on the controller.) 
SAT / UNSAT Comments (required for UNSAT):			

Note above step 7.3.7:

A 299 second timer exists. If flow is not achieved within 299 seconds, then the controller will receive a "Timer Alarm".



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7. *	Step 7.3.7 of 40OP-9CH01: 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.	<div style="border: 2px solid red; padding: 5px; display: inline-block;">“Target”</div>	The examinee sets the “Target” makeup on CHN-FQIS-210Y to 100. 
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8.	Step 7.3.8 of 40OP-9CH01: IF the reactor is critical, THEN ensure CEDMCS is in the desired mode of operation per CRS direction.	If requested cue: The CRS desires CEDMCS to be left in Auto Sequential.	The examinee may ask the CRS what mode of operation is desired for CEDMCS or may assume that Auto Sequential is the desired mode.
SAT / UNSAT Comments (required for UNSAT):			




JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
9.	Step 7.3.9 of 40OP-9CH01: IF borating directly to the VCT, THEN place CHN-HS-512, Makeup Inlet to VCT in the OPEN position.		The examinee NAs this step since the Initiating Cue said to borate to the suction of the Charging pumps.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
10. *	Step 7.3.10.1 of 40OP-9CH01: Start the boration as follows: <ul style="list-style-type: none"> • Place CHN-HS-210 in the BORATE position. 		The examinee places CHN-HS-210 in "BORATE".
SAT / UNSAT Comments (required for UNSAT):			



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>11. *</p>	<p>Step 7.3.10.2 of 40OP-9CH01: Depress the “Reset” pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion).</p>	<p align="center">“Left pushbutton”</p>	<p>Examinee pushes the “RESET” pushbutton – the left pushbutton on the totalizer on CHN-FQIS-210Y.</p>  <p>Depending on the last user, the examinee may only have to push this button once or multiple times.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
<p>12. *</p>	<p>Step 7.3.10.3 of 40OP-9CH01: Depress the “Start” pushbutton - the left pushbutton on the totalizer/counter module (Micro-Motion).</p>		<p>The examinee pushes the “Start” pushbutton.</p> <p>Examiner note: This is the same pushbutton as in the previous step.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



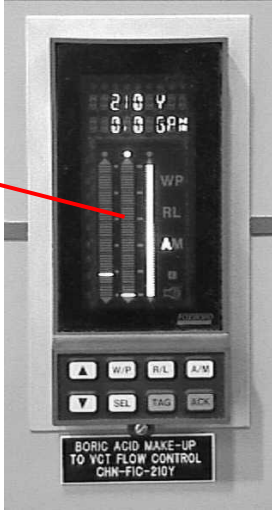
JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
13.	Step 7.3.11 of 40OP-9CH01: Check for BOTH of the following: <ul style="list-style-type: none"> • One boric acid pump started • CHN-FIC-210X indicates no RMW flow, (CHN-FV-210X closed) 		The examinee checks that a boric acid pump started and the CHN-FIC-210X (the dilution controller) indicates no RMW flow.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
14.	Step 7.3.12 of 40OP-9CH01: IF borating directly to the suction of the charging pumps, THEN ensure CHN-UV-527, Makeup to CHRG PMPS (VCT Bypass) is open.		Examinee ensures CHN-UV-527 is open.
SAT / UNSAT Comments (required for UNSAT):			




JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
15.	Step 7.3.13 of 40OP-9CH01: 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.	<div style="border: 1px solid red; padding: 5px; display: inline-block;">"Process Flow"</div>	Examinee checks Process Flow stabilizes at the Auto Setpoint (25 gpm) 
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
16.	Step 7.3.14 of 40OP-9CH01: Check proper flow indicated on CHN-FIC-210Y.		Examinee ensures proper flow on CHN-FIC-210Y.
SAT / UNSAT Comments (required for UNSAT):			



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
17.	Examinee receives a “BAM TRBL” alarm on B03 and Boration flow stops.	Gallons added so far	Examinee addresses the B03 Alarm Response Procedure, 40AL-9RK3A for Window 6A for point CHPDS260 (Group D) NOTE to Examiner: Record the gallons of boron added _____ Gallons 
SAT / UNSAT Comments (required for UNSAT):			



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
18.	<p>Step 1 of Second Priority Operator Actions:</p> <p>Direct a Nuclear Operator to read the differential pressure locally on differential pressure instrument CHN-PDIS-260.</p>	<p>If the BAMP is running the driver will report a D/P reading pegged high. If the BAMP is not running the driver will report a "0" D/P reading.</p>	<p>Examinee directs Area Operator to check the differential pressure instrument on CHN-PDIS-260.</p> <p>Note to examiner: The examinee may stop the boration by hitting the "Pause" or "End" button (same as "Start" pushbutton) on the totalizer or by taking the BORATE switch back to AUTO.</p> <p>The DP reading to provide as a cue will depend if the Boric Acid Makeup Pump is running or not.</p> <p>The examinee should use the driver since action is required by the driver for the next few steps.</p> <p>Alternate Path</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
19.	<p>Step 2 of Second Priority Operator Actions:</p> <p>Direct a Nuclear Operator to bypass flow around the filter by opening valve CHN-V164 and closing valve CHN-V161 if boric acid flow is still needed.</p>		<p>Examinee directs Area Operator to bypass the boric acid filter by opening CHN-V164.</p> <p>Note to Examiner: Simulator Driver action required. Have the examinee talk to the simulator driver.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

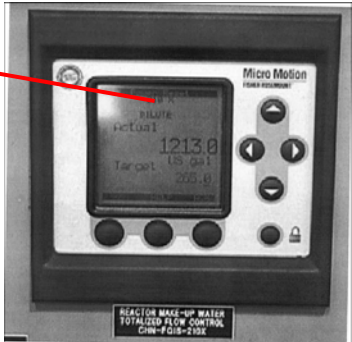


JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
20.	Step 3 of Second Priority Operator Actions: Remove filter from service as directed by 40OP-9CH01, CVCS Normal Operations.	If the examinee proceeds to remove the filter from service, provide the following cue: The CRS will assign another operator to remove the boric acid filter from service. Continue with the boration.	Examinee may start to address removing the filter from service.
SAT / UNSAT Comments (required for UNSAT):			



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
21. *	Examinee continues boration.	<div style="border: 2px solid red; padding: 5px; display: inline-block;">TIMER ALARM</div>	<p>Examinee continues boration.</p> <p>If the examinee did nothing with the boration and it has been less than 5 minutes, the boration will continue when the filter is bypassed.</p> <p>IF a “TIMER ALARM” is received on the totalizer, the examinee will have to restart the boration (starting at step 7 of this JPM) but will need to know how many gallons he/she added so far. If the examinee restarts the boration at 100 gallons, he/she will add too much borated water and this should constitute a failure.</p> <div style="text-align: right;">  </div>

SAT / UNSAT

Comments (required for UNSAT):



JS 2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
22.	Step 7.4.1 of 40OP-9CH01: WHEN the desired volume has been added to the RCS, THEN perform the following: 1. Ensure the borate flow has stopped. 2. Ensure CHN-HS-210 is in Auto. 3. Ensure the “Auto Setpoint” is at the desired setpoint for auto makeup.	If asked about Auto Setpoint provide the following cue: <ul style="list-style-type: none">• The CRS wants the setpoint at 40 gpm. INFORM CUE (after the examinee completes this step): <ul style="list-style-type: none">• Another operator will complete the rest of this procedure.	The examinee ensures flow has stopped and takes CHN-HS-210 to “AUTO” The candidate may ask what setpoint the CRS desires for the “Auto Setpoint” or may restore to 40 gpm where it was initially.

SAT / UNSAT

Comments (required for UNSAT):

JPM STOP TIME:

NORMAL TERMINATION POINT



**JS 2
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	2/25/2004	6	Record created
1	5/11/2010	6	Revised to update to procedure revision, placed in new format and added pictures.

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
INITIAL CONDITIONS

INITIATING CUE:

- **The Unit is at 100% power.**
- **The CRS directs you to borate the RCS by using 40OP-9CH01 Section 7.0.**
- **The quantity to be added has been determined to be 100 gallons from the RWT at a rate of 30 gpm.**
- **Use CHN-FIC-210Y in automatic to the charging pump suction.**
- **All Prerequisites are complete.**

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1240040201 Implement LOCA instructions and contingencies					
TASK STANDARD:	Initiate RAS, stop the HPSI and CS pumps on loop with failed containment sump valve, and isolate the RWT suction path					
K/A:	3.2 006 A3.08	K/A RATING:	RO:	4.2	SRO:	4.3
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	RO	VALIDATION TIME:	10 minutes			
40EP-9EO03, Loss of Coolant Accident, Rev 27						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR	X	PLANT			

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 05/18/2010

Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

Ⓢ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation. PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JS-3

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 106
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
2.		
3.		
4.		

- C. SPECIAL INSTRUCTIONS:
 - Run scenario file “NRC 2010 JS3-JS4” from the exam jump drive
- D. REQUIRED CONDITIONS:
 - This JPM is designed to be run with JS4 for the 2010 NRC exam.
- 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 pages 27-29 of 40EP-9EO03, Loss of Coolant Accident



JS-3

PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

- **You are the RO in Unit 1.**
- **A large break LOCA has occurred.**
- **The CRS has entered 40EP-9EO03, Loss of Coolant Accident.**
- **The CRS has directed you to perform steps 55 and 56 of 40EP-9EO03, Loss of Coolant Accident, to verify RAS has actuated and to isolate the RWT from the Safety Injection system.**



JS-3

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



JS-3

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
<p>1.</p>	<p>Step 55 of 40EP-9EO03:</p> <p>IF the break is inside containment AND RWT level lowers to 7.4%, THEN check that RAS is actuated.</p>		<p>Examinee determines that RAS level is < 7.4% by the following indications on panel B02:</p> <ul style="list-style-type: none"> • CHA-LI-203A • CHB-LI-203B • CHC-LI-203C • CHD-LI-203D <p>Examinee determines that a RAS has not actuated by any of the following indications on panel B06:</p> <ul style="list-style-type: none"> • RAS alarm on panel RKN – UV-2B (Window 5A) not lit. • RWT Lo Level alarm on RKN-5B (Window 6D) • RAS PPS Initiation lights on B05 still lit • Lo RWT “trip” light on PPS not lit <p>Examinee proceeds to contingency step 55.1.</p> <p>Alternate Path</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
2. *	Step 55.1 of 40EP-9EO03: Manually actuate RAS.		Examinee manually initiates RAS by taking the following RAS handswitches to “RAS INITIATE” on B05: <ul style="list-style-type: none"> • SAA-HS-43 • SAB-HS-44 • SAC-HS-45 • SAD-HS-46 <p>Examiner Note: It is not critical to use all four of the above switches. The critical part is to actuate a RAS.</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3.	<p>Step 56.a and 56.b of 40EP-9EO03:</p> <p>IF a RAS has actuated, THEN perform the following:</p> <p>a) Ensure that both LPSI Pumps are stopped.</p> <p>b) Ensure that the ESF pump suction has shifted to the containment.</p>		<p>a) Examinee determines that both LPSI pumps have stopped by observing green light on and red light off on the following handswitches on B02:</p> <ul style="list-style-type: none"> • LPSI A – SIA-HS-3 • LPSI B – SIB-HS-4 <p>b) Examinee determines that the ‘B’ ESF pump suction valves from containment did open with the exception of SIB-UV-675.</p> <p>Examiner note: The examinee should attempt to open SIB-UV-675 using handswitch SIB-HS-675 on B02, but the valve will not open.</p> <p>c) Examinee goes to contingency step 56.b.1.</p> <p>Alternate Path</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4. *	<p>Step 56.b.1 of 40EP-9EO03:</p> <p>IF any ESF pump suction can NOT be shifted to the containment sump, THEN perform the following:</p> <ol style="list-style-type: none"> 1) IF ANY HPSI Pump is running with its associated Containment suction closed, THEN stop the affected HPSI Pump. 2) IF ANY CS Pump is running with its associated Containment suction closed, THEN stop the affected CS Pump. 		<ol style="list-style-type: none"> 1) Examinee stops HPSI pump B by using handswitch SIB-HS-2 on B02. 2) Examinee stops CS pump B by taking the handswitch SIB-HS-6 on B02 to “START” to pick up the override, then to “STOP”
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
5.	<p>Step 56.c of 40EP-9EO03:</p> <p>Ensure ALL of the following valves are closed:</p> <ul style="list-style-type: none"> • SIA-UV-666, HPSI A Pump Recirc Valve • SIA-UV-664, Containment Spray Pump A Recirc Valve • SIB-UV-667, HPSI B Pump Recirc Valve • SIB-UV-665, CS Pump B Recirc Valve 		<p>Examinee determines all of the following valves are closed by ensuring the green light is “ON” and the red light is “OFF” at their respective handswitches on B02</p> <ul style="list-style-type: none"> • SIA-UV-666 (SIA-HS-666) • SIA-UV-664 (SIA-HS-664) • SIB-UV-667 (SIB-HS-667) • SIB-UV-665 (SIB-UV-665)
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
6. *	Step 56.d of 40EP-9EO03: Close BOTH of the following valves: <ul style="list-style-type: none"> • CHA-HV-531, RWT to Train A Safety Injection Valve • CHB-HV-530, RWT to Train B Safety Injection Valve 		The examinee closes the following valves using their respective handswitches on panel B02: <ul style="list-style-type: none"> • CHA-HV-531 (CHA-HS-531) • CHB-HV-530 (CHB-HS-530)
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



JS-3

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

- You are the RO in Unit 1.
- A large break LOCA has occurred.
- The CRS has entered 40EP-9EO03, Loss of Coolant Accident.
- The CRS has directed you to perform steps 55 and 56 of 40EP-9EO03, Loss of Coolant Accident, to verify RAS has actuated and to isolate the RWT from the Safety Injection system.

CANDIDATE



JS-4
PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 106
- B. SCENARIO
 - Run Scenario “NRC 2010 JS3-JS4” from the exam jump drive
- C. SPECIAL INSTRUCTIONS:
 - This JPM is set to run with JS3 for the 2010 NRC exam
- D. REQUIRED CONDITIONS:
 - Reactor Power < 2 X 10⁻⁶% power.
- 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 Appendix 8 (Boron Dilution Alarm Check) of 40EP-9EO10
- Calculator available

If IC 106 is not available perform the following from any at power IC:

EVENT	COMMAND	DESCRIPTION
1.	GO TO RUN.	
2.	Trip the reactor and allow power to decay to < 2 X 10 ⁻⁶ %.	
3.	GO TO FREEZE.	
4.	Provide Initiating CUE THEN GO TO RUN.	



JS-4
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

The Reactor was tripped about 30 minutes ago.

The CRS directs you to perform the Boron Dilution Alarm Check per Appendix 8 of 40EP-9EO10, Standard Appendices.



JS-4
PVNGS JOB PERFORMANCE MEASURE

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



JS-4
PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1. *	Step 1 of Appendix 8: <u>Place</u> the Control/Startup Channel 1 switch to the “S-U CHAN 1” position.		Examinee takes Control/Startup Channel 1 switch to the “S-U CHAN 1” position (At panel B04).
SAT / UNSAT /NA Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Step 2 of Appendix 8: <u>Place</u> the Control/Startup Channel 2 switch to the “S-U CHAN 2” position.		Examinee takes Control/Startup Channel 1 switch to the “S-U CHAN 2” position (At panel B04).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Step 3 of Appendix 8: <u>Press</u> the “METER SELECT” pushbutton for Startup Channel 1 and <u>check BOTH</u> of the following: <ul style="list-style-type: none"> • The green “CONTROL” light is extinguished. • The red “START UP” light is lit. 		Examinee goes to NIS cabinet in back panel area of Control Room, to Startup Channel 1 and presses the “METER SELECT” pushbutton and observes the green “CONTROL” light is extinguished and the red “START UP” light is lit.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4. *	Step 4 of Appendix 8: <u>Press</u> the “HV PERMIT/HV ON” pushbutton for Startup Channel 1 and <u>check</u> that the amber light is lit.		Examinee presses the “HV PERMIT/HV ON” pushbutton for Startup Channel 1 and checks that the amber light is lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	Step 5 of Appendix 8: IF Startup Channel 1 is the only available channel, THEN <u>perform</u> a qualitative assessment of Channel 1 behavior.		No action necessary. Continues on in procedure. May mark this step N/A or may perform assessment since the candidate will not know if SU channel 2 is available yet.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6. *	Step 6 of Appendix 8: <u>Check</u> that the “START UP HV LOW” alarm for Startup Channel 1 is NOT lit.		The “START UP HV LOW” alarm for Startup Channel 1 WILL BE lit (This is normal). The operator must perform the contingency action (step 6.1) and press the pushbutton to extinguish the light to achieve NOT LIT status.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7.	Step 7 of Appendix 8: <u>Check</u> that the “TROUBLE” alarm for Startup Channel 1 is NOT lit.		Examinee determines the “TROUBLE” alarm for Startup Channel 1 is NOT lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8.	Step 8 of Appendix 8: <u>Check</u> that the “HIGH CPS” alarm for Startup Channel 1 is NOT lit.		Examinee determines the “HIGH CPS” alarm for Startup Channel 1 is NOT lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
9.	Step 9 of Appendix 8: <u>Press</u> the “METER SELECT” pushbutton for Startup Channel 2 and <u>check</u> BOTH of the following <ul style="list-style-type: none"> • The green “CONTROL” light is extinguished. • The red “START UP” light is lit 		Examinee presses the “METER SELECT” pushbutton for Startup Channel 2 and observes the green “CONTROL” light is extinguished and the red “START UP” light is lit.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
10. *	Step 10 of Appendix 8: <u>Press</u> the “HV PERMIT/HV ON” pushbutton for Startup Channel 2 and <u>check</u> that the amber light is lit.		Examinee presses the “HV PERMIT/HV ON” pushbutton for Startup Channel 2 and checks that the amber light is lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
11.	Step 11 of Appendix 8: IF Startup Channel 2 is the only available channel, THEN <u>perform</u> a qualitative assessment of Channel 2 behavior.		No action necessary. Continues on in procedure.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
12. *	Step 12 of Appendix 8: <u>Check</u> that the “START UP HV LOW” alarm for Startup Channel 2 is NOT lit.		The “START UP HV LOW” alarm for Startup Channel 2 WILL BE lit (This is normal). The operator must perform the contingency action (step 12.1) and press the pushbutton to extinguish the light to achieve NOT LIT status.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
13.	Step 13 of Appendix 8: <u>Check</u> that the “TROUBLE” alarm for Startup Channel 2 is NOT lit.		Examinee determines the “TROUBLE” alarm for Startup Channel 2 is NOT lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
14.	Step 14 of Appendix 8: <u>Check</u> that the “HIGH CPS” alarm for Startup Channel 2 is NOT lit.		Examinee determines the “HIGH CPS” alarm for Startup Channel 2 is NOT lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
15. *	Step 15.a of Appendix 8: Perform the following for Boron Dilution Alarm Channel SEN-NI-005: Press the “RESET” pushbutton		Examinee go to BDAS panel and presses the “RESET” pushbutton.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
16.	Step 15.b of Appendix 8: Ensure the “FLUX/SETPOINT” pushbutton is selected to the “FLUX” position		Examinee ensures the “FLUX” half of the pushbutton is backlit. If it is not the examinee presses the pushbutton.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
17.	Step 15.c of Appendix 8: Check that the digital display is NOT flashing.		Examinee determines the digital display is not flashing and circles YES for the Acceptance Criteria and initials the step.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
18.	Step 15.d of Appendix 8: Check that the decimal indicator is flashing approximately one flash per second.		Examinee determines the decimal indicator is flashing approximately one flash per second and circles YES for the Acceptance Criteria and initials the step.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
19.	Step 15.e of Appendix 8: Record flux reading.		Examinee documents flux reading in Appendix 8.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
20.	Step 15.f of Appendix 8: If Boron Dilution Alarm Channel SEN-NI-005 is the only available channel, THEN perform a qualitative assessment of Boron Dilution Channel SEN-NI-005 behavior.		No action necessary. Continues on in procedure.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
21. *	Step 16.a of Appendix 8: Perform the following for Boron Dilution Alarm Channel SEN-NI-006: Press the “RESET” pushbutton		Examinee presses the “RESET” pushbutton.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
22.	Step 16.b of Appendix 8: Ensure the “FLUX/SETPOINT” pushbutton is selected to the “FLUX” position		Examinee ensures the “FLUX” half of the pushbutton is backlit. If it is not the examinee presses the pushbutton.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
23.	Step 16.c of Appendix 8: Check that the digital display is NOT flashing.		Examinee determines the digital display is not flashing and circles YES for the Acceptance Criteria and initials the step.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
24.	Step 16.d of Appendix 8: Check that the decimal indicator is flashing approximately one flash per second.		Examinee determines the decimal indicator is flashing approximately one flash per second and circles YES for the Acceptance Criteria and initials the step.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
25.	Step 16.e of Appendix 8: Record flux reading.		Examinee documents flux reading in Appendix 8.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
26.	Step 16.f of Appendix 8: If Boron Dilution Alarm Channel SEN-NI-006 is the only available channel, THEN perform a qualitative assessment of Boron Dilution Channel SEN-NI-006 behavior.		No action necessary. Continues on in procedure.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
27.	Step 17.a of Appendix 8: Perform the following to determine Boron Dilution Alarm Channel acceptance criteria: Calculate the voltage difference between the Boron Dilution Alarm Channels: Highest Vdc _____ minus (-) Lowest Vdc _____ = _____ ΔVdc		Examinee determines voltage difference between the two channels of BDAS.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
28. *	Step 17.b of Appendix 8: Check that the ΔVdc is less than or equal to 0.8 Vdc between channels		Examinee determines ΔVdc is less than or equal to 0.8 Vdc and circles Yes for Acceptance Criteria.
SAT / UNSAT Comments (required for UNSAT):			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
29. *	<p>Step 18 of Appendix 8:</p> <p>Perform the following to determine Startup Channel acceptance criteria:</p> <p>a. Record Startup Channel 1: _____ CPS.</p> <p>b. Record Startup Channel 2: _____ CPS.</p> <p>c. Calculate Highest Channel Max CPS: Lowest Channel CPS _____ X 2.5 = _____, which is the calculated Highest Channel Max CPS.</p> <p>d. Check that Startup Channel acceptance criteria has been met.</p>		<p>Examinee logs Startup channel counts for each channel and determines the Highest Channel Max CPS and circles Yes for acceptance criteria.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
30.	<p>Select the desired audio range and volume for the Startup Channels.</p>		<p>Examinee selects the desired audio range and volume.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-4
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
31.	Check that proper overlap exists between the Log Power Channel and the Startup Channel.		Examinee determines proper overlap exist between the Log Power Channel and the Startup Channel. Examiner note: Proper overlap is that both are indicating when power is $< 2 \times 10^{-6}\%$ power.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
32.	IF ALL of the acceptance criteria are met, THEN inform the CRS that the Boron Dilution and Startup Channels are operable.	INFORM CUE: The CRS has been informed that the Boron Dilution and Startup Channels are operable. Another Operator will complete the remainder of this Appendix.	Examinee informs CRS that Boron Dilution and Startup Channels are operable.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post critique using EPIP-99 form 0800 and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



**JS-4
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	09/13/2006	6	Modified Cues and added Instructor Notes to steps 5 & 6
002	08/25/2008	6	Revision 58 of 40EP-9EO10 Appendix 17 and new JPM format.
003	03/25/2010	6	Updated to new JPM format and modified to have a CIAS and SIAS.

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**

INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

The Reactor was tripped about 30 minutes ago.

The CRS directs you to perform the Boron Dilution Alarm Check per Appendix 8 of 40EP-9EO10, Standard Appendices.

CANDIDATE



PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	1240050201 Implement SGTR instructions and contingencies					
TASK STANDARD:	Ruptured Steam Generator isolated in accordance with Standard Appendix 113.					
K/A:	4.2 037 AK3.07	K/A RATING:	RO:	4.2	SRO:	4.1
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	RO/SRO	VALIDATION TIME:	10 minutes			
40EP-9EO10, Standard Appendices (rev 64)						
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR	X	PLANT			

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 05/11/2010

Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

Ⓢ For E-Plan JPMs, a grade of UNSAT requires a PVAR to be written, remediation, and re-evaluation. PVAR # N/A

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JS-5

PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 107
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS

EVENT	COMMAND	DESCRIPTION
1.		
2.		
3.		
4.		

- C. SPECIAL INSTRUCTIONS:
 - This JPM is set to run with JS6 for the 2010 NRC exam
- D. REQUIRED CONDITIONS:
 - SGTR on SG #1
 - RCS Thot of < 540°F
- 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:

- 40EP-9EO10. Standard Appendices, Rev 64, Appendix 113

IF IC-107 is not available perform the following:

- IMF TH06A f:0.4
- Trip the reactor
- Use the SBCS to cooldown the RCS to < 540 °F



JS-5

PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

- **A Steam Generator Tube Rupture has occurred on Steam Generator #1.**
- **The Reactor Coolant System has been cooled down to a T hot of less than 540°F.**
- **The CRS has directed you to perform Appendix 113 to isolate SG #1.**



JS-5

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



JS-5

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE/INFO	STANDARD
<p>1.</p> <p>Step 1 of Appendix 113 of 40EP-9EO10:</p> <p>Close BOTH ADVs on Steam Generator 1.</p> <ul style="list-style-type: none"> • SGA-HV-184 • SGB-HV-178 	<p>Permissives</p>	<p>Permissives</p> <p>Controllers</p> <p>Indicating lights</p>	<p>Examinee determines the ADVs on SG #1 are closed by observing green light on and red light off under ADV controllers (SGA-HIC-184A and SGB-HS-178A).</p> <p>Located on B06</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE/INFO	STANDARD
2. *	<p>Step 2 of Appendix 113 of 40EP-9EO10:</p> <p>Close BOTH MSIVs on Steam Generator 1.</p> <ul style="list-style-type: none"> • SGE-UV-170 • SGE-UV-180 <p>MSIV Fast Close Buttons</p>		<p>Examinee closes MSIVs 170 and 180 using EITHER the red pushbutton below handswitch SGA-HS-251 (Line 1/2 MSIV FAST CLOSE UV-170/180) or the red button below handswitch SGB-HS-253 (Line 1/2 MSIV FAST CLOSE UV-170/180) located on B06.</p> <p>Position indication is on handswitches SGA-HS-170A/SGB-HS-170B and SGA-HS-180A/SGB-HS-180B.</p> <p>Located on B06</p> <p>MSIV position indication</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>3.</p>	<p>Step 3 of Appendix 113 of 40EP-9EO10:</p> <p>Ensure SGE-UV-169, SG 1 MSIV Bypass Valve, is closed.</p>	<p>MSIV BYPASS VLV POSITION IND</p> <p>SG 1 MSIVS AND FWIVS</p>	<p>Examinee determines SGE-UV-169 is closed by observing either the red light off and green light on above handswitch SGA-HS169A (MSIV BYPASS ISOL VLV UV-169A) or by observing either permissive solenoid switch green light is on and red light is off on either SGA-HS169A (MSIV BYPASS ISOL VLV UV-169A) or SGB-HS-169B (MSIV BYPASS ISOL VLV UV-169B).</p> <p>Located on B06</p> <p>MSIV Bypass Permissive Switches</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

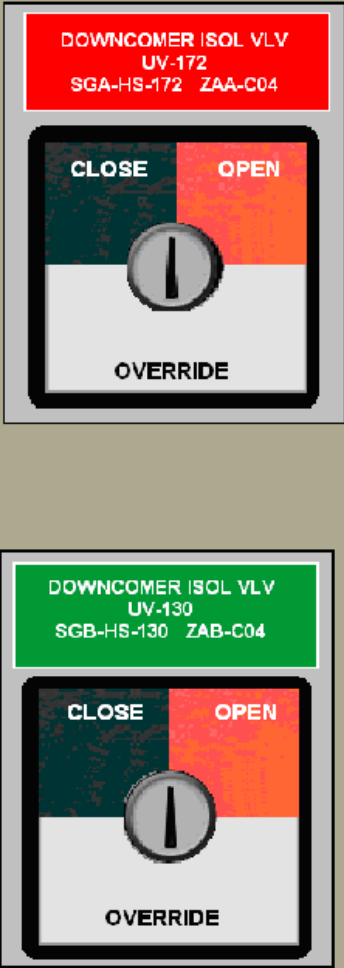
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>4. *</p>	<p>Step 4 of Appendix 113 of 40EP-9EO10:</p> <p>Close BOTH SG 1 Economizer FWIVs.</p> <ul style="list-style-type: none"> • SGA-UV-174 • SGB-UV-132 <p>FWIV Fast Close buttons</p>		<p>Examinee closes the Economizer FWIVs using BOTH SGA-HS-174C (ECONO FWIV FAST CLOSE UV-174) and SGB_HS_132C (ECONO FWIV FAST CLOSE UV-132).</p> <p>Located on B06</p> <p>FWIV Position Indication</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
5.	<p>Step 5 of Appendix 113 of 40EP-9EO10:</p> <p>Close BOTH SG 1 Downcomer Isolation Valves.</p> <ul style="list-style-type: none"> • SGA-UV-172 • SGB-UV-130 		<p>Examinee attempts to close SG 1 Downcomer Isolation Valves using SGA-HS-172 (Downcomer Isol Vlv UV-172) and SGB-HS-130 (Downcomer Isol Vlv UV-130).</p> <p>Examinee determines SGA-UV-172 did not close and go to contingency step 5.1.</p> <p>Note: Alternate path</p> <p>Located on B06</p> <p>Note: Since SGA-UV-170 did not close, it is not required that the operator to close SGB-UV-130 because the contingency step will isolate the same path.</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
6. *	<p>Step 5.1 of Appendix 113 of 40EP-9EO10:</p> <p>Close BOTH SG 1 Downcomer Isolation Block Valves:</p> <ul style="list-style-type: none"> • SGN-HV-1142, SG 1 FW Isolation Block Valve • SGN-HV-1143, SG 1 FW Isolation Bypass Valve 		<p>Examinee closes SGN-HV-1142 using SGN-HS-1142 (SG 1 FW ISOL BLOCK VLV HV-1142) and verifies SGN-HV-1143 is closed using SGN-HS-1143 (SG 1 FW ISOL BYPASS VLV HV-1143).</p> <p>Located on B06</p>

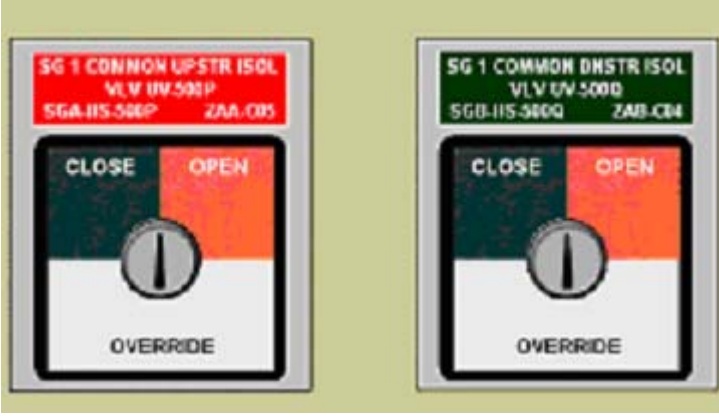
SAT / UNSAT

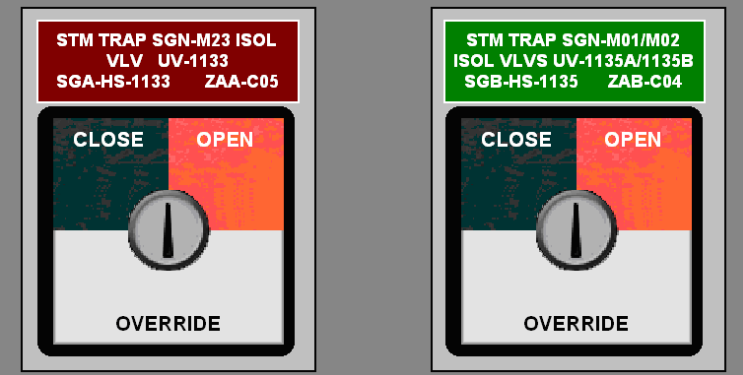
Comments (required for UNSAT):



JS-5

PVNGS JOB PERFORMANCE MEASURE

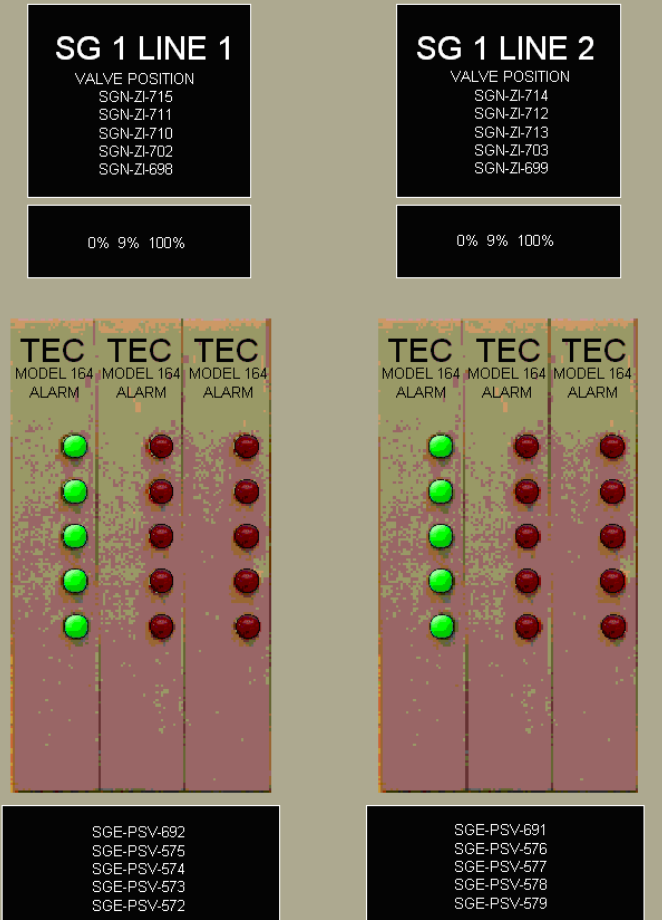
	STEP	CUE	STANDARD
7. *	Step 6 of Appendix 113 of 40EP-9EO10: Close BOTH SG 1 Blowdown Containment Isolation Valves. <ul style="list-style-type: none"> • SGA-UV-500P • SGB-UV-500Q 		Examinee close SGA-UV-500P and SGB-UV-500Q using handswitches SGA-HS-500P (SG 1 Common Upstr Isol Vlav HV-500P) and SGB-HS-500Q (SG 1 Common Dnstr Isol Vlv UF-500Q) Located on B07
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8. *	Step 7 of Appendix 113 of 40EP-9EO10: Close BOTH of the following steam trap isolation valves: <ul style="list-style-type: none"> • SGA-UV-1133, Steam Trap M23 Isolation • SGB-UV-1135A / 1135B, Steam Trap M01 / M02 Isolations 		Examinee closes SGA-UV-1133 using SGA-HS-1133 (Stm Trap SGN-M23 Isol Vlv UV-1133) Examinee closes SGA-UV-1135A/B using SGA-HS-1135 (Stm Trap SGN-M01/M02 Isol Vlv UV-1135A/1135B) Located on B06
SAT / UNSAT Comments (required for UNSAT):			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>9.</p>	<p>Step 8 of Appendix 113 of 40EP-9EO10:</p> <p>Check that the Steam Generator Safety Valves are closed.</p>		<p>Examinee ensures SG safety valves are closed by observing valve position indications.</p> <p>Located on B06</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>10.</p>	<p>Step 9 of Appendix 113 of 40EP-9EO10:</p> <p>Ensure BOTH Aux Feed Pump A Steam Supply Valves are closed:</p> <ul style="list-style-type: none"> • SGA-UV-134 SG 1 Steam Supply to Aux Feed Pump A • SGA-UV-134A SG1 Steam Supply to Aux Feed Pump A Bypass 		<p>Examinee checks that SGA-UV-134 and SGA-UV-134A are closed by observing green light on and red light off on lights above handswitch SGA-HS-134A and by observing green light on and red light off on handswitch SGA-HS-134A.</p> <p>Located on B06</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			



JS-5

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>11.</p>	<p>Step 10 of Appendix 113 of 40EP-9EO10:</p> <p>Ensure BOTH Auxiliary Feedwater Isolation Valves are closed.</p> <ul style="list-style-type: none"> • AFB-UV-34 Aux Feedwater to SG1 Downstream Valve • AFC-UV-36 Aux Feedwater to SG1 Downstream Valve 		<p>Examinee ensure FB-UV34 and AFC-UV-36 are both closed by observing green light on and red light off at handswitches AFB-HS-34A and AFC-HS-36A.</p> <p>Located on B06</p>

SAT / UNSAT

Comments (required for UNSAT):



JS-5

PVNGS JOB PERFORMANCE MEASURE

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



JS-5

**PVNGS JOB PERFORMANCE MEASURE
RECORD OF REVISIONS**

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
000	05/12/2010	6	Record Created
001	7/6/2010	6	Added pictures
002	7/27/10	6	Corrected minor errors

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
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

- **A Steam Generator Tube Rupture has occurred on Steam Generator #1.**
- **The Reactor Coolant System has been cooled down to a T hot of less than 540°F.**
- **The CRS has directed you to perform Appendix 113 to isolate SG #1.**

CANDIDATE



**JS-6
PVNGS JOB PERFORMANCE MEASURE**

1. SIMULATOR SETUP:

- A. IC#: 107
- B. SCENARIO
 - None
- C. SPECIAL INSTRUCTIONS:
 - This JPM is set to run with JS5 for the 2010 NRC exam
- D. REQUIRED CONDITIONS:
 - SIAS initiated with Containment Cooling fans off.
- 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:

- Attached copy of Appendix 17 (Restoration of Containment Cooling) of 40EP-9EO10, Standard Appendices

If IC 107 is not available perform the following:

EVENT	COMMAND	DESCRIPTION
1.	GO TO RUN.	
2.	Trip the reactor	
3.	Manually initiate a SIAS / CIAS	
4.	Start the 'A' Normal Chiller	
5.	IMF TH06A f.04	



JS-6
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

A Steam Generator Tube Rupture has occurred.

The Reactor has been tripped.

A SIAS and CIAS were actuated.

The CRS is directing actions in 40EP-9EO04, Steam Generator Tube Rupture

The CRS directs you to restore "A" Train Containment cooling per 40EP-9EO10 Standard Appendix 17.



JS-6
PVNGS JOB PERFORMANCE MEASURE

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



**JS-6
PVNGS JOB PERFORMANCE MEASURE**

JPM START TIME:

	STEP	CUE	STANDARD
1.	<p><u>Check</u> that ALL of the following system are available:</p> <ul style="list-style-type: none"> • Plant Cooling Water • Nuclear Cooling Water • At least one Normal Chiller 		Examinee checks power available/running indications for PW, NC, and one normal chiller.
<p>SAT / UNSAT /NA Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
2. *	<p>Ensure ALL of the following valves are open in the order indicated:</p> <ul style="list-style-type: none"> • NCA-UV-402, NC Containment Downstream Return Isolation • NCB-UV-403, NC Containment Upstream Return Isolation • NCB-UV-401, NC Containment Upstream Supply Isolation • WCB-UV-63, WC Supply Header Outside Containment Isolation • WCB-UV-61, WC Return Header Inside Containment Isolation • WCA-UV-62, WC Return Header Outside Containment Isolation • IAA-UV-2, Instrument Air Containment Isolation 	<p>Examiner note: All handswitches are located on B07</p>	<p>Examinee locates and verifies open in the order indicated:</p> <ul style="list-style-type: none"> • NCA-UV-402 • NCB-UV-403 • NCB-UV-401 <p>Examinee locates and overrides to open in the order indicated:</p> <ul style="list-style-type: none"> • WCB-UV-63 • WCB-UV-61 • WCA-UV-62 <p>Examinee locates and verifies open in the order indicated:</p> <ul style="list-style-type: none"> • IAA-UV-2
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-6
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3. *	If PBA-S03 or PBB-S04 is being supplied by offsite power, then <u>perform</u> all of the following: a. <u>Ensure</u> at least one Normal Chiller is running.		Examinee starts a Normal Chiller on B07. Examiner note: The chiller will have a delayed start, however the circ pump will start immediately as indicated by DP on WNC-PDI-13 on B07
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4. *	IF SIAS has initiated THEN <u>place</u> the handswitch to “STOP” and then “AUTO” for ALL of the following: <ul style="list-style-type: none"> • Train A CEDM ACUs • Train B CEDM ACUs • Train A Containment Normal ACUs • Train B Containment Normal ACUs 		Examinee places the handswitches for the CEDM ACUs and the Containment Normal ACUs to “STOP” and then “AUTO”. Evaluator Note: Critical portion of this step is that at least the Train A handswitches are taken to stop then auto.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	<u>Ensure</u> at least one train of CEDM ACUs is running.		Examinee starts ‘A’ Train of CEDM ACUs.
SAT / UNSAT Comments (required for UNSAT):			



JS-6
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
6. *	<u>Ensure</u> at least one train of Containment Normal ACUs is running.		Examinee starts "A" Train of Containment Normal ACUs per Initiating CUE.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post critique using EPIP-99 form 0800 and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



**JS-6
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
001	09/13/2006	6	Modified Cues and added Instructor Notes to steps 5 & 6
002	08/25/2008	6	Revision 58 of 40EP-9EO10 Appendix 17 and new JPM format.
003	03/25/2010	6	Updated to new JPM format and modified to have a CIAS and SIAS.

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**

INITIAL CONDITIONS

INITIATING CUE:

A Steam Generator Tube Rupture has occurred.

The Reactor has been tripped.

A SIAS and CIAS were actuated.

The CRS is directing actions in 40EP-9EO04, Steam Generator Tube Rupture

The CRS directs you to restore "A" Train Containment cooling per 40EP-9EO10 Standard Appendix 17.



JS-7
PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 108
- B. SCENARIO
 - This JPM is set to run with JS8 for the 2010 NRC exam
- C. SPECIAL INSTRUCTIONS:
 - None
- D. REQUIRED CONDITIONS:
 - DG B shutdown and in standby. SP B shutdown and in standby.
- 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 40ST-9DG02, Rev 43 with sections 5.0, 6.1 and 6.2 signed off.

If IC 108 is not available perform the following from any at power IC:

EVENT	COMMAND	DESCRIPTION
1.	GO TO RUN.	
2.		
3.		
4.		



JS-7
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

The CRS has directed you to complete 40ST-9DG02 starting at step 6.3, Diesel Generator B Slow Start Test.

Information for this task :

- **The ST is being performed because the DG was under permit for a fuel injector leak.**
- **This is the second performance of this ST this month.**
- **The Prerequisites and Initial Conditions (Section 5.0) has been completed.**
- **Diesel Generator B Pre-start Checks (Section 6.1) has been completed.**
- **Diesel Generator B Test Set-up (Section 6.2) has been completed.**
- **No Air Start Trains were isolated for this test.**



JS-7
PVNGS JOB PERFORMANCE MEASURE

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



JS-7
PVNGS JOB PERFORMANCE MEASURE
JPM START TIME:

	STEP	CUE	STANDARD
1.	Step 6.3.1 Announce the following from the Control Room using the paging system: “Starting the Bravo Diesel Generator”		Examinee makes an announcement using the phone.
SAT / UNSAT /NA Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Step 6.3.2 of 40ST-9DG02: Start Diesel Generator B by turning DGB-HS-2, DIESEL GENERATOR B START/STOP, on Panel B01 to the START position.		Examinee starts B DG by using DGB-HS-2 on B01. Examiner Note: The handswitch will go dark and then the red light will illuminate when the DG reaches ~ 280 rpm.
SAT / UNSAT Comments (required for UNSAT):			



JS-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3.	<p>Step 6.3.3 of 40ST-9DG02:</p> <p>WHEN diesel generator voltage and frequency have stabilized, THEN perform the following:</p> <p>6.3.3.1 Record the value at which Diesel Generator B voltage stabilized at in Table 4, Diesel Generator B Slow Start Test Checks, below.</p> <p>6.3.3.2 Record the values at which Diesel Generator B frequency stabilized at in Table 4, Diesel Generator B Slow Start Test Checks, below.</p> <p>6.3.3.3 Place a check mark in the Check column of Table 4 above for the method used for determining Acceptance Criteria satisfaction for each of the following parameters:</p> <ul style="list-style-type: none"> • Diesel Generator voltage • Diesel Generator frequency <p>6.3.3.4 Evaluate Tech Spec Acceptance Criteria for items listed in Table 4, Diesel Generator B Slow Start Test Checks, using the recorded data and listed Tech Spec Acceptance Criteria in Table 4 above.</p> <p>6.3.3.5 Record the result of the evaluations in Table 4, Diesel Generator B Slow Start Test Checks, above.</p> <p>6.3.3.6 IF Tech Spec Acceptance Criteria is not met, THEN notify the SM/CRS of the test deficiency.</p>		<p>Examinee records voltage and frequency and fills out Table 4.</p> <p>Examinee initials that the Acceptance Criteria is met.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-7
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4.	Step 6.3.4 of 40ST-9DG02: Check the Diesel Building Essential HVAC started by local observation.	INFORM CUE: The Area Operator has verified the Diesel Building Essential HVAC has started by local observation.	Examinee directs an Area operator to verify the Diesel Building Essential HVAC has started.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5.	Step 6.3.5 of 40ST-9DG02: Check SPB-P01, ESS SPRAY POND PUMP B, has started by observing the following: <ul style="list-style-type: none"> • SPN-PI-4, PUMP B DISCHARGE PRESS, indicates approximately 50 psig. • SPN-FI-6, L (left scale) SUPPLY FLOW FIT-6, indicates greater than 16,300 gpm. (SPB-FT-6) 		Examinee checks Spray Pond pump B has started by observing discharge pressure and flow on B02.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6.	Step 6.3.6 of 40ST-9DG02: Check Spray Pond Pump B Room exhaust fan started.	INFORM CUE: The Area Operator has verified the Spray Pond Pump B Room exhaust fan has started by local observation.	Examinee directs an area operator to ensure the Spray Pond Pump B Room exhaust fan has started.
SAT / UNSAT Comments (required for UNSAT):			



JS-7
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7.	Step 6.3.7 of 40ST-9DG02: GO TO Step 6.5, Diesel Generator B Load Test.		Examinee goes to Step 6.5 of the procedure.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8.	Steps 6.5.1.1 and 6.5.1.2 of 40ST-9DG02: Prepare Diesel Generator B for loading by performing the following: <ul style="list-style-type: none"> • IF an Air Start Train A was isolated in Step 6.2.5.1, THEN restore Air Start Train A to service by performing the following: • IF an Air Start Train B was isolated in Step 6.2.6.1, THEN restore Air Start Train B to service by performing the following: 		Examinee should determine from the initiating cue that a Start Air Train was not isolated and N/A these steps.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
9.	Step 6.5.1.3 of 40ST-9DG02: Operate the Diesel Generator unloaded for a minimum of 5 minutes.	Inform Cue: Assume the DG has been running unloaded for > 5 minutes.	Examinee should determine when DG was started to determine when it has been running for 5 minutes.
SAT / UNSAT Comments (required for UNSAT):			



JS-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
10. *	<p>Step 6.5.1.4.a of 40ST-9DG02:</p> <p>WHEN DGN-TI-26, TEMPERATURE INDICATION, Position 2 (DGB-B01) indicates lube oil temperature is greater than or equal to 120°F, THEN perform the following to prepare the generator for loading:</p> <p>a. Turn handswitch PEB-SS-G02D, DIESEL GENERATOR B SPEED MODE SELECT, to DROOP.</p>	<p>INFORM CUE: The area operator reports DG 'B' oil temperature is 130°F.</p>	<p>Examinee turns handswitch PEB-SS-G02D, DIESEL GENERATOR B SPEED MODE SELECT, to DROOP.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
11. *	<p>Step 6.5.1.4.b of 40ST-9DG02:</p> <p>b. Place synchronizing handswitch PEB-SS-S04B, DIESEL GENERATOR B, to ON.</p>		<p>Examinee place the synchronizing handswitch PEB-SS-S04B, DIESEL GENERATOR B, to ON.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
12.	Step 6.5.1.4.c of 40ST-9DG02: c. Adjust Generator excitation until Generator output voltage is equal to bus voltage using PEB-EC-G02, DIESEL GENERATOR B VOLTAGE, as indicated on the voltmeters below: <ul style="list-style-type: none"> • MAN-EI-002I, INCOMING, represents DG output voltage • MAN-EI-002R, RUNNING, represents bus voltage 		Examinee adjusts the DG output voltage to match bus voltage using PEB-EC-G02, DIESEL GENERATOR B VOLTAGE.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
13. *	Step 6.5.1.4 of 40ST-9DG02: d. Adjust engine speed to cause the synchroscope, MAN-SI-004, to move slowly in the FAST direction (generator frequency greater than bus frequency) using handswitch PEA-SC-G02, DIESEL GENERATOR B SPEED, as indicated on the frequency meters below <ul style="list-style-type: none"> • MAN-EI-002I, INCOMING, represents DG output frequency • MAN-EI-002R, RUNNING, represents bus frequency 		Examinee adjusts engine speed to cause the synchroscope, MAN-SI-004, to move slowly in the FAST direction (generator frequency greater than bus frequency) using handswitch PEA-SC-G02, DIESEL GENERATOR B SPEED.
SAT / UNSAT Comments (required for UNSAT):			



JS-7
PVNGS JOB PERFORMANCE MEASURE

Notes before step 6.5.2

- There is no sync-check protection on the Diesel Generator A output breaker (PBB-S04B). The breaker should be closed when the synchroscope needle is between the 5 minutes to 12 and the 12 o'clock position.
- After any instance in which an attempt was made to synch the Diesel Generator equal to or greater than 90° out of phase with the bus (i.e., between 90° and 270°), the test should be stopped and engineering contacted to perform an evaluation on the rotor pole fasteners.
- The DG will be slightly loaded when the output breaker closes.

	STEP	CUE	STANDARD
14. *	<p>Steps 6.5.2 and 6.5.2.1 of 40ST-9DG02:</p> <p>Commence Load Test of the Diesel Generator B by performing the following:</p> <ul style="list-style-type: none"> • WHEN synchroscope, MAN-SI-004, is moving slowly in the FAST direction AND the needle is between 5 minutes to 12 and the 12 o'clock position, THEN close PBB-S04B, DIESEL GENERATOR B OUTPUT BREAKER, using handswitch PEB-HS-S04B. 		<p>Examinee closes the DG output breaker using handswitch PEB-HS-S04B when the synchroscope is between 5 minutes to 12 and the 12 o'clock position while moving slowly in the FAST direction.</p> <p>Examiner Note: Critical portion is that breaker closes, not synchroscope position.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



JS-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
15. *	Step 6.5.2 2 of 40ST-9DG02: Commence Load Test of the Diesel Generator B by performing the following: <ul style="list-style-type: none"> • WHEN PBB-S04B, DIESEL GENERATOR B OUTPUT BREAKER, is closed, THEN raise real load to an initial value of between 0.3 to 0.5 MW using handswitch PEB-SC-G02, DIESEL GENERATOR B SPEED. 		Examinee raises load to between 0.3 and 0.5 MW using handswitch PEB-SC-G02, DIESEL GENERATOR B SPEED.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
16.	Step 6.5.2 3 of 40ST-9DG02: Turn synchroscope switch, PEB-SS-S04B, to OFF.		Examinee turns synchroscope switch, PEB-SS-S04B, to OFF.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
17.	Step 6.5.2 4 of 40ST-9DG02: Notify the Auxiliary Operator at the diesel generator of the time at which Diesel Generator B commenced loaded operation.	INFORM CUE: The Auxiliary Operator at the diesel generator acknowledges the time the B DG commenced loaded operation.	Examinee notifies the Auxiliary Operator at the diesel generator of the time at which Diesel Generator B commenced loaded operation.
SAT / UNSAT Comments (required for UNSAT):			



JS-7

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
18.	Step 6.5.2 5 of 40ST-9DG02: Direct the Auxiliary Operator at the diesel generator to take readings per 40DP-9OP08, Diesel Generator Test Record, on the B Diesel Generator Run Data Sheet.	INFORM CUE: The Auxiliary Operator acknowledges the direction to take readings per 40DP-9OP08.	The examinee directs the Auxiliary Operator at the DG to take reading.

SAT / UNSAT

Comments (required for UNSAT):

Note above step 6.5.2.6:

PBB-S04 bus voltage, as indicated on PEN-EI-G02, should be maintained less than or equal to 4300 volts to prevent overvoltage conditions on downstream LCs and MCCs. It is allowable though to exceed 4300 volts to maintain a 1.0 (unity) power factor during this test.

	STEP	CUE	STANDARD
19.	Step 6.5.2 6 of 40ST-9DG02: WHEN Diesel Generator B is paralleled to the bus, THEN maintain the following parameters using PEB-EC-G02, DIESEL GENERATOR B VOLTAGE. <ul style="list-style-type: none"> • VARs - within the limits of the capability curve, Appendix A – Diesel Generator Capacity Curve, preferably with a 1.0 or lagging power factor (greater than or equal to 0 MVAR). • Voltage - no greater than 4300V on PBA-S03 except to maintain a 1.0 power factor. 		The examinee adjust VARS to close to 0 MVARs.

SAT / UNSAT

Comments (required for UNSAT):



**JS-7
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
20. *	Step 6.5.2 7 of 40ST-9DG02: Raise Diesel Generator B load to 1.4 MW.	INFORM CUE: Another operator will complete the remainder of this Surveillance Test.	Examinee raises DG load to ~ 1.4 MWs using handswitch PEB-SC-G02, DIESEL GENERATOR B SPEED.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post critique using EPIP-99 form 0800 and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



JS-7
PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS

CANDIDATE

INITIATING CUE:

The CRS has directed you to complete 40ST-9DG02 starting at step 6.3, Diesel Generator B Slow Start Test.

Information for this task :

- The ST is being performed because the DG was under permit for a fuel injector leak.
- This is the second performance of this ST this month.
- The Prerequisites and Initial Conditions (Section 5.0) has been completed.
- Diesel Generator B Pre-start Checks (Section 6.1) has been completed.
- Diesel Generator B Test Set-up (Section 6.2) has been completed.
- No Air Start Trains were isolated for this test.

CANDIDATE



**JS 8
PVNGS JOB PERFORMANCE MEASURE**

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 (Rev 33)					
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR	X	PLANT			

JPM TYPE

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

APPROVAL

Developed By: Larry Wilhelm Date: 06/18/2002
 Revised By: Alan Malley Date: 05/11/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

- Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JS 8
PVNGS JOB PERFORMANCE MEASURE

1. SIMULATOR SETUP:

- A. IC#: 108
- B. MALFUNCTIONS, OVERRIDES & REMOTE FUNCTIONS
- C. SPECIAL INSTRUCTIONS:
 - This IC is set up to run JS-7 and JS-8 on the 2010 NRC Exam.
 - 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:

If IC-108 is unavailable, reset to IC-20 and perform the following:

- IOR ZDRCNHS100 CH-X - Fails PPCS selector switch to the “X” position
- cmTRRC03RCNPT100X_1 1500 - Fails Pressurizer Pressure Control Channel “X” to 1500 psia
- Allow RCS pressure to reach 2285, then freeze the simulator



JS 8
PVNGS JOB PERFORMANCE MEASURE
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 Group B for Pressurizer Pressure High.**

INFORMATION FOR EVALUATOR'S USE:



JS 8

PVNGS JOB PERFORMANCE MEASURE

* 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
JPM START TIME:

	STEP	CUE	STANDARD
1.	AUTO ACTION Step 1: Deenergizes all heaters, only if controlling channel fails.		Examinee determines Pressurizer Pressure < 2383 psia. Examinee may turn off heaters at this point. 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. *	FIRST PRIORITY OPERATOR ACTION Step 1: Trip reactor if high pressure trip is impending (\geq 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. (Only critical is Reactor is tripped)
SAT / UNSAT Comments (required for UNSAT):			



JS 8
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
3.	<p>FIRST PRIORITY OPERATOR ACTION Step 2:</p> <p>Verify Pressurizer pressure high alarm by observing RCN-PT-100X and/or RCN-PT-100Y on recorder RCN-PR-100 (B04).</p>		Examinee determines actual high pressure condition exists.
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
4.	<p>FIRST PRIORITY OPERATOR ACTION Step 3:</p> <p>Verify that the controlling channel has not failed. If the controlling channel has failed switch to the unaffected channel by using handswitch RCN-HS-100 on B04.</p>		<p>Examinee determines CH "X" has failed and selects channel 'Y' using handswitch RCN-HS-100 on B04.</p> <p>Note to examiner: Although the controlling channel has failed, another malfunction prevents the operator action from being effective.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			



**JS 8
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
6. *	FIRST PRIORITY OPERATOR ACTION Step 4: Attempt to manually initiate pressurizer spray flow using RCN-PIK-100 and spray valve select switch RCN-HS-100-10 to reduce pressure to the normal operating band.		Examinee reduces RCS pressure with Main Spray. Pressure should be reduced to around 2250 ± 25 psia (per the Initiating Cue).
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7.	SECOND PRIORITY OPERATOR ACTION Step 2: Deenergize Pressurizer Heaters as required to limit pressure increases.	After heaters have been de-energized 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. Pressure must be 2225-2275 psia and Main Spray valve either closed with heaters off or throttled to control pressure in the band.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:
 Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



JS 8
PVNGS JOB PERFORMANCE MEASURE

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.
17	05/11/2010	6	Revised to new JPM format

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

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
INITIAL CONDITIONS**

CANDIDATE

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 Group B for Pressurizer Pressure High.**

CANDIDATE



**JP-1
PVNGS JOB PERFORMANCE MEASURE**

JPM BASIS INFORMATION

TASK: 1250440201 Perform Event Control Actions for a Control Room Fire
 TASK STANDARD: Complete Appendix E of 40AO-9ZZ19 from step 9.0 to step 24.1 (DG started, PND-D28 energize and DG 'B' Essential Exhaust fan started)
 K/A: 4.2.068.AA1.10 K/A RATING: RO: 3.7 SRO: 3.9
 K/A: 4.2.068.AA1.31 K/A RATING: RO: 3.9 SRO: 4.0
 APPLICABLE POSITION(S): RO/SRO VALIDATION TIME: 30 minutes
 REFERENCES: 40AO-9ZZ19, Control Room Fire, Appendix E Rev 23
 SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 08/31/2004
 Revised By: Alan Malley Date: 04/09/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

PVAR # _____

- Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JP-1
PVNGS JOB PERFORMANCE MEASURE

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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- A copy of Appendix E of 40AO-9ZZ19, Rev 23



JP-1
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

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

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **The control room has been evacuated due to a fire.**
- **There has been a loss of offsite power. No automatic start and loading of the Emergency Diesel Generators, or load shed has occurred.**
- **The CRS has waived the Electrical Protection Equipment requirements for this task per step 3.20.1 of 01DP-0IS13 (ELECTRICAL SAFE WORK PRACTICES).**
- **The CRS has directed you to perform Appendix E starting at Step 9.0 (another operator performed steps 1-8).**
- **Assume you have a portable lantern per Step 1 of Appendix E.**

INFORMATION FOR EVALUATOR'S USE:



JP-1

PVNGS JOB PERFORMANCE MEASURE

* 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-1
PVNGS JOB PERFORMANCE MEASURE
JPM START TIME:

	STEP	CUE	STANDARD
1. *	Step 9 of Appendix E: IF Diesel Generator B is NOT running, THEN start Diesel Generator B using DGB-HS-031, Emergency Start - Simulated LOP. (DG B Control Panel)	If REQUESTED CUE: The Diesel Generator is not running. INFORM CUE: After the examinee depresses the DGB-HS-031 handswitch, provide the following cue: The DG is increasing in speed. The red run light is illuminated.	Examinee goes to the 'B' DG control panel and simulates starting Diesel Generator B by pushing DGB-HS-031, Emergency Start – Simulated LOP pushbutton on the DG B control panel.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Step 10 of Appendix E: Check that BOTH of the following conditions for closing the DG Output Breaker are met: <ul style="list-style-type: none"> • Diesel Generator B voltage is 3740 - 4580 VAC. • Diesel Generator B engine speed is approximately 600rpm. 	INFORM CUE: Diesel Generator voltage indicates 4200 VAC DG speed is 600 rpm.	Examinee checks the meters on the DG control panel for voltage and speed indication.
SAT / UNSAT Comments (required for UNSAT):			



**JP-1
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
3. *	Step 11 of Appendix E: Close breaker PBB-S04B, Diesel Generator PEB-G02, using the local control switch.	INFORM CUE: The Red light is LIT and the Green light is OFF. IF examinee states what he/she expects for starting amperage, provide the correct cue.	Examinee goes to PBB-S04 in the 'B' Train Switchgear room and simulates closing breaker PBB-S04B by taking the local control switch to start.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
4.	Step 12 of Appendix E: IF breaker PBB-S04B, Diesel Generator PEB-G02, will be closed manually, THEN <u>perform</u> the following: a. <u>Check</u> the closing spring indicates "CHGD". b. <u>Press</u> the "MANUAL CLOSE" plunger for the breaker.		Examinee N/As this step.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
5. *	Step 13 of Appendix E: Close breaker PBB-S04C, Essential Spray Pond Pump SPB-P01.	INFORM CUE: The Red light is LIT and the Green light is OFF. IF examinee states what he/she expects for starting amperage, provide the correct cue.	Examinee simulates closing breaker PBB-S04C by taking the local control switch to start.
SAT / UNSAT Comments (required for UNSAT):			



**JP-1
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
6. *	Step 14 of Appendix E: Ensure that ALL of the following breakers are closed allowing at least ten seconds between starts: <ul style="list-style-type: none"> • PBB-S04H, 4160 - 480 LC PGB-L34 • PBB-S04J, 4160 - 480 LC PGB-L32 • PBB-S04M, Essential Cooling Water Pump EWB-P01 • PBB-S04N, 4160 - 480 LC PGB-L36 • PBB-S04S, Aux Feed Water Pump AFB-P01 • PBB-S04G, Essential Chiller ECB-E01 	INFORM CUE: As the examinee simulates closing each breaker provide the following cue: The Red light is ON” and the Green light is “OFF”. For PBB-S04G wait one minute after handswitch is turned to provide light cue above. IF examinee states what he/she expects for starting amperage, provide the correct cue.	Examinee simulates closing the following breakers by taking the local control switches to start: <ul style="list-style-type: none"> • PBB-S04H, 4160 - 480 LC PGB-L34 • PBB-S04J, 4160 - 480 LC PGB-L32 • PBB-S04M, Essential Cooling Water Pump EWB-P01 • PBB-S04N, 4160 - 480 LC PGB-L36 • PBB-S04S, Aux Feed Water Pump AFB-P01 • PBB-S04G, Essential Chiller ECB-E01
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
7.	Step 15 of Appendix E: Contact the CRS and confirm that Charging Pump suction has been shifted to the RWT. (Performed in Appendix G, Upper Auxiliary Building Actions)	INFORM CUE: The CRS informs you that Charging Pump Suction has been shifted to the RWT using Appendix G.	Examinee simulates contacting the CRS using a phone or radio.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8. *	Step 16 of Appendix E: Close PGB-L32C4, Charging Pump 2 CHB-P01.	INFORM CUE: Breaker PGB-L32C4 red light is “ON” and the green light is “OFF”. The breaker indicator indicates “CLOSED”.	Examinee simulates closing PGB-L32C4 by simulating depressing the start button.
SAT / UNSAT Comments (required for UNSAT):			



JP-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
9.	Step 17 of Appendix E: Inform the CRS that PBB-S04 is energized by DG B and ALL of the following pumps are running: <ul style="list-style-type: none"> • Charging Pump B • Aux Feed Pump B • Spray Pond Pump B • Essential Cooling Water Pump B 	INFORM CUE: The CRS has been informed that the Charging Pump B, Aux Feed Pump B, Spray Pond Pump B and EW Pump B are running.	Examinee simulates informing the CRS.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
10. *	Step 18 of Appendix E: IF Battery Charger D was initially aligned to PKD-M44, THEN perform the following: <ul style="list-style-type: none"> • Ensure that PHB-M3209, Battery Charger D PKDH14, is “ON”. • Close the main contactor for Battery Charger PKD-H14 on PHB-M3209. 	INFORM CUE: Battery Charger D was initially aligned to PKD-M44 INFORM CUE: Breaker PHB-M3209 is pointing to the “ON” position. When Examinee checks contactor provide the breaker green light is “ON” and the red light is “OFF”. After examinee simulates pushing the contactor “ON” pushbutton provide the following cue: The red light is “ON” and the green light is “OFF”.	Note to examiner: PHB-M32 is located in the ‘B’ Train Switchgear room. Examinee checks that breaker PHB-M3209 is closed. Examinee checks the red and green lights to determine the status of the main contacts for Battery Charger PKD-H14 on PHB-M3209. After cue given that green light is “ON” the examinee simulates pushing the contactor pushbutton.
SAT / UNSAT Comments (required for UNSAT):			



JP-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
11.	Step 19 of Appendix E: On PHB-M32, ensure that BOTH of the following fans are operating: <ul style="list-style-type: none"> • HJB-J01A, Cont Bldg Battery Room D Ess Exh Fan (PHB-M3206) • HJB-J01B, Cont Bldg Battery Room B Ess Exh Fan (PHB-M3207) 		Examinee checks status of fans by observing red light is “ON” and green light is “OFF” on the following breakers: <ul style="list-style-type: none"> • PHB-M3206 • PHB-M3207
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
12.	Step 20 of Appendix E: Check that PND-D28 is energized by its inverter by ALL of the following: <ul style="list-style-type: none"> • Inverter PND-N14 is energized • Unit 1 only - Transfer Switch is in “INVERTER” • Unit 2 & 3 only – The Forward Transfer Light is lit 	INFORM CUE: Inverter PND-N14 DC Input indicates “0” volts. UNIT 1 – Transfer switch is in “INVERTER” Unit 2 & 3 – Forward Transfer Light is “OFF”	Examinee goes to the Tran B DC Switchgear room and checks the status of Inverter PND-N14 by observing voltage indication on the panel. Once the examinee determines PND-N14 is de-energized, the examinee performs contingency actions per step 20.1 Alternate Path
SAT / UNSAT Comments (required for UNSAT):			



JP-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
13. * (critical in Unit 1 only)	Step 20.1 of Appendix E: Perform the following to ensure that PND-D28 is energized by the Voltage Regulator: <ul style="list-style-type: none"> • Ensure that breaker PHB-M3210, To Voltage Regulator for 120VAC Vital Dist Panel PND-V28, is “ON”. • Close the main contactor for Voltage Regulator PND-V28 on PHB-M3210. • Unit 1 only - On Inverter PND-N14, ensure the Transfer Switch is selected to “BYPASS”. • Unit 2 & 3 only - On Inverter PND-N14, ensure the Reverse Transfer Light is lit. 	INFORM CUE: Breaker M3210 is in the “ON” position. After contactor is pushed: Red light is “ON” and green light is “OFF” Unit 1 – Transfer Switch is selected to “BYPASS Unit 2 & 3 – Transfer light is lit	Examinee ensures breaker PHB-M3210 is “ON” and closes the main contractor for PND-V28. * Unit 1 ONLY – Examinee takes the Transfer Switch to “BYPASS”. Unit 2 & 3 ONLY – Examinee ensures the Reverse Transfer Light is lit.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
14.	Step 21 of Appendix E: IF Battery Charger B was initially aligned to PKB-M42, THEN direct the Lower Aux Building Operator to perform the following: <ul style="list-style-type: none"> • Ensure that PHB-M3627, Battery Charger PKB-H12 Supply Breaker, is “ON”. • Close the main contactor for Battery Charger B PKB-H12 on PHB-M3627. 	INFORM CUE: Battery Charger B was initially aligned to PKB-M42. After the examinee simulates directing the Lower Aux Building operator: The Lower Aux Building operator has acknowledged the communication to close PHB-M3627, Battery Charger PKB-H12 Supply breaker and also to close the main contactor on PHB-M3627.	Examinee simulates directing the Lower Aux Building Operator to perform the following: <ul style="list-style-type: none"> • Ensure that PHB-M3627, Battery Charger PKB-H12 Supply Breaker, is “ON”. • Close the main contactor for Battery Charger B PKB-H12 on PHB-M3627.
SAT / UNSAT Comments (required for UNSAT):			



JP-1
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
15.	Step 22 of Appendix E: IF Battery Charger BD was initially aligned to either PKB-M42 or PKD-M44, THEN direct the Lower Aux Building Operator to perform the following: <ul style="list-style-type: none"> • Ensure that PHB-M3425, Battery Charger PKB-H16 Supply Breaker, is “ON”. • Close the main contactor for Battery Charger PKB-H16 on PHB-M3425. 		Examinee N/As this step. Examiner Note: The examinee should determine that since D charger was supplying PKD and B charger was supplying PKB, that the BD charger could not have been aligned to either PKB or PKD.

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
16.	Step 23 of Appendix E: Check that PNB-D26 is energized by its inverter by ALL of the following: <ul style="list-style-type: none"> • Inverter PNB-N12 is energized • Unit 1 only - Transfer Switch is in “INVERTER” • Unit 2 & 3 only – The Forward Transfer Light is lit 	INFORM CUE: PNB-D26 is energized by its inverter. Unit 1 ONLY – the Transfer Switch is in “INVERTER” Unit 2 & 3 ONLY – The Forward Transfer Light is “LIT”	Examinee checks the status of the PNB-N12 inverter.

SAT / UNSAT
Comments (required for UNSAT):

	STEP	CUE	STANDARD
17. *	Step 24 of Appendix E: Start HDB-J01, Essential Exhaust Fan, using HDB-HS-14. (DG Control Panel)	INFORM CUE: The Green light is LIT and the red light is OFF.	Examinee performs contingency actions per step 24.1 Alternate Path

SAT / UNSAT
Comments (required for UNSAT):



**JP-1
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
18. *	Step 24.1 of Appendix E: IF HDB-J01 did NOT start, THEN perform the following to manually close the breaker: <ul style="list-style-type: none"> • Check that the lockout relay for PGB-L32D2 is NOT tripped. • Manually close Breaker PGB-L32D2 by pulling up the manual close lever. 	INFORM CUE: No red flag on the lockout relay. After examinee simulates pulling up on the manual close lever: (At DG 'B' DG control panel) The Red light is LIT and the Green light is OFF Another Operator will finish this Appendix.	Examinee checks the lockout relay on PGB-L32D2 relay is not tripped by observing there is not an red flag on the 86 lockout switch. The examinee simulates manually closes Breaker PGB-L32D2 by pulling up on the manual close lever.
SAT / UNSAT Comments (required for UNSAT):			

JPM STOP TIME:

NOTE:
 Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



**JP-1
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
1	08/31/2004	3	Procedure removed direction to open PHB-M3209 and PHB-M3210.
2	09/08/2006	6	Changed cues for step 11
3	04/14/2009	6	Changed alternate path to DG breaker not closing.
4	04/09/2010	6	Changed alternate path to energizing Inverter and starting DG Essential HVAC unit. Started JPM at step 9 of the Appendix.

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
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

- **The control room has been evacuated due to a fire.**
- **There has been a loss of offsite power. No automatic start and loading of the Emergency Diesel Generators, or load shed has occurred.**
- **The CRS has waived the Electrical Protection Equipment requirements for this task per step 3.20.1 of 01DP-0IS13 (ELECTRICAL SAFE WORK PRACTICES).**
- **The CRS has directed you to perform Appendix E starting at Step 9.0 (another operator performed steps 1-8).**
- **Assume you have a portable lantern per Step 1 of Appendix E.**

CANDIDATE



**JP-2
PVNGS JOB PERFORMANCE MEASURE**

JPM BASIS INFORMATION

TASK: 1250440201 Respond to a Control Room Fire

TASK STANDARD: Align EW to NC to supply flow to the RCS sample coolers and align lower Aux Bldg Portion of Hot leg sample path.

K/A: 4.2 026 AA1.03 K/A RATING: RO: 3.6 SRO: 3.6

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

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

REFERENCES: 40AO-9ZZ19 Control Room Fire Appendix H (Rev 23)

SUGGESTED TESTING ENVIRONMENT: SIMULATOR PLANT

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Date: 04/21/2010

Revised By: N/A Date: N/A

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

○ Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JP-2
PVNGS JOB PERFORMANCE MEASURE

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: _____ N/A _____ Date: _____

2. SPECIAL TOOLS/EQUIPMENT:

- A copy of Appendix H of 40AO-9ZZ19 Rev 23 with steps 1-17 marked complete.
- Blank copy of Appendix Z of 40AO-9ZZ19.



JP-2
PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN PLANT JPMs ONLY

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

ALL JPMs

- You may use any source of information normally available.

INITIATING CUE:

- **A Control Room Fire has occurred.**
- **The CRS has entered 40AO-9ZZ19, Control Room Fire.**
- **The CRS directs you to perform Appendix H starting at step 18 (steps 1-17 were completed by another operator).**



JP-2 PVNGS JOB PERFORMANCE MEASURE

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-2
PVNGS JOB PERFORMANCE MEASURE
JPM START TIME:

	STEP	CUE	STANDARD
1.	Appendix H Step 18 of 40AO-9ZZ19: WHEN the conditions of step 17. have been met, THEN ensure BOTH of the following valves are closed: (70' SDHX A Valve Gallery) <ul style="list-style-type: none"> • EWA-UV-65, Cross-Tie Valve from Nuclear Cooling Water • EWA-UV-145, Cross-Tie Valve to Nuclear Cooling Water 	INFORM CUE: The indicator is pointing to the closed position.	Examinee simulates checking EWA-UV-65 and EWA-UV-145 closed. Examiner Note: These valves are normally locked and closed.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2. *	Appendix H Step 19 of 40AO-9ZZ19: Close NCN-UV-99, NUCLEAR CLG WTR CNTMT HDR RETURN VLV. (77' Northeast Corner in Unassigned Room A-B28)	INFORM CUE: After the examinee simulates closing NCN-UV-99: The handwheel rotated in the clockwise direction. The valve has stopped turning as expected.	Examinee simulates closing NCN-UV-99.
SAT / UNSAT Comments (required for UNSAT):			



JP-2
PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
<p>3. *</p>	<p>Appendix H Step 20 of 40AO-9ZZ19:</p> <p>Perform the following to cross-connect EW and NC:</p> <p>a. Direct the operator performing Appendix G to monitor the EW B Surge Tank level. (App G, step 15.)</p> <p>b. Unlock and open BOTH of the following valves: (70' SDHX B Valve Gallery)</p> <ul style="list-style-type: none"> • EWB-HCV-66, EW Cross-Tie Valve to Nuclear Cooling Water • EWB-HCV-146, EW Cross-Tie Valve to Nuclear Cooling Water 	<p>INFORM CUE:</p> <p>The Operator performing Appendix G has acknowledged the communication and is monitoring the EW B Surge Tank Level.</p> <p>If requested cue:</p> <p>The CRS has authorized breaking the ZZ06 locks.</p> <p>INFORM CUE (after the examinee simulates closing each valve):</p> <p>EWB-HCV-66 has been rotated in the counter-clockwise direction and has stopped moving as expected.</p> <p>EWB-HCV-146 has been rotated in the counter-clockwise direction and has stopped moving as expected.</p>	<p>Examinee simulates calling the operator performing Appendix G and informs the operator to monitor the EW B Surge Tank Level.</p> <p>Examinee simulates opening the following valves:</p> <ul style="list-style-type: none"> • EWB-HCV-66, EW Cross-Tie Valve to Nuclear Cooling Water • EWB-HCV-146, EW Cross-Tie Valve to Nuclear Cooling Water <p>Examiner Note: The examinee will need to simulate the following:</p> <ul style="list-style-type: none"> • breaking the ZZ06 lock • loosening the T handle • engaging the manual handwheel • rotating the handwheel in the counter-clockwise direction
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

NOTE above Step 21:

Throttling EWB-HCV-54 will reduce EW flow to the SDHX and raise flow to the RCS Sample Coolers. The operator performing Appendix G monitors sample cooler flow. EWB-HCV-54 is throttled until flow is 16 gpm or HCV-54 is closed.



**JP-2
PVNGS JOB PERFORMANCE MEASURE**

	STEP	CUE	STANDARD
4. *	<p>Appendix H Step 21 of 40AO-9ZZ19:</p> <p>Coordinate with the operator performing Appendix G and perform the following:</p> <ol style="list-style-type: none"> Count the handwheel turns when performing the following step. Throttle EWB-HCV-54, SDHX B Outlet Isolation, to obtain adequate RC Sample Cooler flow. (70' SDHX B Room) Inform the CRS of the number of turns taken on EWB-HCV-54 and to record the number in Appendix Z. 	<p>INFORM CUE:</p> <p>When examinee simulates throttling closed EWB-HCV-54:</p> <p>The operator performing Appendix G reports sample flow is 16 gpm. You have closed EWB-HCV-54 four turns.</p> <p>After the examinee reports the number of turns to the CRS:</p> <p>The CRS acknowledges that the EWB-HCV-54 was closed 4 turns.</p>	<p>Examinee simulates throttling closed EWB-HCV-54.</p> <p>Examinee records 4 turns in Appendix Z</p> <p>Examinee reports number of turns to the CRS.</p> <p>Examiner Note: The critical portion of this step is to throttle closed on EWB-HCV-54. Recording the number of turns in Appendix Z is not critical.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

	STEP	CUE	STANDARD
5. *	<p>Appendix H Step 22 of 40AO-9ZZ19:</p> <p>On panel SSB-J04, open SSB-UV-200, Hot Leg Sample Containment Isolation Valve, using SSB-HS-200A-1. (100' East Elect Pen Room)</p>	<p>INFORM CUE (if the valve is indicating open):</p> <p>Current status is the green light is "ON" and the red light is "OFF".</p> <p>INFORM CUE (after the examinee simulates opening the valve):</p> <p>The red light is "ON" and the green light is "OFF".</p> <p>Another operator will complete the remainder of Appendix H.</p>	<p>Examinee simulates taking the handswitch for SSB-UV-204 (SSB-HS-200A-1) to the Open position.</p> <p>Examiner Note: This valve may be already be open, therefore you may need to cue that the valve is closed.</p>
<p>SAT / UNSAT Comments (required for UNSAT):</p>			

JPM STOP TIME:



JP-2
PVNGS JOB PERFORMANCE MEASURE

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



**JP-2
PVNGS JOB PERFORMANCE MEASURE**

RECORD OF REVISIONS

REVISION NUMBER	REVISION DATE	REASON REVISED	COMMENTS
0	4/21/2010	6	Created record.
1	6/8/2010	6	Revised cues
2	07/27/10	6	Revised cues

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-2
PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

- **A Control Room Fire has occurred.**
- **The CRS has entered 40AO-9ZZ19, Control Room Fire.**
- **The CRS directs you to perform Appendix H starting at step 18 (steps 1-17 were completed by another operator).**

CANDIDATE



JP-3

PVNGS JOB PERFORMANCE MEASURE

JPM BASIS INFORMATION

TASK:	12502403041250240304 Perform AO Actions per 40AO-9ZZ24, Deliberate Acts against PVNGS					
TASK STANDARD:	AFA-P01 manually started and feeding at least one SG					
K/A:	3.4 061 A2.05	K/A RATING:	RO:	3.1	SRO:	3.4
K/A:		K/A RATING:	RO:		SRO:	
APPLICABLE POSITION(S):	AO/RO	VALIDATION TIME:	30 minutes			
REFERENCES:	40EP-9EO10, Standard Appendices, Appendix 112 Rev 64					
SUGGESTED TESTING ENVIRONMENT:	SIMULATOR		PLANT	X		

JPM TYPE

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

APPROVAL

Developed By: Alan Malley Revised by: N/A
Date: 04/09/2010

Technical Review _____ Operations Approval _____

E-Plan Review N/A Training Approval _____

Only required for Emergency Plan JPMs

TESTING METHOD

ACTUAL TESTING ENVIRONMENT: SIMULATOR PLANT

TESTING METHOD: SIMULATE PERFORM

EVALUATION

Examinee Name: _____ Date: _____

Evaluator Name: _____

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

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

o Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP- 0800, ERO Comment Form, and forwarded to the Emergency Planning organization for resolution.



JP-3

PVNGS JOB PERFORMANCE MEASURE

TASK CONDITIONS

INFORMATION PRESENTED TO EXAMINEE:

SPECIAL CONSIDERATIONS:

IN-PLANT JPMs ONLY:

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

ALL JPMs:

- You may use any source of information normally available.

INITIATING CUE:

A Delta 10 security event is in progress.

The Reactor is tripped and the Control Room Supervisor (CRS) has entered the Functional Recovery Procedure.

You are the Area 1 operator and have been directed to perform the following:

- Travel directly to the AFA-P01 (Auxiliary Feedpump A) pump room.**
- Obtain 40EP-9EO10 Standard Appendix 112.**
- Obtain a tachometer locally at AFA-P01.**
- Standby for further direction from the Control Room.**



JP-3

PVNGS JOB PERFORMANCE MEASURE

INFORMATION FOR EVALUATOR'S USE:

- The symbol “*” (asterisk) following a step denotes a 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 will require entry into areas with alarmed doors. Security requirements must be observed.
- Locked components (breakers, valves, etc.) may be involved. No attempt will be made to actually operate any components.



JP-3

PVNGS JOB PERFORMANCE MEASURE

JPM START TIME:

	STEP	CUE	STANDARD
1.	Travel directly to the AFA-P01 pump room.		Examinee enters AFA-P01 pump room.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
2.	Obtain 40EP-9EO10 Standard Appendix 112.	When examinee shows you where to he/she would get a copy of Appendix 112 provide an unused copy of the Appendix to the examinee.	Examinee simulates obtaining a copy of Standard Appendix 112 Examiner Note: The procedure and the tachometer are kept in a box with a plastic lock.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
3. *	Obtain a tachometer locally at AFA-P01.	When examinee shows you where to he/she would get a tachometer inform the examinee to simulate having a tachometer.	Examinee simulates getting a tachometer.
SAT / UNSAT Comments (required for UNSAT):			



JP-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
4.	Standby for further direction from the Control Room.	INFORM CUE: The CRS directs you to perform Standard Appendix 112.	Examinee stands by for further instructions.
SAT / UNSAT Comments (required for UNSAT):			

Note above step 1

At least one steam source valve (SGA-UV-134 or SGA-UV-138) will be open because of actions taken in 40AO-9ZZ24. The Trip Throttle valve AFA-HV-54 is expected to be tripped because of a loss of control power to the turbine controls.

	STEP	CUE	STANDARD
5.	Step 1 of Appendix 112: Ensure AFA-HV-54, "AUX FEEDPUMP AFA-P01 TRIP & THROTTLE VALVE" is closed (REFER TO Attachment 112-A, Trip/Throttle Valve in the Reset Position).	INFORM CUE (after examinee locates AFA-HV-54): AFA-HV-54 is as shown in Attachment 112-B.	Examinee looks at AFA-HV-54 to determine if it is closed. The examinee should determine that AFA-HV-54 is closed and tripped.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
6. *	Step 2 of Appendix 112: Open BOTH of the following valves <ul style="list-style-type: none"> AFA-V084, "AFN-PI-020 ROOT VALVE". (AFA-P01 Rm South of Pump) The instrument Isolation for AFN-PI-20. (AFA-P01 Rm SW corner) 	INFORM CUE: AFA-V084 has been rotated counter-clockwise and the stem is out. The instrument isolation for AFN-PI-20 has been rotated counter-clockwise and has stopped moving against the open seat	Examinee simulates opening both of the following valves: <ul style="list-style-type: none"> AFA-V084 Instrument isolation for AFN-PI-20
SAT / UNSAT Comments (required for UNSAT):			



JP-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
7. *	Step 3 of Appendix 112: Open AFA-V131, AFN-PI-055 Root Valve. (AFA-P01 Rm Lower Level North of Turbine)	INFORM CUE: AFA-V131 has been rotated counter-clockwise and the stem is out.	Examinee simulates opening AFA-V131.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
8.	Step 4 of Appendix 112: Check that AFA-HV-54, "AUX FEEDPUMP AFA-P01 TRIP & THROTTLE VALVE" is in the <u>Reset closed</u> position, REFER TO Attachment 112-A, Trip/ Throttle Valve in the Reset Position		The examinee should determine that the trip throttle valve is NOT in the reset closed position per Picture 1. The examinee should simulate resetting AFA-HV-54 per contingency step 4.1 as listed in the next steps of this JPM.
SAT / UNSAT Comments (required for UNSAT):			

	STEP	CUE	STANDARD
9.	Step 4.1.a of Appendix 112: Manually close the actuator for AFA-HV-54 to align the Latch Lever and the Trip Hook. REFER TO Attachment 112-B, Trip/Throttle Valve in the Tripped Position.		Examinee determines the actuator is closed for AFA-HV-54. No action required.
SAT / UNSAT Comments (required for UNSAT):			



JP-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
10. *	Step 4.1.b of Appendix 112: Pull the Reset Lever toward the Trip/Throttle Valve to completely engage the Latch Lever and the Trip Hook. REFER TO Attachment 112-A, Trip/Throttle Valve in the Reset Position.	INFORM CUE: The Latch Lever and Trip Hook are as shown in Attachment 112-A.	Examinee simulates pulling the reset lever toward the Trip/Throttle valve to complete engage the Latch Lever and the Trip Hook

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
11.	Step 4.1.c of Appendix 112: Ensure the Trip Tappet Assy is pushed down to hold the Reset Lever in position. REFER TO Attachment 112-A, Trip/Throttle Valve in the Reset Position.	INFORM CUE: The Trip Tappet Assembly is positioned as shown in Attachment 112-A.	The examinee inspects the Trip Tappet assy.

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
12.	Step 4.1.d of Appendix 112: Ensure the Manual Trip Lever is in the reset position. REFER TO Attachment 112-A, Trip/Throttle Valve in the Reset Position.	INFORM CUE: The Manual Trip Lever is positioned as shown in Attachment 112-A and AFA-HV-54 is now in the position shown in Attachment 112-A.	The examinee inspects the Manual Trip lever.

SAT / UNSAT

Comments (required for UNSAT):



JP-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
13. *	<p>Step 5 of Appendix 112:</p> <p>Ensure BOTH of the Aux Feed Pump A Feed Isolation Valves are open:</p> <ul style="list-style-type: none"> AFC-UV-36, "AUX FEEDPUMP AFA-P01 FEED ISOLATION VLV TO SG #1". (90' AFA-P01 Pump Room) AFA-UV-37, "AUX FEEDPUMP AFA-P01 FEED ISOLATION VLV TO SG #2". (80' AFA-P01 Pump Room) 	<p>INFORM CUE (when examinee looks at valves):</p> <ul style="list-style-type: none"> AFC-UV-36 indicator is pointing to the CLOSED position. AFA-UV-37 indicator is pointing to the CLOSED position. <p>After examinee simulates opening the valves provide the following cues:</p> <ul style="list-style-type: none"> AFC-UV-36 indicator is pointing toward OPEN. AFA-UV-37 indicator is pointing toward OPEN. 	<p>The examinee visually inspects AFC-UV-36 and AFA-UV-37.</p> <p>After the cue is provided, the examinee simulates manually opening AFC-UV-36 and AFA-UV-37.</p>

SAT / UNSAT

Comments (required for UNSAT):

	STEP	CUE	STANDARD
14. *	<p>Step 6 of Appendix 112:</p> <p>Throttle open AFA-HV-54, "AUX FEEDPUMP AFA-P01 TRIP & THROTTLE VALVE" until ONE of the following parameters is met:</p> <ul style="list-style-type: none"> Pump discharge pressure is 1800 psig on AFN-PI-20. Turbine speed is 3560 rpm using a hand held tachometer. 	<p>INFORM CUE:</p> <p>After examinee has simulated opening AFA-HV-54 inform the candidate that the tachometer is reading 3550 rpm and indicate that the discharge pressure is 1800 psig.</p>	<p>The examinee simulates opening AFA-HV-54 while monitoring the discharge pressure and the hand held tachometer.</p>

SAT / UNSAT

Comments (required for UNSAT):



JP-3

PVNGS JOB PERFORMANCE MEASURE

	STEP	CUE	STANDARD
15. *	<p>Step 6 of Appendix 112:</p> <p>WHEN at least ONE of the following is established,</p> <ul style="list-style-type: none"> • Pump discharge pressure is 1800 psig on AFN-PI-20. • Turbine speed is 3560 rpm. <p>THEN perform BOTH of the following:</p> <p>a. Throttle open BOTH of the following valves an equal amount until AFN-PI-20 indicates 1400-1410 psig:</p> <ul style="list-style-type: none"> • AFA-HV-32, “AUX FEEDPUMP AFA-P01 FLOW CONTROL VLV TO SG #1” (90’ AFA-P01 Pump Room) • AFC-HV-33, “AUX FEEDPUMP AFA-P01 FLOW CONTROL VLV TO SG #2” (80’ AFA-P01 Pump Room) <p>b. Adjust AFA-HV-54, “AUX FEEDPUMP AFA-P01 TRIP & THROTTLE VALVE” to control turbine speed to 3560 rpm.</p>	<p>INFORM CUE:</p> <p>As examinee opens the valves indicate discharge pressure is lowering until it is reading 1400-1410 psig on AFN-PI-20. Inform the examinee turbine speed is 3560 on the handheld tachometer.</p> <p>Another operator will complete the remainder of Appendix 112.</p>	<p>Examinee simulates opening AFA-HV-32 and AFC-HV-33 while monitoring discharge pressure and turbine speed.</p>
<p>SAT / UNSAT</p> <p>Comments (required for UNSAT):</p>			

JPM STOP TIME:

NOTE:

Problems/issues identified on E-Plan JPMs during performance will be documented with a formal post-critique using EP-0800, ERO Comment form, and forwarded to Emergency Planning organization for resolution.

NORMAL TERMINATION POINT



JP-3

**PVNGS JOB PERFORMANCE MEASURE
INITIAL CONDITIONS**

CANDIDATE

INITIATING CUE:

A Delta 10 security event is in progress.

The Reactor is tripped and the Control Room Supervisor (CRS) has entered the Functional Recovery Procedure.

You are the Area 1 operator and have been directed to perform the following:

- a. Travel directly to the AFA-P01 (Auxiliary Feedpump A) pump room.**
- b. Obtain 40EP-9EO10 Standard Appendix 112.**
- c. Obtain a tachometer locally at AFA-P01.**
- d. Standby for further direction from the Control Room.**

CANDIDATE

Facility: <u>PVNGS</u>		Scenario No.: <u>1</u>		Op-Test No: <u>2010</u>	
Examiners: _____		Operators: _____			
_____		_____			
_____		_____			
Initial Conditions: IC-101 (2% power, MOC).					
Turnover: Unit 1 is at 2% power (250 EFPD) following a Short notice outage of 5 days. Power is being held steady while waiting for the Mode 2 to 1 Mode Change checklist to be completed.					
Event No.	Malf. No.	Event Type*	Event Description		
1	Imf cmCNCV01CHEPDIC240_2	C RO/SRO	Charging Header DP controller fails in the AUTO mode		
2	Imf mfSB01C	I CO/SRO (TS)	Core Protection Calculator failure		
3	Imf cmTRCV19RCALT110X_4	I RO/SRO (TS)	RCA-LT-110X Pressurizer level transmitter fails low.		
4	Imf mfCPTP04TCNP01A_6 (In setup) Imf cmCPTP04TCNP01B_5	C CO/SRO	Turbine Cooling Water pump trip (Standby fails to auto start) (40AO-9ZZ03, Loss of Cooling Water)		
5	Imf mfRP06H1 Imf mfRP06H2	C CO/RO/SRO (TS)	Inadvertent CSAS Train 'B' (40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations)		
6	Imf cmCNMS19SGNPIC1010_1 Imf MS12A	C CO/SRO	SBCV 1001 fails to 100% open. (Trip Initiator)		
7	(In setup) Imf CMMVFW08AFBUV34_6	C CO/SRO	B Train AF valve to SG 1 fails to open.		
8	Imf mfTH01B	M ALL	Large LOCA (40EP-9EO03)		
9	Scenario file "noSICI"	C CO/SRO	SIAS fails to initiate CRITICAL TASK – Initiate SI flow when the SIAS setpoint has been exceeded.		
10	Imf cmMVRH03SIAUV672_6	C RO/SRO	CS 'A' header isolation fails to open (B CS pump stopped due to Inadvertent CSAS earlier) CRITICAL TASK –Initiate CS flow when the CSAS setpoint has been exceeded.		
End point			The scenario will end when CS and SI is established.		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes
1. Total malfunctions (5–8)	9
2. Malfunctions after EOP entry (1–2)	4
3. Abnormal events (2–4)	2
4. Major transients (1–2)	1
5. EOPs entered/requiring substantive actions (1–2)	1
6. EOP contingencies requiring substantive actions (0–2)	0
7. Critical tasks (2–3)	2

Supplemental Turnover

Plant conditions:

Unit 1 is at 2% power (250 EFPD) following a Short notice outage of 10 days. Power is being held steady while waiting for the Mode 2 to 1 Mode Change checklist to be completed.

The core is presently at 250 EFPD.

AFN-P01 is feeding the Steam Generators.

SBCS is in Local Automatic.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

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

The Condensate Pump Discharge pressure alarm (window 5B14B) is in fast flash due to the alarm coming in and out.

CEDMCS is in Manual Sequential.

The Pressurizer is in Boron Equalization.

Main Generator output breakers are closed to re-ring the bus.

Equipment out of service:

None

Planned shift activities:

None

Note:

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

Turnover

Plant conditions:

Unit 1 is at 2% power (250 EFPD) following a Short notice outage of 10 days. Power is being held steady while waiting for the Mode 2 to 1 Mode Change checklist to be completed.

The core is presently at 250 EFPD.

AFN-P01 is feeding the Steam Generators.

SBCS is in Local Automatic.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

The Condensate Pump Discharge pressure alarm (window 5B14B) is in fast flash due to the alarm coming in and out.

CEDMCS is in Manual Sequential.

The Pressurizer is in Boron Equalization.

Main Generator output breakers are closed to re-ring the bus.

Equipment out of service:

None

Planned shift activities:

None

Op-Test No.: _____ Scenario No.: <u> 1 </u> Event No.: <u> 1 </u>		
Event Description: _____ Charging Header DP Controller fails in the 'AUTO" Mode _____		
Time	Position	Applicant's Actions or Behavior
T=0	Crew	Receives alarms on B03 windows 8A (CHG HDR SYS TRBL) and 11B (RCP SEAL INJ FLOW HI-HI OR LO) due to 3 rd Charging pump starting.
	RO	Diagnoses that the Charging Header Backpressure controller CHN-PDIC-240 on B03 has failed to 100% output
	RO	Addresses the alarm response procedure for window 8A and performs the following: <ul style="list-style-type: none"> • Recommends taking manual control of controller CHN-PDIC-240 and raises the differential pressure to between 90 to 135 psid by lowering the output on the controller in manual • May discuss Alarm Response procedure states if Aux Spray is needed, to close CHN-PV-239. • May restore boron equalization per 40OP-9ZZ05, Appendix E Crew may select unaffected channel then verify actions in the Alarm Response Procedure.
	SRO	Directs RO to take manual control of CHN-PDIC-240 to restore Charging Header DP

Op-Test No.: _____ Scenario No.: <u> 1 </u> Event No.: <u> 2 </u>		
Event Description: _____ Core Protection Calculator (CPC) failure _____ _____		
Time	Position	Applicant's Actions or Behavior
T=8	Crew	Receives alarms on B05A for window 13B (CPC/CEAC TRBL) 13C (LO DNBR CH TRIP), 13D (LO DNBR CH PRE-TRIP), 14C (HI LPD CH TRIP), 14D (HI LPD CH PRE-TRIP) and B05B window 2D (PPS TRBL)
	CO	Diagnoses that CPC 'C' has failed as indicated by purple data on the screen
	CO	Addresses the alarm response procedure for window 13B, Group C and performs the following: <ul style="list-style-type: none"> • Verifies Channel C PPS channel is tripped (Lo DNBR and Hi LPD) • Confirms CPC failure on CPC Operators Module • May attempt to reset the CPC failure by touching the CPC Fail icon on the Operators Module • Informs the SRO to comply with LCO 3.3.1 • Contacts the Computer Technician (OCS) to troubleshoot the affected CPC • Bypasses Channel C parameters 3 & 4 on PPS cabinet (behind B06) when directed by the SRO
	SRO	Address Tech Spec LCO 3.3.1 and enters condition A. Directs the CO to bypass parameters 3 & 4 on Channel C PPS

Appendix D Required Operator Actions [Form ES-D-2](#)

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

Event Description: _____ Pressurizer Level Transmitter RCA-LT-110X fails low _____

Time	Position	Applicant's Actions or Behavior
T=17	Crew	Receives alarms on B04 windows 1A (PZR TRBL) and 2B (PZR LVL HI-LO)
	RO	<p>Diagnoses and reports that instrument RCA-LT-110X has failed low Addresses the Alarm Response procedure and performs the following:</p> <ul style="list-style-type: none"> • Determines RCA-LI-110X has failed low • Places the following handswitches on B04 in Channel Y <ul style="list-style-type: none"> ○ RCN-HS-110, Level Control Selector Channel X/Y ○ RCN-HS-100-3, Heater Control Selector Level Trip Channel X/Y • Resets and energizing the proportional heaters by taking the following Pzr heater control handswitches on B04 to "ON": <ul style="list-style-type: none"> ○ RCN-HS-100-1 ○ RCN-HS-100-2 <p>RO may restore boron equalization (turning on Backup heaters) per 40OP-9ZZ05, Appendix E</p>
	SRO	Consults Tech Specs and enters LCO 3.3.10 Condition 'a' and LCO 3.3.11 Condition 'a'

Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: <u> 1 </u> Event No.: <u> 4 </u>		
Event Description: _____ Turbine Cooling Water pump trip _____		

Time	Position	Applicant's Actions or Behavior
T=23	Crew	Receives alarms on B07A windows 6A, 6B, and 3A
	CO	<p>Determines the 'A' Turbine Cooling Water Pump has tripped. Addresses the Alarm Response procedure (or may get direction from the SRO per 40AO-9ZZ03, Loss of Cooling Water) and performs the following:</p> <ul style="list-style-type: none"> • Manually starts the standby 'B' Turbine Cooling Water pump using TCN-HS-22 on B07 • May place 'A' Turbine Cooling Water pump in Pull to Lock using TCN-HS-21 on B07
	SRO	<p>SRO may enter 40AO-9ZZ03, Loss of Cooling Water. SRO directs the CO to start the standby Turbine Cooling pump</p> <p>May direct RO to place the 'A' Turbine Cooling pump in Pull to Lock</p>

Op-Test No.: _____ Scenario No.: __1__ Event No.: __5__

Event Description: _____ Inadvertent Containment Spray Actuation Signal Train B _____

Time	Position	Applicant's Actions or Behavior
T=30	Crew	<p>Receives numerous alarms on B05B window 5B (Leg 1-3 CSAS B Leg 2-4), B04 RCP Lo-Flow Alarm windows, B03 windows 11A (RCP Seal Sys Trbl) and 123B (RCP Cont Bleed-off Press Hi-Hi)</p> <p>Verifies this is an inadvertent CSAS by looking at containment pressure indicators on B05</p>
	SRO	<p>Enters 40AO-9ZZ17, Inadvertent PPS-ESFAS Actuations and performs the following:</p> <ul style="list-style-type: none"> • Records the time of the CSAS actuation • Directs the RO to stop the Containment Spray Pump by placing the Containment Spray Pump handswitch to "STOP" to anti-pump the CS pump
	RO	<p>Stops the 'B' Containment Spray pump by taking the 'B' Containment Spray pump handswitch (SIB-HS-6 on B02) to "STOP"</p>
	SRO	<p>Continues in 40AO-9ZZ17 and performs the following:</p> <ul style="list-style-type: none"> • Directs the RO to override and close the containment Spray header Isolation valve
	RO	<p>Overrides and closes SIB-UV-671 using SIB-HS-671 on B02. This is a JOG valve and must be held until the valve is closed</p>

	SRO	<p>Continues in 40AO-9ZZ17 and performs the following:</p> <ul style="list-style-type: none"> • Directs the RO or CO to override and open the following Nuclear Cooling Valves to restore Nuclear Cooling Water to Containment <ul style="list-style-type: none"> ○ NCB-UV-403 using NCB-HS-403 on B07 ○ NCB-UV-401 using NCB-HS-401 on B07
	RO or CO	<p>Operator overrides and opens the following Nuclear Cooling Valves to restore Nuclear Cooling Water to Containment</p> <ul style="list-style-type: none"> • NCB-UV-403 using NCB-HS-403 on B07 • NCB-UV-401 using NCB-HS-401 on B07 <p>These valves should be opened in the order given above to prevent lifting a safety (this is noted on the plaque above the handswitches and is also a note in the Abnormal Operating procedure</p>
	SRO	<p>Continues in 40AO-9ZZ17 and performs the following:</p> <ul style="list-style-type: none"> • Checks IAA-UV-2 (Instrument air to containment) open <p>Examiner Note: The CRS may check IAA-UV-2 open by looking at B07 and may not communicate this action.</p> <ul style="list-style-type: none"> • Directs the RO to override and stop the 'B' Control Room Essential AHU
	RO	<p>Operator overrides and stops the 'B' Control Room Essential AHU using HJB-HS-29 on B02</p>

	SRO	<p>Continues in 40AO-9ZZ17 and performs the following:</p> <ul style="list-style-type: none"> • Directs the RO to override and open the RCP Seal Bleedoff Isolation Valve using CHB-HS-505 on B03 • SRO should brief the crew on how to start the CS pump if needed with a SIAS present or without a SIAS present
	RO	<p>Operator overrides and opens the RCP Seal Bleedoff Isolation Valve using CHB-HS-505 on B03</p>
	SRO	<p>Continues in 40AO-9ZZ17 and performs the following:</p> <ul style="list-style-type: none"> • May direct RO to stop the HPSI and LPSI pump due to one hour recirc limitation on these pumps • SRO should brief the crew on how to start the CS pump if needed with a SIAS present or without a SIAS present • CRS directs an operator to perform Appendix C steps 1 and 2 to check that equipment actuated as expected • CRS should address Tech Specs for equipment that failed to actuate or was overridden • The CRS should enter LCO 3.6.6 condition 'a' (Containment Spray System) and LCO 3.6.3 condition 'a' (Containment Integrity for NC valves and Bleedoff valves)

Op-Test No.: _____ Scenario No.: __1__ Event No.: __6__		
Event Description: _____ Steam Bypass valve fails open _____ _____		
Time	Position	Applicant's Actions or Behavior
T=45	Crew	Crew receives alarms on B04 for Pzr level and Pzr pressure. Crew should notice that RCS pressure is decreasing as well as RCS temperature. Crew should also notice that Reactor Power is increasing
	SRO	May direct CO to attempt to close SBCV 1001 by various means (removing permissive, emergency off, manual valve control)
	CO	Determines that the SBCS master controller has failed and the steam bypass valves are open. May attempt to take manual control of the SBCS Master to shut the valves
	SRO	Directs a manual reactor trip and MSIS
Evaluator Note: If the crew initiates an MSIS and used ADVs to control power, have the driver insert event 31 to cause a reactor trip.		
	CO or RO	Performs a manual reactor trip and initiates an MSIS

Appendix D Required Operator Actions [Form ES-D-2](#)

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

Event Description: _____ Standard Post Trip Actions with AFB-UV-34 failing to open_

Time	Position	Applicant's Actions or Behavior
T=47	SRO	Performs the Standard Post Trip Actions by performing the following: Directs an operator to perform check reactor power is lowering, start-up rate is negative, and all full strength CEAs are inserted
	RO or CO	Reports reactor power is lowering, start-up rate is negative, and all full strength CEAs are inserted
	SRO	Directs the CO to report the status of the Main Turbine and Main Generator output breakers
	CO	Reports the Main Turbine is tripped and the generator breakers are closed
Evaluator Note: Per the EOP Expectations, it is not required to open the Main Generator output breakers if the reactor trips prior to the Main Generator being synched to the grid.		
	SRO	Directs the RO to report the status of the electric plant
	RO	Reports that all class and non-class AC and DC loads are energized
	SRO	Directs the RO to report he status of Pzr level, subcooling, and Seal Injection/NC to the RCPs

	RO	Reports that Pzr level is within the band, subcooling is greater than 24°F, and that Seal Injection and NC are in service to the RCPs
	SRO	Directs the RO to report the status of RCS pressure
	RO	Reports the status of RCS pressure. Depending on how fast the crew tripped the reactor and initiated an MSIS, RCS pressure may be within the band or low out of the band
	SRO	Directs the RO to report status of RCPs operating, Loop ΔT, and subcooling
	RO	Reports all RCPs operating, Loop ΔT of approximately 2°F, and subcooling > 24°F
	SRO	Directs the CO to report status of SG levels, method of feed, T cold, and SG pressures
	CO	<p>Since the MSIS has isolated feed from AFN-P01, the CO may shift to AFB-P01. However, AFB-UV-34 will fail to open. The CO should either shift to AFA-P01 or get permission from the SRO to override the Downcomer Containment Isolation valves and restore feed using AFN-P01</p> <p>Examiner Note: Depending on how fast the crew reacted to the SBCS failure and how fast the CO gets to the step for controlling RCS temperature, the CO may stabilize RCS Tc below the 560°F band per the contingency step 7.b.2</p>

	SRO	Directs an operator to report status of Containment pressure and radiation monitors
	RO or CO	Reports containment pressure and no activity in the containment or steam plant
	SRO	Directs and operator to report containment temperature and containment pressure
	RO or CO	Reports containment temperature and containment pressure
	SRO	<p>Diagnoses the event</p> <p>Evaluator Note: Depending on how fast the crew responded to the SBCS failure and where RCS temperature is at the time will determine if the SRO diagnoses a Reactor Trip or an Excess Steam Demand. If temperature is below 560°F, the SRO should go to the Excess Steam Demand EOP. It is expected the crew will go to the ESD procedure.</p>

Op-Test No.: _____ Scenario No.: <u> 1 </u> Event No.: <u> 8 </u>		
Event Description: _____ Loss of Coolant Accident _____ _____		
Time	Position	Applicant's Actions or Behavior
T=63	Crew	Receives numerous alarms including Containment humidity temperature, sump alarms on B07, RCS low pressure alarms on B05, etc. The crew should also observe RCS pressure and level lowering
	SRO	Re-diagnoses the event. The SRO may re-perform the SPTA diagnostic flow chart or may go to the appropriate procedure. If the SRO previously diagnosed a Reactor Trip, he may proceed to the LOCA procedure. If the SRO previously diagnosed an Excess Steam Demand, he should proceed to the Functional Recovery Procedure
Examiner Note: The following steps will address if the SRO goes to the Functional Recovery Procedure . If the SRO goes to the LOCA procedure, go to the steps on page 15.		
	SRO	SRO enters the FRP and performs the following: Directs the SM to classify the event Enters the EOP entry time IF pressurizer pressure remains below the SIAS setpoint: <ul style="list-style-type: none"> • Directs the RO to stop one RCP in each loop • If subcooling is < 24°F, directs the RO to stop all RCPs
	RO or CO	Manually initiates a SIAS/CIAS with handswitches on B05

Examiner Note: SIAS and CIAS will fail to initiate automatically. The crew should initiate both actuations when RCS pressure is < 1837 psia or containment pressure is > 3 psig.

CRITICAL TASK: When the Safety Injection Actuation setpoint is exceeded, ensure adequate Safety Injection flow to meet Safety Function requirements with 30 minutes of exceeding the SIAS setpoint.

	RO	Stops one RCP in each loop if pressure is less than SIAS setpoint and stops all RCPs when RCS subcooling is < 24°F using handswitches RCN-HS-1, 2, 3, and 4 on B04. Isolates bleedoff if CSAS has actuated
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Examiner Note: When a Containment Spray Actuation signal is received, the Train 'A' header isolation valve (SIA-UV-672) will fail to open. The 'B' Train Containment Spray pump is anti-pumped from event 5, so the RO will have to start the Containment Spray pump to satisfy Containment Spray flow.

CRITICAL TASK: When the Containment Spray Actuation setpoint is exceeded, ensure adequate Containment Cooling flow to meet Safety Function requirements with 30 minutes of exceeding the CSAS setpoint.

	SRO	Directs the CO to ensure SG sample valves are open
	CO	Overrides and opens the SG sample valves using handswitches on B07. (SGA-HS-220, 211, 204, 227, 225, 223 and SGB-HS-221, 228, 219, 226, 224, and 222
	SRO	Directs the RO to place the Hydrogen Analyzers in service

	RO	Places 'A' and 'B' Hydrogen Analyzers in service using handswitches HPA-HS-1, 7, and 9A (Train A) and HPB-HS-2, 8, and 10A (Train B)
	SRO	Identifies the success path(s) to be used to satisfy each safety function. No success path should be jeopardized, but the SRO should select RC-1, MVDC-1, MVAC-1, IC-2, PC-2, HR-2, CI, CTPC-2, and CCGC-1
	SRO	Performs the success paths for all non-shaded success paths since no paths are jeopardized or challenged. The SRO should perform MVDC-1, the IC-2
	SRO	Performs MVDC-1 success path to ensure class 125 VDC busses and 120 VAC instrument busses are energized
	SRO	Performs IC-2 and ensures SIAS is actuated
<p>Scenario termination: The scenario may be terminated when SIAS/CIAS is initiated and CS flow is established using Containment Spray B pump or 30 minutes has elapsed since the CSAS actuation setpoint has been exceeded if neither of the previous evolutions has been completed.</p>		

See next page for LOCA steps

Examiner Note: These steps will occur if the SRO enters the LOCA procedures		
	SRO	Confirms the diagnosis of a LOCA by directing the STA to perform the SFSC, directing the CO to ensure SG Sample Valves are open and directing Chemistry to perform the Abnormal Occurrence Checklist.
	CO	Overrides and opens the SG sample valves using handswitches on B07. (SGA-HS-220, 211, 204, 227, 225, 223 and SGB-HS-221, 228, 219, 226, 224, and 222.
	SRO	Directs the SM to classify the event. Opens the Placekeeper and enters the EOP entry time
	SRO	If pressurizer pressure drops to the SIAS setpoint, then check that SIAS is actuated. Directs an operator to initiate a SIAS/CIAS
	RO or CO	Manually initiates a SIAS/CIAS with handswitches on B05.
<p>Examiner Note: SIAS and CIAS will fail to initiate automatically. The crew should initiate both actuations when RCS pressure is < 1837 psia or containment pressure is > 3 psig.</p> <p>CRITICAL TASK: When the Safety Injection Actuation setpoint is exceeded, ensure adequate Safety Injection flow to meet Safety Function requirements with 30 minutes of exceeding the SIAS setpoint.</p>		
	SRO	Directs the RO to check that HPSI and LPSI pumps have started and safety injection flow is adequate.

	RO	Ensures HPSI and LPSI pumps have started and checks for adequate flow using board mounted Appendix 2 on B02.
	SRO	Directs RO to perform Appendix 10 or 11 to realign the charging pump suction to the RWT or SFP.
	RO	Places a Charging Pump in PTL using handswitch on B03 and directs an Area operator to perform Attachment 10A or 11A.
	SRO	Directs the RO to stop all RCPs due to a loss of subcooling.
	RO	Stops all RCPs using handswitches RCN-HS-1, 2, 3, and 4 on B04 and closes the bleedoff valves if CSAS has actuated and stopped NC flow to the RCPs.
	SRO	Directs the CO to ensure LOCA is not occurring into the NC system by ensuring no RU-6 alarms or abnormal rise in the NC surge tank.
	CO	Reports no alarms on RU-6 and no alarms on NC surge tank.
	SRO	Directs the RO to Place Hydrogen Analyzer in service
	RO	Places 'A' and 'B' Hydrogen Analyzers in service using handswitches HPA-HS-1, 7, and 9A (Train A) and HPB-HS-2, 8, and 10A (Train B)
	SRO	Directs an operator to ensure CIAS is actuated if containment pressure is > 3 psig.
	RO or CO	Verifies CIAS actuated by looking at initiation lights on B05.
	SRO	Directs RO to verify that at an isolation valve is closed for each penetration required to be closed.

	RO	Verifies an isolation valve closed for each penetration by observing CIAS section of SESS panel on B02.
	SRO	Directs an operator to check CSAS is actuated.
	RO or CO	Verifies CSAS actuated by initiation relays on B05.
<p>Examiner Note: SIAS and CIAS will fail to initiate automatically. The crew should initiate both actuations when RCS pressure is < 1837 psia or containment pressure is > 3 psig.</p> <p>CRITICAL TASK: When the Safety Injection Actuation setpoint is exceeded, ensure adequate Safety Injection flow to meet Safety Function requirements with 30 minutes of exceeding the SIAS setpoint.</p>		
	SRO	Directs RO to ensure at least one CS header flow is greater than 4350 gpm
	RO	Starts the B Containment Spray pump by taking SIB-HS-2 on B02 to start twice.
<p>Scenario termination: The scenario may be terminated when SIAS/CIAS is initiated and CS flow is established using Containment Spray B pump or 30 minutes has elapsed since the CSAS actuation setpoint has been exceeded if neither of the previous evolutions has been completed.</p>		

Facility: <u>PVNGS</u>		Scenario No.: <u>2</u>		Op-Test No: <u>2010</u>	
Examiners: _____		Operators: _____			
_____		_____			
_____		_____			
Initial Conditions: IC-102 (100% power, MOC).					
Turnover: Unit 1 is at 100% power (250 EFPD). Stator Cooling Pump 'A' is tagged out for schedule maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1	In setup Imf cmAVCV11CHAUV560_4	N RO/SRO (TS)	Pump the RDT, CH-UV-560 fails to close when securing lineup		
2	Imf mfNI02A	I RO/CO/SRO	Control Channel Power Instrument #1 fails low affecting the Reactor Regulating System and the Digital Feedwater Control System (40AO-9ZZ16, RRS Malfunctions)		
3	Imf cmCPHV12HJNA02_2	C RO/SRO	Control Room Normal AHU Trips		
4	Imf RD02D	R - RO N - CO/SRO (TS)	Power Reduction due to slipped CEA (40AO-9ZZ11, CEA Malfunctions) CRITICAL TASK – Commence a power reduction within 15 minutes.		
5	Imf RD02J Scenario file "atws"	M ALL	Twelve Finger CEA slips (ATWS) CRITICAL TASK – Ensure SPTA Reactivity control contingency actions are taken		
6	Imf ED02	C ALL	On the Trip a Loss of Offsite power occurs		
7	(In setup) Imf EG05A	C RO/SRO	SP A fails to auto start / DG 'A' trips on loss of lube oil		
8	(In setup) Imf mfFW22 Imf FW21B	C CO/SRO	Turbine Driven Aux Feedwater pump AFA-P01 trips on overspeed and Motor Driven Aux Feedwater pump AFB-P01 trips on an 86 lockout (40EP-9EO09 Functional Recovery Procedure)		
End point			Restore feed to at least one SG CRITICAL TASK – Establish a feed source to at least one Steam Generator		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes
1. Total malfunctions (5–8)	7
2. Malfunctions after EOP entry (1–2)	2
3. Abnormal events (2–4)	2
4. Major transients (1–2)	1
5. EOPs entered/requiring substantive actions (1–2)	1
6. EOP contingencies requiring substantive actions (0–2)	1
7. Critical tasks (2–3)	3

Supplemental Turnover

Plant conditions:

Unit 1 is at 100% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for planned maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

The first task the crew is directed to perform is to pump the RDT to 68% level to clear the high level and high pressure alarms (RP wants to keep a higher level than normal for a RDT room entry later in the week). Last Shift RCE-PV-100F developed a packing leak into the RDT. The crew performed a containment entry and isolated 100F. Leakage has stopped. The RDT Hi Level and Hi Pressure alarm are in and the crew needs to pump the RDT to HUT. The prerequisites have been completed and the Shift Manager has given permission to bypass the GAS Stripper. The Preholdup Ion Exchanger is available for use.

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for planned maintenance.

Planned shift activities:

Pump the RDT to the HUT

Note:

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

Turnover

Plant conditions:

Unit 1 is at 100% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for planned maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

The first task the crew is directed to perform is to pump the RDT to 68% level to clear the high level and high pressure alarms (RP wants to keep a higher level than normal for a RDT room entry later in the week). Last Shift RCE-PV-100F developed a packing leak into the RDT. The crew performed a containment entry and isolated 100F. Leakage has stopped. The RDT Hi Level and Hi Pressure alarm are in and the crew needs to pump the RDT to HUT. The prerequisites have been completed and the Shift Manager has given permission to bypass the GAS Stripper. The Preholdup Ion Exchanger is available for use.

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for planned maintenance.

Planned shift activities:

Pump the RDT to the HUT

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

Event Description: _____ Pump the Reactor Drain Tank (containment isolation valve fails to close when evolution completed)_____

Time	Position	Applicant's Actions or Behavior
T=0	RO	RO enters 40OP-9CH01, CVCS Normal Operations, Section 14.3 to pump down the RDT. RO should get the SRO concurrence that he/she is using the correct procedure. The RO may ask the SRO for permission to bypass the Gas Stripper. This information was provided in the turnover, so the RO may not verbally ask for this permission.
	RO	RO notifies RP, Effluents and Chemistry that the Gas Stripper will be bypassed for pumping down the RDT.
	RO	RO opens CHA-UV-560, RDT Outlet Containment Isolation using handswitch CHA-HS-560 on B03.
	RO	RO opens CHB-UV-561, RDT Outlet Containment Isolation using handswitch CHB-HS-561on B03.
	RO	RO positions CHN-UV-500, Letdown to VCT/PRE-HU IOX Selector to the "VCT RESET" position using CHN-HS-500 on B03.
	RO	RO positions CHE-UV-565, Preholdup IX Inlet Divert Valve to "Bypass" using CHN-HS-565 on B03.

	RO	RO starts either Reactor Drain pump, CHN-P04A or CHN-P04B, using either CHN-HS-256 or 257 (respectively) on B03.
	RO	RO monitors decrease in RDT level on CHN-LI-268 on B03.
	RO	RO ensures a positive pressure is maintained on the RDT using CHN-PI-268 on B03.
	RO	RO should stop the Reactor drain pump that was started prior to lowering RDT level to 52%. (This prevents an unnecessary alarm locked in.)
	RO	RO closes CHB-UV-561, RDT Outlet Containment Isolation using CHB-HS-561 on B03.
	RO	RO attempts to close CHA-UV-560, RDT Outlet Containment Isolation using CHA-HS-560 on B03. The valve will fail to close. The RO should inform the SRO that CHA-UV-560 failed to close.
	SRO	SRO should enter LCO 3.6.3 Condition A which (4 hour action to isolation the penetration flowpath). SRO may call Work Control to generate a 3.6.3 permit for CHA-UV-560.
	RO	RO ensures CHN-UV-566, Gas Stripper Divert valve is in "Auto" position on CHN-HS-566 on B03.

	RO	RO ensures CHN-V655 is aligned to the desired position. The RO will either consult with the SRO about the desired condition or leave the valve in the as-found position of "open" since this is the normal line-up.
	RO	RO places CHN-HS-500 to the "AUTO" position on B03.
	RO	RO places CHN-HS-565, Preholdup IX Inlet Divert Valve to "Auto" on B03.

Op-Test No.: _____ Scenario No.: 2 Event No.: 2 Event Description: _____ Control Channel Instrument fails low _____

Time	Position	Applicant's Actions or Behavior
T=11	Crew	<p>Crew receives alarms on window 4A10B AMI (Automatic Motion Inhibit) and window 6A6A DFWCS PROCESS TRBL. An operator (probably the CO) addresses the Alarm Response Procedures.</p> <p>The Alarm Response for Window 4A10B (AMI) directs the operator to take CEDMS Mode Select on B04 to ANY of the following:</p> <ul style="list-style-type: none"> • Stby • Manual Individual • Manual Group • Manual Sequential. <p>Then the alarm response directs the operator to take manual control of pressurizer level if it is not being maintained. This malfunction will not affect pressurizer level, so no action is needed.</p> <p>The alarm response directs the operator to determine the cause of the alarm and if an input failure is indicated, go to 40AO-9ZZ16, RRS Malfunction.</p> <p>See the last part of this event for the Alarm Response actions for the DFWCS alarm.</p>
	Crew	<p>The crew determines that Control Channel number 1 has failed and is reading approximately 50% power.</p>

	SRO	<p>SRO enters 40AO-9ZZ16, RRS Malfunctions to address the Control Channel failure and performs the following:</p> <ol style="list-style-type: none"> 1. Directs an operator to ensure CEDMS is NOT in Auto Sequential. (This may have been completed from the Alarm Response procedure.) 2. Directs an operator to determine the failed instrument. (This may have been completed from the Alarm Response procedure.) 3. Determines the impact of the failure by referring to Appendix B. 4. Directs an operator (probably the CO) to select the unaffected instrument at the RRS Test Panel (behind B05). 5. Once the unaffected instrument has been selected, the SRO directs an operator to check that Tave/Tref mismatch is 3°F or less. 6. Directs an operator to place CEDMCS in the desired mode of operation (Auto Sequential).
	CO/RO	Places CEDMCS in a mode other than Auto Sequential (as determined by the SRO)
	CO	Selects the unaffected instrument at the RRS Test Panel behind B05.
	CO	Places CEDMCS in the desired mode of operation as directed by the SRO (should be Auto Sequential).
	CO	<p>Uses the alarm response procedure for Window 6A6A (DFWCS) directs the operator to determine which transmitter is faulty, place the faulty transmitter in the maintenance mode, and remove the "ATUNE Lockout".</p> <p>This will be done on the DFWCS screens and probably will not be accomplished until the Reactor Reg. system has been addressed.</p>

Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: <u> 2 </u> Event No.: <u> 3 </u>		
Event Description: _____ Control Room Normal AHU trips _____		
Time	Position	Applicant's Actions or Behavior
T=23	Crew	Receive alarm on B02 Window 1A for CONT BLDG HVAC SYS TRBL
	SRO	SRO may enter 40AO-9ZZ20, Loss of HVAC and have the RO start equipment from the AO vice the normal operating procedures.
	RO	Addresses the Alarm Response procedure. The Alarm Response directs the operator perform the following: <ol style="list-style-type: none"> 1. Start either Control Room Essential AHU per 40OP-9HJ01 2. Direct an Auxiliary Operator to investigate the cause of the trip
	RO	RO enters 40OP-9HJ01 to start either train of Control Room Essential. This procedure will send you to various other procedures to start the Essential Chillers, Essential Cooling Water pumps and Spray Pond pumps. <i>(The numbers in parenthesis will be for the "B" Train equipment)</i> The RO performs the prerequisites. This includes contacting the STA to determine if any welding, painting, or use of solvents will prevent running the Control Room Essential AHUs. The driver has a cue to inform the Control Room that the Control Room Essentials are available

	RO	<p>RO enters 40OP-9EC01 (40OP-9EC02) to start a Essential Chiller.</p> <p>RO enters 40OP-9SP01 (40OP-9SP02) to start a Spray Pond Pump.</p> <p>RO notifies Chemistry that Spray Pond pump A (B) will be started.</p> <p>RO starts SPA-P01 (SPB-P01) using SPA-HS-1 (SPB-HS-2) on B02.</p> <p>RO checks for expected indications on ammeter and discharge pressure SPN-PI-3 (SPN-PI-4) on B02.</p> <p>RO may leave the SP procedure at this time and start a EW pump.</p> <p>RO determines Spray Pond supply and differential flow using SPN-FI-5 (SPN-FI-6) on B02.</p>
	RO	<p>RO goes to 40OP-9EW01 (40OP-9EW02) to start an Essential Cooling Water pump.</p> <p>RO completes the prerequisites.</p> <p>RO starts EWA-P01 (EWB-P01) using EWA-HS-1 (EWB-HS-2) on board B02.</p> <p>RO directs an area operator to check discharge pressure.</p> <p>RO checks running current < 103 amps.</p> <p>RO informs Effluent Tech that the EW train is in service and to reset the local alarms for SQN-RU-2 (SQN-RU-3)</p> <p>RO checks EW flow between 13,800 and 14,800 gpm using ERFDADS or gauge on B02.</p>

	RO	<p>RO returns to 40OP-9EC01 (40OP-9EC02) to start an Essential Chiller.</p> <p>RO checks that EC Expansion Tanks pressure is greater than 15 psig by checking Panel B02A Window 2A7A is NOT in alarm.</p> <p>RO starts an Essential Chiller by using handswitch ECA-HS-1A (ECB-HS-2A) on B02.</p> <p>RO directs an area operator to check indications on the chiller within range.</p>
	RO	<p>RO returns to 40OP-9HJ01 (40OP-9HJ02) to start the Control Room Essential AHU.</p> <p>RO closes the control room Normal AHU Isolation Dampers using HJB-HS-8 on B02.</p> <p>RO directs an area operator to monitor the Communications and Inverter room temperatures.</p> <p>RO opens HJA-F04 damper using HJB-HS-34 (HJA-HS-37).</p> <p>RO opens HJA-F04 damper using HJA-HS-36 (HJB-HS-35).</p> <p>RO starts the Control Room Essential AHU using HJA-HS-28 (HJB-HS-29).</p>

Appendix D Required Operator Actions [Form ES-D-2](#)

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

Event Description: _____ Power Reduction due to dropped CEA _____

Time	Position	Applicant's Actions or Behavior
T=36	Crew	Crew receives alarms on B04 (Window 8A and 9B) and B05 (numerous). Crew determines that a CEA deviation exists and that CEA 17 has dropped. Examiner Note time _____
	SRO	SRO enters 40AO-9ZZ11, CEA Malfunctions and performs the following: <ol style="list-style-type: none"> 1. Checks that one CEA is deviating from its group by > 6.6 inches. 2. Checks that no Reg Group is below the Transient Insert Limit 3. Checks that no more than one CEA is deviating by > 9.9 inches. 4. Directs an operator to place CEDMCS in "Standby".
	RO or CO	Places CEDMCS in "Standby" using the CEDMCS Mode Selector switch on B04.
	SRO	Continuing with 40AO-9ZZ11: <ol style="list-style-type: none"> 1. Directs the RO to perform Appendix E, Initial Actions

	RO	<p>Completes Appendix E by performing the following”</p> <ol style="list-style-type: none"> 1. Directs an AO to go to the CEDM Control room to report abnormal indications and carry out the local Alarm Response procedure. 2. Informs I&C Maintenance, Reactor Engineering and the SM of the CEA Malfunction. 3. Initiates boron equalization by: <ol style="list-style-type: none"> a. Overriding and energizing all pressurizer backup heaters using the handswitches on B04. b. Lowering the setpoint on RCN-PIC-100, Pressurizer Pressure Controller (on B04) to 2220 psia. 4. Performs Section 8.4 of 40ST-9ZZ23, PDIL Alarm Circuit within 1 hour.
	SRO	<p>Continuing with 40AO-9ZZ11:</p> <ol style="list-style-type: none"> 1. Records the CEA deviation time and the initial power level. 2. Commences a power reduction within 10 minutes of the initial CEA deviation by performing the following: <ol style="list-style-type: none"> a. Logs the start time for power reduction b. Directs the CO to lower the turbine load to raise Tave 3°F greater than Tref.
	CO	<p>Lowers turbine load using the Load Limit Set potentiometer on B06 to raise Tave 3°F greater than Tref.</p> <p>Examiner Note Time _____</p>
<p>Critical Task: When Reactor Power is $\geq 35\%$ and any CEA is misaligned by greater than 6.6 inches from its group, start a power reduction within 15 minutes.</p>		

	SRO	<p>Continuing with 40AO-9ZZ11:</p> <ol style="list-style-type: none"> 1. Determines the required power reduction based on initial power. (A 20% power reduction is required at this power). 2. Calculates the number of gallons of boric acid needed for the downpower. (~ 1000 gallons is required).
	SRO	<p>Continuing with 40AO-9ZZ11:</p> <ol style="list-style-type: none"> 1. Directs the CO to lower turbine load to maintain Tave 3°F greater than Tref. 2. Directs the RO to commence borating to the charging pump suction (at a minimum of 25 gpm).
	RO	<p>Commences a boration using 40OP-9CH01 at a rate and amount directed by the SRO by performing the following:</p> <ol style="list-style-type: none"> 1. Sets the desired makeup flow rate on the Foxboro Controller, CHN-FIC-210Y on B03 2. If the makeup rate is greater than 40 gpm, set the makeup flow to not more than 40 gpm initially. 3. Select the "Target" makeup volume (gallons) on the Boric Acid Flow Totalizer CHN-FQIS-210Y on B03 4. Start the boration by: <ol style="list-style-type: none"> a. Placing CHN-HS-210 on B03 to "BORATE" b. Depress the "RESET" pushbutton on the Totalizer c. Depress the "START" pushbutton on the Totalizer 5. Checks a boric acid pump started 6. Checks no flow on RMW flow indicator CHN-FIC-210X on B03 7. Ensures CHN-UV-527 opened by red lights lit on CHN-HS-527 8. Checks flow increases on CHN-FIC-210Y on B03 9. If desired flow is > 40 gpm, raise the flow setpoint on CHN-FIC-210Y to the desired flow rate 10. Informs the SRO that the boration is started.

	SRO	<p>Continuing with 40AO-9ZZ11:</p> <ol style="list-style-type: none"> 1. Reduces reactor power to comply with the power reduction requirements of Appendix B 2. When the requirements of Appendix B are satisfied, temperate may be allowed to be lowered to maintain Tave/Tref mismatch $\pm 3^{\circ}\text{F}$. 3. Directs the STA to calculate the dilution rate to stabile power at the target power.
<p>Examiner Note: After the crew has reduced power ~ 5%, have the driver insert the next event. This means the SRO may not have addressed Tech Specs at this point, which will require a follow up question to address Tech Specs.</p>		
	SRO	<p>Continuing with 40AO-9ZZ11:</p> <ol style="list-style-type: none"> 1. When the target power is reached, stop the boration 2. Stabilize power with a dilution. 3. Directs an operator to perform 77OP-9RJ04, COLLS Functional Verification. 4. Refers to LCO 3.1.5, CEA Alignment and enters condition A.

Op-Test No.: _____ Scenario No.: 2 Event No.: 5Event Description: _____ 2nd CEA drops causing a reactor trip signal (ATWS) _____

Time	Position	Applicant's Actions or Behavior
T=49	Crew	Crew receives alarms on B04 and B05 indicating that a second CEA has dropped into the core and that a reactor trip should have occurred as indicated by all 4 channels of PPS Lo DNBR and Hi LPD trip lamps lit.
	SRO	Directs an operator to trip the reactor. (The operator is allowed to trip the reactor without direction from the SRO since PPS trip setpoints have been exceeded).
	RO or CO	Attempts to trip the reactor using the Reactor Trip pushbuttons on B05. The operator should realize that a trip did not occur.
	SRO	Enters 40EP-9EO01 Standard Post Trip Actions. The SRO may direct the RO to open the breakers for NGN-L03 and NGN-L10 before physically getting the procedure.
	RO	De-energizes the CEDM MG sets by opening the B2 breakers for NGN-L03 and NGN-L10 using handswitches NGN-HS-L03B2 and NGN-HS-L10B2 on B01. The RO re-energizes these Load Centers after the reactor is tripped.

Critical Task: When a reactor trip setpoint is exceeded, ensure the SPTA Reactivity Control contingency actions are take prior to the completion of the SPTAs.

Examiner Note: A loss of offsite power will occur approximately 1 minute after the B2 breaker for NGN-L03 is opened.

Op-Test No.: _____ Scenario No.: 2 Event No.: 6 and 7

Event Description: _____ Loss of Offsite Power / Spray Pond 'A' Fails to auto start / DG 'A' Trips _____

Time	Position	Applicant's Actions or Behavior
T=50	RO	Provides the electrical plant report with the following conditions: <ul style="list-style-type: none"> • A loss of offsite power • DG 'A' started and energized PBA-S03 • DG 'B' is supplying PBB-S04 with the B Spray Pond pump running. The RO manually starts Spray Pond 'A' pump by taking handswitch SPA-HS-1 on B02 to "START" DG 'A' will trip 10 minutes after the Loss of offsite power due to a lube oil leak.
	SRO	Directs an operator to check pressurizer level
	RO or CO	Reports pressurizer level and trend. Pressurizer level should be within the 10-65% band, but the operator will have to hard start the 'B' charging pump using CHB-HS-217 on B03.
	SRO	Directs an operator to report status of RCS subcooling. Subcooling will be > 24°F.

	SRO	Directs an operator to report status of seal injection and Nuclear Cooling water (NC) to the RCPs. Seal Injection may be low due to only one charging pump running and there is no NC flow to the RCPs.
	RO or CO	Isolates controlled bleedoff from the RCPs using CHA-HS-506 and CHB-HS-505 on B01 per the direction from the blue plaque on B04.
	SRO	Directs an operator to report RCS pressure.
	RO or CO	Reports RCS pressure. Pressure may not be in the band immediately after the trip. The operator can only use the B train Backup heater (handswitch RCB-HS-100-5 on B04) since all other backup heaters have no power. To energize the B train heaters, the operator will have to take the Heater Level Control Channel Selector switch (RCN-HS-100-3) on B04 to Channel X since NNN-D11 has been lost on the trip. The operator can diagnose this by observing the status of the seal injection controllers on B03. The operator may have to use Auxiliary Spray (either handswitch CHA-UV-205 or CHB-HS-203 on B03) to control RCS pressure depending on how the secondary heat removal is being controlled.
	SRO	Directs an operator to report status of RCPs, Loop ΔT , and subcooling.
	RO or CO	Reports no RCPs running, Loop ΔT may be greater than 10°F since natural circ is being established, and subcooling will be > 24°F.
	SRO	Directs the CO to report SG levels.

	CO	CO may attempt to feed the SGs using AFB-P01, but this pump will trip on an 86 lockout. The operator will then attempt to use either AFN-P01 or AFA-P01. The operator can use AFN-P01 until DG 'A' trips 15 minutes after the Loss of Offsite power. AFA-P01 will be tripped in the next event.								
Examiner Note: Depending on the order the CO chooses to use Aux Feed pumps and how fast the crew performs the SPTAs will determine if the CRS goes to the LOOP/LOFC procedure or directly to the Functional Recovery Procedure.										
	SRO	Directs the CO to report status of Tc.								
	CO	Will report Tc. Depending on how fast the SRO get to this step, the CO may or may not have established SG pressure control with the ADVs at this point. The operator will have to use ADVs to control SG pressure since the SBCS is locked out due to loss of power. <table border="1"> <tr> <td>ADV 184</td> <td>SGA-HIC-184A</td> </tr> <tr> <td>ADV 178</td> <td>SGB-HIC-178A</td> </tr> <tr> <td>ADV 185</td> <td>SGB-HIC-185A</td> </tr> <tr> <td>ADV 179</td> <td>SGB-HIC-179A</td> </tr> </table>	ADV 184	SGA-HIC-184A	ADV 178	SGB-HIC-178A	ADV 185	SGB-HIC-185A	ADV 179	SGB-HIC-179A
ADV 184	SGA-HIC-184A									
ADV 178	SGB-HIC-178A									
ADV 185	SGB-HIC-185A									
ADV 179	SGB-HIC-179A									
	SRO	Directs the CO to report status of SG Pressure.								
	CO	Reports the status of SG pressure and that SG pressure. ADVs are or will be used to control SG pressure.								
	SRO	Directs an operator to report status of Containment pressure and EOP Rad Monitors								
	RO or CO	Reports Containment pressure and that there are no indications of activity in Containment or the steam plant.								

	SRO	Directs an operator to report Containment temperature and Containment Pressure
	RO or CO	Reports Containment temperature and Containment pressure.
	SRO	Performs Diagnostic Actions to diagnose the event. The SRO determines that a Loss of Offsite power has occurred and enters the Loss of Offsite Power/Loss of Forced Circ procedure.

Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: 2 Event No.: 8

Event Description: _____ AFA-P01 trips / AFB-P01 trips / Functional Recovery _____
 Procedure to restore power to PBA-S03 _____

Time	Position	Applicant's Actions or Behavior
T=60	CO	Recognizes that AFA-P01 has tripped on over-speed and informs the SRO that there is no feed available to the SGs.
	SRO	Enters the Functional Recovery Procedure due to Maintenance of Vital Auxiliaries being jeopardized causing a loss of feedwater. The SRO performs the following: <ol style="list-style-type: none"> 1. Ensures the event is being classified by informing the SM to classify the event 2. Enters the EOP entry time 3. Directs Chemistry to perform the Abnormal Occurrence Checklist 74DP-9ZZ05 for the FRP 4. Directs the RO to place the B Hydrogen Analyzer in service 5. Identifies the success paths to be used with the Safety Function Tracking Sheet. 6. Identifies MVAC-2 and HR-1 as jeopardized. 7. Directs the STA to perform the Safety Function Status Checks 8. Performs the success path MVAC-2 first: <ol style="list-style-type: none"> a. Directs the RO to perform Appendix 58, Cross-tie DG B to PBA-S03
	RO	Places the B Hydrogen Analyzer in service when directed by opening HPB-HV-8A/8B using HPB-HS-8, opening HPB-UV-2 using HPB-HS-2, and by taking the Function Selector switch on Analyzer Control B HPB-UIC-10 to the right. All of these switches are on B02.

	RO	<p>Performs Appendix 58:</p> <ol style="list-style-type: none"> 1. Directs an area operator to perform Attachment 58-A, Disable PBA-S03 breakers 2. Ensure the following breakers on open on B01: <ul style="list-style-type: none"> • NAN-S03A (NBN-HS-S03A) * • PBA-S03K (PBA-HS-S03K) • PBA-S03L (PBA-HS-S03L) • NAN-S04A (NBN-HS-S04A) * • PBB-S04L (PBB-HS-S04L) • PBB-S04K (PBB-HS-S04K) <p>(* Handswitches are numbered differently than breaker per design.)</p> <ol style="list-style-type: none"> 3. Ensures that PBA-S03B, DGA breaker is open using PBA-HS-S03B on B01. 4. Place the following in "Pull to Lock" (on B06): <ul style="list-style-type: none"> • Train A Containment Normal ACUs (Handswitches HCA-HS-11 and HCA-HS-13) • Train A CEDM ACUs (Handswitch HCA-HS-49) 5. Performs the following (on B01): <ul style="list-style-type: none"> • Place synchronizing switch PBB-SS-S04K to "ON" • Close breaker PBB-S04K using PBB-HS-S04K • Place synchronizing switch PBB-SS-S04K to "OFF" <p>Examiner Note: The following action will energize PBA-S03</p> <ol style="list-style-type: none"> 6. When Attachment 58-A is complete perform the following (on B01): <ul style="list-style-type: none"> • Place synchronizing switch PBA-SS-S03K to "ON" • Close PBA-S03K using PBA-HS-S03B. • Place synchronizing switch PBA-SS-S03K to "OFF" 7. When PBA-S03 is energized direct an operator to ensure the breakers for the battery chargers are on and the contactors are closed 8. Stop non-essential loads on PBB-S04 9. Reset and start loads on PBA-S03 as required.
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	SRO	When PBA-S03 is energized, directs the CO to start AFN-P01 and feed the SGs.
	CO	<p>Starts AFN-P01 by performing the following:</p> <ol style="list-style-type: none"> 1. Opens both suction valves for AFN-P01 using handswitches CTA-HS-1 and CTA-HS-4 on B02. 2. Resets the 86 Lockout on AFN-P01 (tripped during performance of Attachment 58-A) by taking handswitch AFN-HS-11 to "STOP" on B02. 3. Starts AFN-P01 using handswitch AFN-HS-11. 4. May feed the SGs using the Downcomer Controllers (SGN-FIK-1113 and 1123) in manual or by using the Downcomer Controller Bypass valves (SGN-HS-1143 and SGN-HS-1145)
<p>Critical Task: Energize a Class 1E 4kV bus and start required equipment to recover jeopardized Safety Function(s) prior to completion of the Maintenance of Vital Auxiliaries success path.</p>		
<p>Scenario Termination: The scenario may be terminated when feed has been established to the SGs via AFN-P01</p>		

Facility: <u>PVNGS</u>		Scenario No.: <u>3</u>		Op-Test No: <u>2010</u>	
Examiners: _____		Operators: _____			
_____		_____			
_____		_____			
Initial Conditions: IC-103 (100% power, MOC)					
Turnover: Unit 1 is at 100% power (250 EFPD). Stator Cooling Pump 'A' is tagged out for schedule maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1	None	N RO/SRO	Shift Charging Pumps to 2-3-1.		
2	Imf mfCMTRRX09RCBPDT125B_4	I CO/SRO (TS)	RCBPDT125B (SG RCS DP Transmitter) fails low		
3	(In setup) imf mfBKEG03PBBS04B_2	C RO/SRO (TS)	Loss of PBB-S04 – DG breaker fails to auto close (40AO-9ZZ12, Degraded Electrical)		
4	Imf mfEG04	C CO/SRO	Main Generator AC Regulator failure		
5	IMF MC01A	R - RO N- CO/SRO	Loss of condenser vacuum (40AO-9ZZ07, Loss of Vacuum)		
6	IMF mfMS01A	M ALL	Steam Line Leak (ESD) inside containment (Trip Initiator) (40EP-9EO06, Excess Steam Demand)		
7	Scenario file "noMSIS"	C CO/SRO	MSIS fails to automatically initiate CRITICAL TASK – Ensure MSIS is actuated when the MSIS setpoint has been exceeded.		
8	(In setup) Imf mfSI01A mfRP07B	C RO/SRO	HPSI A Trips and the B BOP/ESFAS sequencer fails requiring the RO to start all B train pumps CRITICAL TASK – Ensure SI flow when SIAS setpoint has been exceeded		
9	Scenario file "noDP1SG"	C CO/SRO	SG DP Lockout fails requiring the CO to manually stop feeding the SG that is faulted inside containment. CRITICAL TASK – Ensure SG isolated when AFAS DP lockout has been exceeded.		
End point			Scenario ends when crew has caught RCS rebound and a HPSI pump is running		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes
1. Total malfunctions (5–8)	7
2. Malfunctions after EOP entry (1–2)	3
3. Abnormal events (2–4)	2
4. Major transients (1–2)	1
5. EOPs entered/requiring substantive actions (1–2)	1
6. EOP contingencies requiring substantive actions (0–2)	0
7. Critical tasks (2–3)	3

Supplemental Turnover

Plant conditions:

Unit 1 is at 100% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Planned shift activities:

The crew needs to shift charging pumps from 1-2-3 to 2-3-1. A permit is going to be hung on the 'A' Charging pump to repair the seal lube pump. The prerequisites are 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.

Turnover

Plant conditions:

Unit 1 is at 100% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Planned shift activities:

The crew needs to shift charging pumps from 1-2-3 to 2-3-1. A permit is going to be hung on the 'A' Charging pump to repair the seal lube pump. The prerequisites are complete.

Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>1</u>		
Event Description: _____ Shift running order of Charging Pumps _____ _____		
Time	Position	Applicant's Actions or Behavior
T=0	SRO	Directs the RO to shift Charging Pumps to B and E running with A off.
	RO	<p>Should get the SRO to approve the correct section of the procedure.</p> <p>Enters 40OP-9CH01 Section 4.4 and performs the following:</p> <ul style="list-style-type: none"> • Places CHN-PDIC-240 in manual on B03. • Ensures the auto start contact for all charging pumps are enabled as follows: <ul style="list-style-type: none"> ○ IF the charging pump is running, check the associated pump handswitch indicates a GREEN flag. ○ IF the charging pump is idle, then hard stop the associated handswitch. • Selects 2-3-1 on handswitch CHN-HS-4 on B03. • If the new "Always Running" and/or "Normally Running" Charging pump trips, then start the affected pump by green flagging its handswitch. <ul style="list-style-type: none"> ○ Directs an Auxiliary Operator to perform the following: <ul style="list-style-type: none"> ○ Check the status of each charging pump breaker • Place CHN-PDIC-240 back to AUTO.

Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>2</u>		
Event Description: _____ SG DP instrument RCB-PDT-125B fails low _____ _____		
Time	Position	Applicant's Actions or Behavior
T=10	Crew	Receives alarms on B05A windows 12C and 12D along with B05B window 2D
	CO	Addresses the alarm response for window 12C (LO SG 2 RC Flow Trip) and performs the following: Determines RCB-PDI-125B has failed low If time permits, contact I&C to check setpoint prior to placing channel in bypass. When directed, bypasses parameter 15 on Channel B PPS behind B06.
	SRO	Addresses Tech Specs and enters LCO 3.3.1 condition A. Contacts I&C and will be informed that they cannot respond for two hours. Directs the CO to bypass parameter 15 on Channel B PPS.

Appendix D Required Operator Actions [Form ES-D-2](#)

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

Event Description: _____ Loss of PBB-S04 / DG breaker fails to auto close _____

Time	Position	Applicant's Actions or Behavior
T=21	Crew	Receives numerous alarms throughout the control room. The crew determines a LOP on PBB-S04 has occurred.
	SRO	<p>Enters 40AO-9ZZ12, Degraded Electrical and performs the following:</p> <ul style="list-style-type: none"> • Goes to Appendix N due to the DG running with the output breaker open <ul style="list-style-type: none"> ○ Enters the Appendix Entry time and date <p>The RO may have reported that the DG was at proper speed, voltage and no lockouts on the bus prior to the SRO getting to the next few steps.</p> <ul style="list-style-type: none"> ○ Directs the RO to check for frequency between 59.9 and 60.5, voltage between 4080 and 4300 volts ○ Directs the RO to ensure PBB-S04K (PBB-S04 alternate supply breaker) and PBB-S04L (PBB-S04 normal supply breaker) are open ○ Directs the RO to check that the 86 relays are not actuated for PBB-S04K and PBB-S04L. ○ Directs the RO to check that PBB-S04B (DG output breaker) 86 relay is not actuated ○ Directs the RO to perform the following: <ul style="list-style-type: none"> ▪ place the sync switch PEB-SS-S04B (DG B output breaker) to "ON" ▪ close PBB-S04B ▪ place the sync switch PEB-SS-S04B (DG B output breaker) to "OFF"

	RO or CO	May recognize that they only have one Charging Pump running and ask permission to start the standby pump or manually reduce letdown flow. If the crew does not address the charging pumps, a loss of letdown may occur.
	RO	Performs the following when directed by the SRO: <ul style="list-style-type: none"> • place the sync switch PEB-SS-S04B (DG B output breaker on B01) to "ON" • close PBB-S04B using handswitch PBB-HS-S04B on B01) • place the sync switch PEB-SS-S04B (DG B output breaker) to "OFF"
	SRO	The SRO may continue in 40AO-9ZZ12 section 54.0 and perform the following (Exit condition are met at this time if the SRO decides to exit 40AO-9ZZ12, but he still needs to address Tech Specs LCO 3.8.1 condition 'a'): <ul style="list-style-type: none"> • Directs an operator to check that NNN-D12 and NNN-D16 are energized • Directs an operator to check that PNB-D26 and PND-D28 are energized
	RO or CO	Reports that NNN-D12, NNN-D16, PNB-D26, and PND-D28 are all energized. The operator can tell the status of NNN-D12 by the seal injection controller lights, the status of NNN-D16 by the status of the B MFP, and the status of the PN busses by the status of the PPS lights on B05.
	SRO	Directs the CO to ensure adequate CTMT Normal and CEDM Normal cooling for present plant conditions.

	CO	Determines that there is adequate CTMT Normal and CEDM Normal cooling for present plant conditions.
	SRO	Directs an operator to determine which Spent Fuel Pool Cooling Pump was running.
	SRO	Enters LCO 3.8.1 condition A for one required offsite circuit inoperable and directs an operator to perform 41ST-1ZZ02, Inoperable power sources.
	Crew	<p>The crew may direct Auxiliary Operators to perform the following from alarm responses:</p> <ul style="list-style-type: none"> • reset the loss of synch alarms on Inverters B and D • reset the B Hydrogen Analyzer alarm • reset the CST freeze protection alarms <p>If time allows and the crew notices RU-1 and RU-30 pumps are off, the CRS may address LCO 3.4.16 and 3.3.9.</p>
	RO	<p>IF letdown is lost, the RO restores letdown using 40AO-9ZZ05, Loss of Letdown by performing the following on B03:</p> <ul style="list-style-type: none"> • Places RCN-LIC-110 , PLCS Master Controller in manual on B04 and closes the selected Letdown Control Valve • Checks that letdown backpressure is less than setpoint on CHN-PIC-201 Controller • Informs the SRO if level is > 56% (LCO 3.4.9) <p>(continued on next page)</p>

	RO	<ul style="list-style-type: none"> • Goes to Appendix A and performs the following: <ul style="list-style-type: none"> ○ Ensures at least one of the following valves are closed: <ul style="list-style-type: none"> ▪ CHB-UV-515 ▪ CHA-UV-516 ▪ CHB-UV-523 (should be closed due to high temperature due to only 1 Charging pump running) ○ Ensures ERFDADS is set to alarm for points CHT221 and CHP201 by checking points on ERFDADS computer screen. ○ Place CHN-PIC-201, Letdown Backpressure controller in manual with an output of 60% ○ Opens the valve close in previous step (515, 516 or 523) ○ If letdown lost for > 22 minutes opens letdown control bypass valve CHN-HV-526 for four minutes ○ Slowly adjust letdown control valve and backpressure controller to establish all of the following <ul style="list-style-type: none"> ▪ flow to 25-35 gpm ▪ Backpressure 220 to 300 psig ▪ Reg HX temperature less than saturation ○ Ensures RCN-LIC-110 , CHN-PIC-201 and CHN-PDIC-240 (Charging Header backpressure controller) are all in manual ○ Starts a second charging pump ○ Adjust letdown flow for 2 Charging pumps ○ Transfers RCN-LIC-110 to Remote or Local auto when level is at desired setpoint ○ Places CHN-PDIC-240 in AUTO ○ Places CHN-PIC-201 in AUTO
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Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>4</u>		
Event Description: _____ Main Generator Regulator Failure _____		
Time	Position	Applicant's Actions or Behavior
T=35	Crew	Receives alarm on B06B window 8B (EXCTN SYS TRBL) and B01B window 6B (525 KV SWYD VOLT TRBL/WRF TRIP PERM)
	CO	<p>Address alarm response for window B06B window 8D and performs the following:</p> <ul style="list-style-type: none"> • Determines which mode regulator is in by observing the LEDs on the Generrex mimic bus on B06. (LED 11 should be flashing indicating a Under Excited Reactive Ampere Limit • If the AC regulator is not available perform 40OP-9MB01, Main Generation and Excitation, Section 9.0 to switch to the DC regulator <ul style="list-style-type: none"> ○ Ensure the transfer volts meter on B06 is set at zero ± 25 ○ Press DC on the AC/DC transfer switch ○ Checks a mode change alarm is received and LED #3 goes out and LED #4 flashes. ○ Frequently monitor MVARs and adjust as necessary ○ Inform ECC of the change in status of the regulator within 30 minutes
	SRO	<ul style="list-style-type: none"> • Directs the CO to shift to the DC regulator per 40OP-9MB01 and raise MVARs • After talking to ECC, gives the CO a value of MVARs to maintain

Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>5</u>		
Event Description: _____ Loss of Condenser Vacuum _____ _____		
Time	Position	Applicant's Actions or Behavior
T=50	Crew	Receives alarms on B05 for condenser DP low.
	CO or RO	Determines a loss of Vacuum is occurring in the 'A' Condenser shell.
	SRO	Enters 40AO-9ZZ07, Loss of Condenser Vacuum and performs the following: <ul style="list-style-type: none"> • Performs the diagnostic and goes to Section 4.0 Strategy/Power Reduction • Directs an operator to: <ul style="list-style-type: none"> ○ place seal water on the condenser expansion joints (Dog-bone seals), vacuum breakers, and steam packing exhauster Condenser drain ○ Check for air in leakage at the condenser shells, operation of the gland seal regulators, etc. • Directs the CO to ensure ALL available air removal pumps are in operation
	CO	Starts the 'D' Air Removal pump using handswitch ARN-HS-28 on B07.

	SRO	May direct CO to open ALL Air Removal Pump 'D' suction valves
	CO	If directed, opens all Air Removal pump 'D' suction valves using handswitches ARN-HS-14, 15 and 16 on B07.
	SRO	<p>Although a power reduction will only temporarily improve vacuum due to air-in leakage they will probably do a down power since the cause is not yet known.</p> <p>Determines Both of the following:</p> <ul style="list-style-type: none"> • Magnitude of the power reduction • The rate to reduce power <p>Calculates the reactivity needed using ANY of the following:</p> <ul style="list-style-type: none"> • Total gallons of boric acid and addition rate • CEA insertion
	SRO	<p>Directs the RO to commence a boration to reduce power.</p> <p>Directs the CO to lower turbine load and maintain Tavg/Tref mismatch 5°F or less.</p> <p>(SRO may choose to use CEAs in Auto Sequential or Manual Sequential for the power reduction)</p>

	RO	<p>Commences a boration using 40OP-9CH01 at a rate and amount directed by the SRO by performing the following:</p> <ol style="list-style-type: none"> 1. Sets the desired makeup flow rate on the Foxboro Controller, CHN-FIC-210Y on B03 2. If the makeup rate is greater than 40 gpm, set the makeup flow to not more than 40 gpm initially. 3. Select the "Target" makeup volume (gallons) on the Boric Acid Flow Totalizer CHN-FQIS-210Y on B03 4. Start the boration by: <ol style="list-style-type: none"> a. Placing CHN-HS-210 on B03 to "BORATE" b. Depress the "RESET" pushbutton on the Totalizer c. Depress the "START" pushbutton on the Totalizer 5. Checks a boric acid pump started 6. Checks no flow on RMW flow indicator CHN-FIC-210X on B03 7. Ensures CHN-UV-527 opened by red lights lit on CHN-HS-527 8. Checks flow increases on CHN-FIC-210Y on B03 9. If desired flow is > 40 gpm, raise the flow setpoint on CHN-FIC-210Y to the desired flow rate 10. Informs the SRO that the boration is started.
	CO	<p>Lowers turbine load using the Load Limit Set potentiometer on B06 to maintain Tave within 5°f of Tref.</p>

	SRO	When the vacuum leak is fixed, the SRO may direct the crew to stop the downpower.
<p>Examiner Note: After the crew has reduced power ~ 5% direct the driver to delete the Loss of Vacuum malfunction.</p> <p>If the crew trips on this event, have the driver insert Event 6.</p>		

Op-Test No.: _____ Scenario No.: <u>3</u> Event No.: <u>6 and 7</u>		
Event Description: _____ Steam Leak in Containment _____ _____		
Time	Position	Applicant's Actions or Behavior
T=65	Crew	Crew receives alarms on Containment humidity and temperature on B07. Crew notices power increasing, RCS pressure lowering, RCS temperature lowering, etc.
	SRO	SRO directs a manual reactor trip. (SRO may direct an MSIS at this time also).
	RO or CO	Manually trips the reactor and initiates MSIS (if directed)
<p>Evaluator Note: The MSIS signal will fail to automatically initiate. The crew may initiate the MSIS before the PPS setpoints are exceeded.</p> <p>Critical Task: When the Main Steam Isolation Actuation setpoints are exceeded, ensure Main Steam Isolation has actuated prior to completion of the SPTAs.</p>		
	RO or CO	If the SRO does not direct an MSIS at the time of the trip, the board operators should initiate the MSIS when the setpoints have been exceeded.

Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: 3 Event No.: 8, and 9

Event Description: _____ Standard Post Trip Actions, HPSI A trips with B sequencer failure, and the SG DP lockout fails _____

Time	Position	Applicant's Actions or Behavior
T=70	SRO	SRO enters 40DP-9EO01 (Standard Post Trip Actions) and performs the following: Directs an operator to perform check reactor power is lowering, start-up rate is negative, and all full strength CEAs are inserted
	RO or CO	Reports reactor power is lowering, start-up rate is negative, and all full strength CEAs are inserted.
	SRO	Directs the CO to report the status of the Main Turbine and Main Generator output breakers
	CO	Reports the Main Turbine is tripped and the generator breakers are open.
	SRO	Directs the RO to report the status of the electric plant.
	RO	Reports that all class and non-class AC and DC loads are energized.
	SRO	Directs the RO to report he status of Pzr level, subcooling, and Seal Injection/NC to the RCPs.

	RO	Reports that Pzr level is lowering, subcooling is greater than 24°F, and that Seal Injection and NC are in service to the RCPs (unless a CSAS has actuated by the time the RO reports, then NC will not be in service and the RO should stop the RCPS and close the bleedoff valves).
	SRO	Directs the RO to report the status of RCS pressure.
	RO	Reports the status of RCS pressure. RCS pressure should still be lowering which should cause a SIAS/CIAS actuation.
<p>Examiner Note: The 'A' HPSI pump will trip and the B Sequencer will fail. The RO should start the B HPSI pump and all other equipment that the sequencer failed to start using the SESS panel.</p> <p>Critical Task: When the Safety Injection Actuation setpoint is exceeded, ensure adequate Safety Injection to meet the Safety Function prior to completion of the SPTAs.</p>		
	SRO	Directs the RO to report status of RCPs operating, Loop ΔT , and subcooling
	RO	Reports all RCPs operating (until CSAS actuates), Loop ΔT , and subcooling > 24°F.

	SRO	Directs the CO to report status of SG levels, method of feed, T cold, and SG pressures
	CO	CO should start AFB-P01 to feed SG #1 only. The CO should isolate feed to SG#1 when the AFAS-1 is initiated.
<p>Evaluator Note: The SG Differential Pressure Lockout will fail allowing AFAS-1 to feed the faulted SG inside containment.</p> <p>Critical Task: When the AFAS DP Lockout setpoint is exceeded, ensure the appropriate steam generator is isolated and feed has been secured prior to the completion of the SPTAs.</p>		
	CO	<p>CO should stabilize Tc when SG #1 reaches dry out conditions as seen by RCS temperatures increasing. The CO should take the coldest Tc and use the steam tables to determine what pressure to lower SG #2 pressure to in order to stop the rebound.</p> <p>Evaluator Note: This may occur after the crew enters the ESD procedure.</p>
	SRO	Directs an operator to report status of Containment pressure and radiation monitors.
	RO	May throttle HPSI using SIB-HS-616, 626, 636, and 646 on B02 if RCS pressure is below shutoff head (1850 psia) of the HPSI pump and HPSI throttle criteria are met (plaque on B02).

	RO or CO	Reports containment pressure and no activity in the containment or steam plant.
	SRO	Directs and operator to report containment temperature and containment pressure
	RO or CO	Reports containment temperature and containment pressure.
	SRO	Diagnoses the event. The SRO should diagnose an Excess Steam Demand and proceed to 40EP-9EO05. The CRS directs the CO to stabilize RCS temperature when the faulted SG reaches rebound (as evidenced by RCS temperatures increasing).
	CO	Stabilizes RCS temperature by lowering the non-faulted SG pressure using the ADVs on B06 to the saturation pressure for the lowest RCS temperature at the time of the rebound.
<p>Scenario Termination: The scenario can be terminated when the SRO diagnoses an ESD and the crew had stabilized Tc to prevent repressurization of the RCS (PTS concern).</p>		

Facility: <u>PVNGS</u>		Scenario No.: <u>4</u>		Op-Test No: <u>2010</u>	
Examiners: _____		Operators: _____			
_____		_____			
_____		_____			
Initial Conditions: IC-104 (50% power, MOC).					
Turnover: Unit 1 is at 50% power (250 EFPD). Stator Cooling Pump 'A' is tagged out for schedule maintenance.					
Event No.	Malf. No.	Event Type*	Event Description		
1	None	N RO/SRO	Shift house loads from the Startup Transformers to the Unit Aux Transformer		
2	IMF mfRM01A mfCC04A	C CO/SRO (TS)	RU-29 (Control Room Ventilation Intake Radiation Monitor) fails resulting in a Control Room Essential Filtration Acutation Signal. EW 'A' trips requiring the CRS to address Tech Specs.		
3	IMF cmTRMC04CTBLT36_4	SRO (TS)	CST Level transmitter fails low (Tech Spec call only)		
4	IMF cmTRFW04SGNLT1122_1	I CO/SRO	Digital Feedwater Control System level transmitter failure to 55% causing actual SG level to decrease		
5	IMF cmAVCV02CHEPV201P_2	C RO/SRO	Loss of Letdown caused by a failure of the in service backpressure control valve. 40AO-9ZZ05, Loss of Letdown		
6	Imf CW01A	R - RO N - CO/SRO	Circ Water Tube rupture requiring a 10% downpower 40AO-9ZZ10, Condenser Tube Rupture		
7	IMF mfED13C	M ALL	Loss of NNN-D15 (120 VAC instrument bus) causing a loss of the only running Main Feedwater Pump (Trip Initiator) 40AO-9ZZ14, Loss of Non-class Instrumentation or Control Power		
8	In setup (IMF RD03G, H, M and N)	C RO/SRO	Four CEAs (3 full strength and 1 part strength) stick out on the trip requiring a boration		
9	In setup cmCNMS19SGNPIC1010_2	C CO/SRO	Failure of the SBCS to respond in automatic		
10	IMF mfED02	C ALL	Loss of Offsite Power with a failure of Aux Feed to automatically initiate and Charging Pump to restart. (40EP-9EO07 LOOP/LOFC) CRITICAL TASK – Establish a feed source to at least one SG CRITICAL TASK – Ensure SPTA Reactivity control contingency actions are taken		
End point			Scenario ends when crew restores feedwater to the SGs and boration is recommenced.		
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor					

Target Quantitative Attributes (Per Scenario; See Section D.5.d)	Actual Attributes
1. Total malfunctions (5–8)	7
2. Malfunctions after EOP entry (1–2)	2
3. Abnormal events (2–4)	2
4. Major transients (1–2)	1
5. EOPs entered/requiring substantive actions (1–2)	1
6. EOP contingencies requiring substantive actions (0–2)	0
7. Critical tasks (2–3)	2

Supplemental Turnover

Plant conditions:

Unit 1 is at 50% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

Unit 2 is supplying the Aux Steam cross-tie header

The unit is waiting for a vibration problem with the 'B' Main Feed pump to be resolved before continuing to increase power. The 'B' Main Feed Pump is in Hot Standby waiting on an engineering game plan.

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Planned shift activities:

A loss of cooling to the Unit Aux Transformer occurred last shift due to the cooling fans tripping. In response, the crew shift house loads to the Startup Transformer. The problem was due to a faulty CB-3 breaker and it has now been repaired. You are to shift the house loads back to the Unit Aux Transformer per 40OP-9NA03.

Note:

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

Turnover

Plant conditions:

Unit 1 is at 50% power.

The core is presently at 250 EFPD.

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Risk Management Action Level is GREEN.

Train B is protected equipment.

PC is NOT recircing the RWT.

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

The unit is waiting for a vibration problem with the 'B' Main Feed pump to be resolved before continuing to increase power. The 'B' Main Feed Pump is in Hot Standby waiting on an engineering game plan.

Equipment out of service:

Stator Cooling Pump 'A' is tagged out for schedule maintenance.

Planned shift activities:

A loss of cooling to the Unit Aux Transformer occurred last shift due to the cooling fans tripping. In response, the crew shift house loads to the Startup Transformer. The problem was due to a faulty CB-3 breaker and it has now been repaired. You are to shift the house loads back to the Unit Aux Transformer per 40OP-9NA03.

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

Event Description: _____ Transfer NAN-S01 and NAN-S02 (House loads) to the Unit Aux Transformer _____

Time	Position	Applicant's Actions or Behavior
T=0	SRO	Directs RO to transfer NAN-S01 and S02 to the Unit Aux Transformer per 40OP-9NA03.
Examiner Note: This event is written assuming the RO performs Section 4.8 first. If the RO performs Section 4.9 first go to the steps for that section. All evolutions are performed on B01.		
	RO	Enters Section 4.8 performs the following: <ul style="list-style-type: none"> • Turns Synchronizing Switch NAN-SS-S01A to "ON" and check for proper synchronization. • Closes NAN-S01A by turning handswitch NAN-HS-S01A to "CLOSE" • Checks NAN-S03 to NAN-S01 Supply breaker, NAN-S03B, automatically opens when handswitch NAN-HS-S01A is released. • Checks NAN-S01 voltage is between 12.42 kV – 14.49 kV. • Turns Synchronizing Switch NAN-SS-S01A to "OFF"
	RO	Enters Section 4.9 performs the following: <ul style="list-style-type: none"> • Turns Synchronizing Switch NAN-SS-S02A to "ON" and check for proper synchronization. • Closes NAN-S02A by turning handswitch NAN-HS-S02A to "CLOSE" • Checks NAN-S04 to NAN-S02 Supply breaker, NAN-S04B, automatically opens when handswitch NAN-HS-S02A is released. • Checks NAN-S02 voltage is between 12.42 kV – 14.49 kV. • Turns Synchronizing Switch NAN-SS-S02A to "OFF"

Op-Test No.: _____ Scenario No.: <u> 4 </u> Event No.: <u> 2 </u>		
Event Description: _____ RU-29 (Control Room Ventilation Intake Rad Monitor) failure resulting in a CREFAS _____		
Time	Position	Applicant's Actions or Behavior
T=10	Crew	Receives alarms on B05A windows 4A, 4B and 4C and RMS panel RU-29 high alarm.
	CO	<p>Addresses alarm response procedures and performs the following:</p> <p>B05 Alarms</p> <ul style="list-style-type: none"> • Check that all auto actions listed in the "AUTO ACTIONS" section have taken place (may have RO complete this) • Determines the A EW pump has tripped by indication of pump not running (handswitch EWA-HS-001 on B02) and by alarms on SESS panel • Informs the SRO of the trip of EW 'A' • May stop Essential Chiller 'A' using handswitch ECA-HS-1 on B02 per the SESS Alarm Response Procedure • Stops Control Bldg Normal Sply Fan A01 using HJN-HS-54 on B02. • Stops ESF Swgr Room Norm Sply Fan A03 using HJN-HS-139 on B02. • Monitors other Radiation Monitors to determine if radiation levels are increasing on the RMS panel <p>RMS Alarm</p> <ul style="list-style-type: none"> • Verifies CREFAS has actuated • Notifies RP of the alarm • Notifies the Radiation Monitoring Technician (Effluent Tech) of the alarm • Monitors RU-29 for increasing levels (the operator may report to the SRO that the level went high immediately vice trending up.

	SRO	<p>After report from Effluent Tech, determines that RU-29 has failed and directs the CO to place CREFAS A (RU-29) in bypass at the BOP ESFAS panel per 40OP-9SA01.</p> <p>(Examiner Note: The SRO may address LCO 3.3.9, but this only requires on CREFAS train to be operable.)</p> <p>Addresses Tech Spec and enters LCO 3.7.7.Condition A. This will also require the SRO to enter LCO 3.7.10 for the Essential Chiller being Inoperable requiring the SRO to declare the supported systems inoperable.</p> <p>Directs an operator to complete 40ST-9EC03, Essential Chilled Water & Ventilation Systems Inoperable Action Surveillance</p>
	CO	<p>Bypasses CREFAS A at the BOP/ESFAS panel by performing the following:</p> <ul style="list-style-type: none"> • Ensure the Sequencer is NOT in Auto Test (indicated by Manual half of “Auto/Manual” light on the Sequencer Test panel lit. • Performs a lamp test on the Train A BOP ESFAS cabinet • Ensures all lamps are lit • Determines CREFAS B is not in bypass • Places a check mark on table in step 4.6.3.11 by RU-29 • Places bypass key in key slot for CREFAS A • Turns the key clockwise ~ ¼ turns until Bypass light comes on.
	SRO	<p>May direct operators to stop equipment after CREFAS is reset.</p>

Appendix D Required Operator Actions [Form ES-D-2](#)

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

Event Description: _____ CST Level Transmitter CTB-LT-36 fails low _____

Time	Position	Applicant's Actions or Behavior
T=25	Crew	Receives alarms on B06A Windows 15B (CST at Minimum Operating Level) and 15C (CST Empty).
	CO	Addresses the alarm response procedure and performs the following: <ul style="list-style-type: none"> • Checks CST level indicator CTA-LI-35A on B06 to validate alarm) • Directs a Nuclear Operator to report CST level locally on CTN-LI-22 • Determines CTB-LT-36 has failed low.
	SRO	Addresses Tech Spec and enters LCO 3.3.10 condition A.

Appendix D Required Operator Actions [Form ES-D-2](#)

Op-Test No.: _____ Scenario No.: <u> 4 </u> Event No.: <u> 4 </u>		
Event Description: _____ Digital Feedwater Control System level transmitter (SGNLT1122) fails to 55% _____		
Time	Position	Applicant's Actions or Behavior
Evaluator Note: The crew may notice SG #2 level lowering and may enter the alarm response procedure prior to receiving any alarms. It takes ~ 3 minutes for the first alarm to come in after the malfunction is entered.		
T=30	Crew	Receives an alarm on B06A Window 6A
	CO	Addresses the alarm response procedure and performs the following: <ul style="list-style-type: none"> Selects the alarm manager by clicking on the process button on the one of the DFWCS screens Determines the alarm is a type 2 alarm Goes to Table 2 and goes to Group E Determines SGN-LT-1122 is faulty by comparison to other level indications Places the faulty transmitter in maintenance by going to the transmitter page and clicking on Level 2 in Maintenance button. May take the SG level setpoint to actual level and slowly raise SG level Clears the Process alarm page <p>(The CO may lower the Auto Setpoint and slowly raise the setpoint to restore level).</p>
	SRO	Directs the CO to select the non-faulted transmitter (SGN-LT-1121) on the DFWCS transmitter select page

Op-Test No.: _____ Scenario No.: <u> 4 </u> Event No.: <u> 5 </u>		
Event Description: _____ Loss of Letdown caused by CHE-PV-201P failing closed _____ _____		
Time	Position	Applicant's Actions or Behavior
T= 35	Crew	Receives alarm on B03 windows 10A (KD SYS TRBL) and 10B (LD PROCESS MON TRBL).
	RO	(Will probably report the loss of letdown to the SRO before entering the Alarm Response procedure and may diagnose the in service backpressure control valve has failed closed) Addresses alarm response procedure and performs the following: <ul style="list-style-type: none"> • Checks the letdown heat exchanger to LD back press valve press by reading CHN-PIC-201 on B03 • May attempt to place CHN-PIC-201 to manual to lower backpressure Diagnoses that the backpressure control valve is closed with the controller demanding an open signal (100% output)
	SRO	Enters the Loss of Letdown procedure and performs the following: Directs the RO to place RCN-LIC-110, PLCS Master Controller in "MAN" and close the selected Letdown Control Valve.
	RO	Place RCN-LIC-110 in manual with a zero output (B04)

	SRO	Directs the RO to check that letdown backpressure is less than the setpoint
	RO	Reports that the letdown backpressure is NOT less than the setpoint.
	SRO	Directs the RO to close one of the following: CHB-UV-515 CHA-UV-516 CHB-UV-523
	RO	Closes the valve directed by the SRO using one of the following: CHB-HS-515, CHA-HS-516 or CHB-HS-523 on B03
	SRO	Directs RO to ensure no more than one Charging Pump is running
	RO	Stops one charging pump using CHA-HS-2-6 or CHB-HS-217 on B03.
	SRO	Enters LCO 3.4.9 if pressurizer level is 56% or more.

	SRO/RO	Determines the cause of the loss of letdown. The Backpressure Controller (CHN-PIC-201) has a 100% output with the backpressure control valve closed. The crew should send an area operator to investigate and receives the report that the air line to CHN-PV-201P is broke.
	SRO	Directs the RO to perform Appendix F to place the standby valve in service.
	RO	Obtains Appendix F and performs the following: <ul style="list-style-type: none"> • Goes to step 7 to place CHN-PV-201Q in service • Directs an operator to open CHN-V347, CHN-PV-201Q Inlet Valve • Places the Backpressure Control valve Selector switch CHN-HS-201on B03 to the “201Q” position • Directs an operator to slowly open CHN-V349, CHN-PV-201Q Outlet Valve • Directs an operator to isolate CHN-PV-201P by closing both of the following: <ul style="list-style-type: none"> ○ CHN-V348, CHN-PV-201P Inlet Valve ○ CHN-V350, CHN-PV-201P Outlet Valve
	SRO	Directs RO to perform Appendix A to restore letdown

	RO	<p>Goes to Appendix A and performs the following:</p> <ul style="list-style-type: none"> • Ensures at least one of the following valves are closed: <ul style="list-style-type: none"> ○ CHB-UV-515 ○ CHA-UV-516 ○ CHB-UV-523 (should be closed due to high temperature due to only 1 Charging pump running) • Ensures ERFDADS is set to alarm for points CHT221 and CHP201 by checking points on ERFDADS computer screen. • Place CHN-PIC-201, Letdown Backpressure controller in manual with an output of 60% • Opens the valve close in previous step (515, 516 or 523) • If letdown lost for > 22 minutes opens letdown control bypass valve CHN-HV-526 for four minutes • Slowly adjust letdown control valve and backpressure controller to establish all of the following <ul style="list-style-type: none"> ○ flow to 25-35 gpm ○ Backpressure 220 to 300 psig ○ Reg HX temperature less than saturation • Ensures RCN-LIC-110 , CHN-PIC-201 and CHN-PDIC-240 (Charging Header backpressure controller) are all in manual • Starts a second charging pump • Adjust letdown flow for 2 Charging pumps • Transfers RCN-LIC-110 to Remote or Local auto when level is at desired setpoint • Places CHN-PDIC-240 in AUTO • Places CHN-PIC-201 in AUTO
<p>Examiner Note: Once the RO has letdown flow established and 2 charging pumps running, the next event can be inserted.</p>		

Op-Test No.: _____ Scenario No.: <u> 4 </u> Event No.: <u> 6 </u>		
Event Description: _____ Condenser Tube leak _____ _____		
Time	Position	Applicant's Actions or Behavior
T= 50	Crew	Receives alarm on B07B window 6B Cond Demin Sys Trbl
	CO	Addresses the alarm response procedure and performs the following: <ul style="list-style-type: none"> • Contacts demin operator to address the alarms
	SRO	Contacts Chemistry to get hotwell readings. Enters 40AO-9ZZ10, Condenser Tube Rupture and performs the following: <ul style="list-style-type: none"> • Directs Chemistry to determine the most affected hotwell half • Directs the CO to perform Appendix N, Initial Actions.
	CO	Obtains Appendix N and performs the following: <ul style="list-style-type: none"> • Directs Chemistry to perform the Abnormal Occurrence Checklist • Place CDN-LIC-75, Condenser Hotwell Draw Off Lvl Controller, in "MANUAL" with a zero output on B05 • Initiates boron equalization by performing the following (may have the RO perform this) on B04: <ul style="list-style-type: none"> ○ Override and energize all pressurizer backup heaters ○ Lower the setpoint on RCN-PIC-100, Pressurizer Pressure Controller to 2220 psia

	CO	<p>Continuing with Appendix N:</p> <ul style="list-style-type: none"> • Closes CWN-HV-11 using CWN-HS-11 on B07 • Directs an operator to close CDN-V063, CDN-LV-75 Inlet Isolation • Directs an operator to perform the following: <ul style="list-style-type: none"> ○ Close SCN-V011/V012, BFT TO HDT ISOLATION VALVES ○ Ensure SCN-PV-4B, BFT VENT TO CONDENSER is maintaining the Blowdown Flash Tank Pressure • Directs an operator to perform 40OP-9ED01, Appendix L to place the HDT level Control valves in Local Auto
	SRO	<p>Continuing with 40AO-9ZZ10:</p> <ul style="list-style-type: none"> • Determines if power can be stabilized at 40% per the Maneuvering Box (probably discussed during the reactivity brief) • Determines the affected CW train (Hotwell 1A which is Loop CD) • Goes to Section 4.0 Normal Downpower • Informs Water Rec, RP, and ECC • Determines the reactivity to reduce power to 40% • Directs the operators to use Boration or CEAs to lower power to 40% <p>(Continued on next page)</p>

	RO	<p>(May insert CEAs in manual sequential if directed by the SRO.) Commences a boration using 40OP-9CH01 at a rate and amount directed by the SRO by performing the following:</p> <ol style="list-style-type: none"> 1. Sets the desired makeup flow rate on the Foxboro Controller, CHN-FIC-210Y on B03 2. If the makeup rate is greater than 40 gpm, set the makeup flow to not more than 40 gpm initially. 3. Select the "Target" makeup volume (gallons) on the Boric Acid Flow Totalizer CHN-FQIS-210Y on B03 4. Start the boration by: <ol style="list-style-type: none"> a. Placing CHN-HS-210 on B03 to "BORATE" b. Depress the "RESET" pushbutton on the Totalizer c. Depress the "START" pushbutton on the Totalizer 5. Checks a boric acid pump started 6. Checks no flow on RMW flow indicator CHN-FIC-210X on B03 7. Ensures CHN-UV-527 opened by red lights lit on CHN-HS-527 8. Checks flow increases on CHN-FIC-210Y on B03 9. If desired flow is > 40 gpm, raise the flow setpoint on CHN-FIC-210Y to the desired flow rate 10. Informs the SRO that the boration is started.
	SRO	Continuing with 40AO-9ZZ10: Directs the CO to lower turbine load to maintain Tave/Tref mismatch 4°F of less
	CO	Lowers turbine load using the Load Limit Set potentiometer on B06 to maintain Tave/Tref mismatch 4 °F or less
<p>Examiner Note: After the crew has lowered power about 5%, direct the simulator driver to insert event 7.</p>		

Op-Test No.: _____ Scenario No.: 4 Event No.: 7

Event Description: _____ Loss of NNN-D15 (120 VAC Instrument bus) causing a loss of the only running Main Feedwater Pump _____

Time	Position	Applicant's Actions or Behavior
T=65	Crew	Receives numerous alarms and determines a loss of NNN-D15 has occurred.
	SRO	Directs a Reactor Trip based on the only running Feedwater pump is coasting down to minimum speed

Op-Test No.: _____ Scenario No.: <u>4</u> Event No.: <u>8 and 9</u>		
Event Description: _____ SPTAs (Stuck out CEAs and SBCS fails to respond) _____ _____		
Time	Position	Applicant's Actions or Behavior
	SRO	Enters 40EP-9EO01 Standard Post Trip Actions and performs the following: Receives the reactivity report and directs the RO to borate.
	RO	If the RO is still borating from the downpower, the RO should readjust the amount of the boration or restart the boration if it stops at 500 gallons.
	SRO	Directs the CO to report the status of the Main Turbine and Main Generator output breakers
	CO	CO reports the Main Turbine is tripped and the Main Generator output breakers are open.
	SRO	Directs the RO to report the status of the electric plant
	RO	Reports all vital and non-vital AC and DC loads are energized with the exception of NNN-D15 (the report of D-15 is not required)

	SRO	Directs the RO to report pressurizer level, RCS subcooling, and Seal Injection/NC flow to RCPs
	RO	Reports pressurizer level is within the band, subcooling is > 24°F, and seal injection and NC is in service to the RCPs.
	SRO	Directs the RO to report RCS pressure.
	RO	Reports pressurizer pressure is within the band.
	SRO	Directs the RO to report RCP status, Loop ΔT , and RCS subcooling.
	RO	Reports 4 RCPs running, Loop ΔT is about 2°F, and RCS is > 24°F.
	SRO	Directs CO to report SG levels, method of feed, Tc, and SG pressure
	CO	CO will start either AFB, AFN or AFA to feed the SGs.
<p>Examiner Note: AFA-P01 and AFB-P01 will fail to auto start.</p> <p>Critical Task: Establish a feed source to at least one steam generator to ensure restoration of level toward the normal band prior to lifting a primary safety valve.</p>		

	CO	CO will have to use SBCS in manual or ADVs to control SG pressure due to the failure of the SBCS master controller in the auto mode
	SRO	Directs an operator to report status of Containment pressure and EOP Rad Monitors
	SRO	Directs an operator to report Containment temperature and Containment Pressure
	RO or CO	Reports Containment temperature and Containment pressure
	SRO	Performs Diagnostic Actions to diagnose the event. The SRO determines that a reactor trip has occurred and enters 40EP-9EO02, Reactor Trip

Op-Test No.: _____ Scenario No.: <u> 4 </u> Event No.: <u> 10 </u>		
Event Description: _____ Loss of Offsite Power _____ (after Reactor Trip Procedure entered) _____		
Time	Position	Applicant's Actions or Behavior
After Reactor Trip Procedure entered	SRO	<p>Re-diagnoses the event and enters 40P-9EO07, LOOP/LOFC and performs the following:</p> <ul style="list-style-type: none"> • directs the STA to perform the Safety Function Status check • directs chemistry to perform the Abnormal Occurrence Checklist (74DP-9ZZ05) • directs the SM to classify the event • ensures at loads have sequenced on at least one 4.16 kV AC bus • directs the RO to isolate seal injection, reset the anti pump condition on the always running charging pump, and reestablish seal injection flow • directs the CO to initiate an MSIS
	RO	The RO will have to restart a Charging Pump to continue the boration
Critical Task: When one or more full length CEAs are not fully inserted, ensure adequate boration to meet the Safety Function requirements with 30 minutes		
	CO	Will have to shift heat removal to ADVs if using SBSCS previously and will have to shift Aux feed pumps or override the Downcomer valves to restore aux feed to the SGs if AFN-P01 was used previously.
	SRO	Performs Diagnostic Actions to diagnose the event. The SRO determines that a Loss of Offsite Power/ Loss of Forced Circ has occurred and enters 40EP-9EO07

	SRO	<p>Enters 40EP-9EO07 and performs the following:</p> <ul style="list-style-type: none"> • Confirms the diagnosis of a LOOP/LOFC by performing the following: <ul style="list-style-type: none"> ○ Directs the STA to perform the Safety Function Status Check ○ Directs Chemistry to perform the Abnormal Occurrence checklist • Directs the SM to classify the event • Ensures loads have sequenced on at least one vital 4.16 kV AC bus • Directs the RO to ensure a charging pump is running • Directs the CO to initiate an MSIS.
<p>Scenario Termination: The scenario may be terminated after the RO starts a charging pump and crew has taken initial actions to stabilize the plant after the LOOP.</p>		