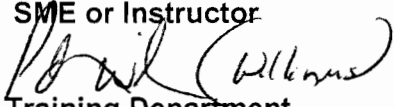



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	Conduct of Operations		
<b>TASK:</b>	Calculate Shutdown Margin		
<b>TASK NUMBER:</b>	N1200030301		
<b>JPM NUMBER:</b>	11-01 NRC RO Admin A1-1		
<b>ALTERNATE PATH:</b>	<input type="checkbox"/>	<b>K/A NUMBER:</b>	2.1.25
<b>APPLICABILITY:</b>	<b>IMPORTANCE FACTOR:</b> <u>3.9</u>		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	Classroom		
<b>REFERENCES:</b>	SC.RE-ST.ZZ-0002(Q), Rev. 20 SHUTDOWN MARGIN CALCULATION S1.RE-RA.ZZ-0016(Q), Rev. 4 CURVE BOOK		
<b>TOOLS AND EQUIPMENT:</b>	None		
<b>VALIDATED JPM COMPLETION TIME:</b>	<u>30 min</u>		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	<u>40 minutes</u>		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	8-14-12
<b>Validated By:</b>	Mulford/Brennan SME or Instructor	<b>Date:</b>	8-24-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/12/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/6/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Conduct of Operations

**TASK:** Calculate Shutdown Margin

**TASK NUMBER:** N1200030301

**INITIAL CONDITIONS:** Unit 1 Reactor Power is 75%. Control Bank D is at 170 steps.  
Current boron concentration is 100 ppm.  
Current core burnup is 11,890 EFPH.

**INITIATING CUE:** Control Rod 1D5 has been declared INOPERABLE at 1000 today due to not moving during a rod exercise test. You have been directed to perform a Shutdown Margin Calculation IAW SC.RE-ST.ZZ-0002 to satisfy the action requirement of TSAS 3.1.3.1 Action c.3

**The current time is 1020.**

**This is a time critical JPM. Time will commence when you are provided with the applicable procedures.**

**Successful Completion Criteria:**

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Perform SDM calculation and determine SDM is SAT, and within a band of -2513 to -2646 pcm.

# OPERATOR TRAINING PROGRAM

NAME: \_\_\_\_\_

## JOB PERFORMANCE MEASURE

DATE: \_\_\_\_\_

**System:** Conduct of Operations

**Task:** Calculate Shutdown Margin

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Obtains copy of procedure SC.RE-ST.ZZ-0002(Q).  Obtains copy of S1.RE-RA.ZZ-0016 Curve Book.	Provide <b>Rev. 20</b> of surveillance.  Provide <b>Rev. 4</b> of Curve Book.  <b>Evaluator:</b> MARK start time of JPM: _____		
	3.0	Reviews and signs off Precautions and Limitations Section 3.0	Operator reviews Precautions & Limitations and signs off Steps 3.1 – 3.11.		
	5.1	<b>SELECT</b> the applicable step below (e.g. 5.1.1.A):	Operator determines 5.1.1.C is the correct step for the current conditions, which is to perform Attachment 3.		
	5.1.1.C	<u>IF</u> SDM is to be verified (per T/S 4.1.1.1.a) with reactor critical (Mode 1 or 2) and one or more control rods are inoperable, <u>THEN</u> <b>COMPLETE</b> Attachment 3.	Operator refers to Attachment 3.		
	Att. 3 2.1	The reactor is in Mode 1 or Mode 2 with $k_{eff} \geq 1.0$	Operator determines Unit is in Mode 1.		
	Att. 3 3.0	Precautions and Limitations: Section 3.0	Operator reviews and signs steps 3.1-3.4.		

# OPERATOR TRAINING PROGRAM

NAME: \_\_\_\_\_

## JOB PERFORMANCE MEASURE

DATE: \_\_\_\_\_

**System:** Conduct of Operations

**Task:** Calculate Shutdown Margin

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att. 3 Section 4	Section 4 contains the data points required and the calculations to determine shutdown margin.	<p>Operator determines the following data and calculations: Allowable ranges are shown, exact numbers using Tables and adjusting for 75% power is in parentheses.</p> <p>4.1.1 75%</p> <p>4.1.2 100 ppm</p> <p>4.1.3 D @ 170 steps</p> <p>4.1.4 11,890 EFPH</p> <p>4.1.5 1</p> <p>4.2.1 -3450- -3460 pcm (-3454)</p> <p>4.2.2 -3908- -3918 pcm (-3913)</p> <p>4.2.3 830-835 pcm (832)</p> <p>4.2.4 830-835 pcm (832)</p> <p>4.2.5 300-340 pcm (325.7)</p> <p>4.2.6 -5368- -5398 pcm (-5377.3)</p> <p>4.3.1 -5368 - -5398 pcm (5377.3)</p> <p>4.3.2 652.8-654.3 pcm (653.5)</p> <p>4.3.3 2100-2200 pcm (2126)</p> <p>4.3.4 -2513.7- -2645.2 pcm (-2597.8)</p>		



**OPERATOR TRAINING PROGRAM**

NAME: \_\_\_\_\_

**JOB PERFORMANCE MEASURE**

DATE: \_\_\_\_\_

**System:** Conduct of Operations**Task:** Calculate Shutdown Margin

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	4.4	Att 4 Acceptance Criteria  4.4.2 IS the SDM (Item 4.3.4) EQUAL TO OR MORE NEGATIVE THAN (-)1300 PCM?	Operator reviews required SDM in MODE 1 or 2 of -1300 pcm and initials 4.4.1.  Operator determines calculated SDM is SAT and initials SAT.		
*			<b>Evaluator:</b> MARK stop time of  JPM: _____  Total time from START to STOP is 40 minutes or less.		

**Terminating Cue:** Once operator has returned procedures to proctor, terminate JPM.

**Note to Evaluators:** The bands for acceptable pcm were derived using the graphs provided in S1.RE-RA.ZZ-0016 Curve Book.  
The SDM calculation allows using Graphs vs. Tables in some steps, where the Tables have a number value  
and a Graph is open to extrapolation.

## OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- MM 1. Task description and number, JPM description and number are identified.
- MM 2. Knowledge and Abilities (K/A) references are included.
- MM 3. Performance location specified. (in-plant, control room, or simulator)
- MM 4. Initial setup conditions are identified.
- MM 5. Initiating and terminating Cues are properly identified.
- MM 6. Task standards identified and verified by SME review.
- MM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- MM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 20/4 Date 8/23/12
- MM 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. ☒ If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:

 J. M. Welford

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**

Unit 1 Reactor Power is 75%. Control Bank D is at 170 steps.

Current boron concentration is 100 ppm.

Current core burnup is 11,890 EFPH.

### **INITIATING CUE:**

Control Rod 1D5 has been declared INOPERABLE at 1000 today due to not moving during a rod exercise test. You have been directed to perform a Shutdown Margin Calculation IAW SC.RE-ST.ZZ-0002 to satisfy the action requirement of TSAS 3.1.3.1 Action c.3

**The current time is 1020.**

**This is a time critical JPM. Time will commence when you are provided with the applicable procedures.**

Key

SC.RE-ST.ZZ-0002(Q)

ATTACHMENT 3  
SHUTDOWN MARGIN VERIFICATION  
FOR MODES 1 OR 2

Page 2 of 3

SALEM UNIT 1

4.0 PROCEDURE

4.1 CRITICAL CONDITIONS

4.1.1 POWER LEVEL 75 %RTP  
4.1.2 BORON CONCENTRATION 100 ppm  
4.1.3 CONTROL BANK POSITION Bank D at 170 Steps  
4.1.4 BURNUP 11,890 EFPH  
4.1.5 # OF INOPERABLE RODS 1 rods

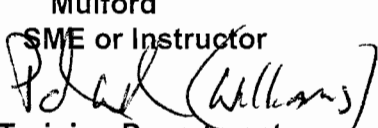
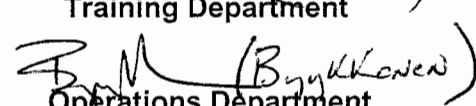
4.2 CALCULATION OF ROD WORTH

4.2.1 TOTAL CONTROL BANK WORTH (Figure 15/Table G) (-) 3454 pcm  
4.2.2 TOTAL SHUTDOWN BANK WORTH (Figure 16/Table H) (-) 3913 pcm  
4.2.3 MOST REACTIVE STUCK ROD WORTH 832 pcm  
(Figure 14/Table I)  
4.2.4 INOPERABLE ROD(s) WORTH 832 pcm  
$$\frac{1}{\text{Item 4.1.5}} \times \frac{832}{\text{Item 4.2.3}} =$$
  
4.2.5 INTEGRAL ROD WORTH INSERTED AT 325.7 pcm  
POSITION IN ITEM 4.1.3 (If ARO, use zero)  
(HFP: Figure 2C/Table 1-7 or HZP: Figure 2A/Table 1-8)  
4.2.6 TRIPPABLE ROD WORTH - 5377.3 pcm  
(Item 4.2.1) + (Item 4.2.2) + (Item 4.2.3) + (Item 4.2.4) + (Item 4.2.5) =

4.3 CALCULATION OF SDM (Note: See Precaution 3.4)

4.3.1 TRIPPABLE ROD WORTH (Item 4.2.6) -5377.3 pcm  
4.3.2 TEN PERCENT ROD WORTH PENALTY (+) 653.5 pcm  
$$\left( \frac{\text{abs(Item 4.2.1)}}{\text{abs(Item 4.2.1)}} + \frac{\text{abs(Item 4.2.2)}}{\text{abs(Item 4.2.2)}} - \frac{\text{abs(Item 4.2.3)}}{\text{abs(Item 4.2.3)}} \right) \times 0.10 =$$
  
4.3.3 POWER DEFECT (Figure 17A/Table 2-1) 2126 pcm  
4.3.4 SDM -2597.8 pcm  
(Item 4.3.1) + (Item 4.3.2) + (Item 4.3.3) =

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE		
TASK:	Verify qualifications prior to assuming Licensed Operator Duties		
TASK NUMBER:	N1230050301		
JPM NUMBER:	11-01 NRC RO Admin A1-2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.3
APPLICABILITY:	IMPORTANCE FACTOR: <u>3.7</u>		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	OP-AA-112-101, Rev. 5 Shift Turnover and Relief		
TOOLS AND EQUIPMENT:	Computer with LAN Access		
VALIDATED JPM COMPLETION TIME:	<u>10 min</u>		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	<u>N/A</u>		
Developed By:	G Gauding Instructor	Date:	8-13-12
Validated By:	Mulford SME or Instructor	Date:	8-23-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/6/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

## OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Administrative

**TASK:** Verify qualifications prior to assuming Licensed Operator Duties

**TASK NUMBER:** N1230050301

**INITIAL CONDITIONS:**

**INITIATING CUE:** You are the oncoming Reactor Operator. Verify you are qualified to assume the position of Reactor Operator. Show evaluator how you determined your qualification status.

### Successful Completion Criteria:

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

### Task Standard for Successful Completion:

1. Determine from Site LAN that status of qualification to assume Reactor Operator duty is RED.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Verify qualifications prior to assuming Licensed Operator Duties

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note: Included with this JPM is a screen shot of the SAP screen showing all the individual quals that make up the GREEN 1305 Reactor Operator qualification. Identification of any single component feeding into the GREEN qual is sufficient to determine that the candidate is NOT qualified to assume the Reactor Operator duty.		
*	1		Logs onto LAN.		
*	2		Clicks on "Qualifications" on PSEG Nuclear Home Page.		
*	3		Clicks on Salem		
*	4	Performs either actions under A, B, C, or D	A. Clicks on: - Qualifications by Position - Org Unit- Operations Salem - Position 1305 Nuclear Control Operator. - Tasks - either GREEN LIST Salem NCO <u>OR</u> Salem Nuclear Control  Identifies RED status.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Verify qualifications prior to assuming Licensed Operator Duties

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	4 con't		B. Clicks on:  - Qualifications by Person - Org Unit - Operations Salem - Select Person (Candidates name)  Points out any of the GREEN LIST- Salem NCO qualifications displaying the "Not Qualified" status, OR 1305 Nuclear Control operator Qual as "Not Qualified".		
	4 con't		C. Clicks on :  - Persons by Task - Org Unit – Operations Salem - Select task - (Any of the NCO tasks)  Identifies NOT in Green status.		
	4 con't		D. Clicks on:  - Persons by Qualification - Org Unit - Operations Salem - Qualification - PWR License OR ANSI Licensed Operator  Identifies NOT QUALIFIED displayed.		



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

System: ADMINISTRATIVE

Task: Verify qualifications prior to assuming Licensed Operator Duties


*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Terminate JPM after candidate identifies their RED status for Nuclear Control Operator.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**JOB PERFORMANCE MEASURE VALIDATION CHECKLIST**

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- M 1. Task description and number, JPM description and number are identified.
- M 2. Knowledge and Abilities (K/A) references are included.
- M 3. Performance location specified. (in-plant, control room, or simulator)
- M 4. Initial setup conditions are identified.
- M 5. Initiating and terminating Cues are properly identified.
- M 6. Task standards identified and verified by SME review.
- M 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- M 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 5 Date 8/23/12
- M 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. ⓐ If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:  J. Mulford

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

**INITIAL CONDITIONS:**

**INITIATING CUE:**

You are the oncoming Reactor Operator. Verify you are qualified to assume the position of Reactor Operator. Show evaluator how you determined your qualification status.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM 1 & 2		
SYSTEM:	Chemical and Volume Control		
TASK:	Demonstrate the Operability of the RWST and/or the BASTs		
TASK NUMBER:	N0040420201		
JPM NUMBER:	11-01 ILOT RO Admin A2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.2.37
APPLICABILITY:	IMPORTANCE FACTOR:		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator - Perform		
REFERENCES:	S2.OP-ST.CVC-0010, Rev. 9 (checked 8-13-12) Salem Tech Specs		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	13 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	8-4-12
Validated By:	Brennan SME or Instructor	Date:	8-24-12
Approved By:	<i>[Signature]</i> Training Department	Date:	9/12/12
Approved By:	<i>[Signature]</i> Operations Department	Date:	9/6/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Chemical and Volume Control

**TASK:** Demonstrate the Operability of the RWST and/or the BASTs

**TASK NUMBER:** N0040420201

**SIMULATOR SETUP:** IC-231

Reset IC for each JPM and ensure Plant Computer is returned to a neutral screen.

RWST levels -	CH I	41.4
	CH II	41.4
	CH III	41.4
	CH IV	41.5
BAST levels -	21 BAST	49.5
	22 BAST	49.5

**INITIAL CONDITIONS:**

- Salem Unit 2 is at 100% power.
- 21 BAT pump developed a leak that went unnoticed until the cross-connected BAST's reached their low level alarm setpoint.
- 21 BAT pump, and the leak, are isolated.
- BAST's remain cross-connected.
- Chemistry reports current RWST and BAST boron concentrations are:
  - 21 BAST – 6610 ppm
  - 22 BAST – 6610 ppm
  - RWST – 2350 ppm
- Off Normal and Off-Normal Tagged list review has been performed SAT.

**INITIATING CUE:**

You are the Reactor Operator. Perform S2.OP-ST.CVC-0010, Borated Water Sources.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Task Standard for Successful Completion:

1. Complete Attachment 2 of S2.OP-ST.CVC-0010 per key and determine the Surveillance is SAT

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Chemical and Volume Control

TASK: Demonstrate the Operability of the RWST and/or the BASTs

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide marked up copy of S2.OP-ST.CVC-0010, Borated Water Sources.			
	2.1	<b>IDENTIFY</b> sections of this procedure that are <u>NOT</u> required to be performed.	Marks Section 5.2 N/A. Marks Attachment 3 (Modes 5-6) N/A or removes from procedure.		
	2.2	<b>REVIEW</b> Components "Off Normal and Off-Normal Tagged" List(s) for system and support system(s) associated with evolution to be performed in this procedure.	Determines from initial conditions that Components "Off Normal and Off-Normal Tagged" List(s) review has been performed SAT.		
	2.3	<b>ENSURE</b> calibration data for the instruments listed in Attachment 1, as applicable, is obtained.	Verifies calibration data for the instruments listed in Attachment 1 is recorded.		
	2.4	<b>ENSURE</b> current RWST and BAST concentrations are obtained by Chemistry.	Determines current RWST and BAST concentrations from initial conditions.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Chemical and Volume Control

TASK: Demonstrate the Operability of the RWST and/or the BASTs

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.0	Steps identified with dollar signs (\$) are those items required to meet Technical Specification acceptance criteria. Such steps, if not satisfactorily completed, may have reportability requirements and shall be brought to the immediate attention of the SM/CRS.	Reads and initials step.		
	5.1.1	<b>COMPLETE</b> Attachment 2 per the following: <ul style="list-style-type: none"> <li>• <b>RECORD</b> Data.</li> <li>• <b>RECORD</b> Test Results by initialing SAT or UNSAT column using the stated Acceptance Criteria.</li> </ul>	Completes Attachment 2 with the below data.		
*	Att. 2	RWST Level	Records RWST level with channel for which calibration data was obtained RWST levels are: CH I: 41.4 CH II: 41.4 CH III: 41.4 CH IV: 41.5 Initials SAT for RWST Level and inserts date.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Chemical and Volume Control

TASK: Demonstrate the Operability of the RWST and/or the BASTs

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att. 2	RWST Temp	Checks P-250 computer point T0650A and enters 70°F. Initials SAT for RWST Temp and inserts date.		
*	Att. 2	RWST Conc	Refers to initial conditions for RWST boron concentration and enters 2350 ppm. Initials SAT for RWST boron concentration and inserts date.		
*	Att. 2	21 BAST Vol <u>AND/OR</u> 22 BAST Vol	Records 21 and 22 BAST level indicated on control console from 2LI106 and 2LI102 respectively as 2LI106 – 49.5% 2LI102 - 49.5%  Uses Tech Spec 3.1.2.6.a, 3.1.2.6.b, and Figure 3.1-2 and determines 21 BAST Vol <u>AND/OR</u> 22 BAST Vol is SAT. Initials SAT for BAST volume and inserts date.		



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Chemical and Volume Control

TASK: Demonstrate the Operability of the RWST and/or the BASTs

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att. 2	21 BAST Temp <u>AND/OR</u> 22 BAST Temp	<p>Records 21 and 22 BAST temp indicated on control console from 2T1107 and 2T1103 respectively as: 2T1107 - 98.2 2T1103 - 97.1</p> <p>Initials SAT for 21 BAST Temp <u>AND/OR</u> 22 BAST Temp and inserts date.</p>		
*	Att. 2	21 BAST Conc <u>AND/OR</u> 22 BAST Conc	<p>Refers to initial conditions for BAST boron concentrations and enters 6610 ppm for 21 BAST and 6610 ppm for 22 BAST.</p> <p>Uses Tech Spec 3.1.2.6.a, 3.1.2.6.b, and Figure 3.1-2 and determines 21 and 22 BAST boron conc is SAT. Initials and inserts date.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Chemical and Volume Control

TASK: Demonstrate the Operability of the RWST and/or the BASTs

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.3.1  5.3.2	This surveillance is considered satisfactory when Attachments 2 and 3 (as applicable) are complete with components listed meeting Acceptance Criteria stated in each Attachment. <u>OR</u> This surveillance is unsatisfactory. A. <b>INITIATE</b> Notification(s) to correct the unsatisfactory condition. B. <b>RECORD</b> Notification number(s) and reason for unsatisfactory completion on Attachment 4 in the Comments Section.	Initials step 5.3.1  N/A's step 5.3.2		
	5.4.1	<b>COMPLETE</b> Attachment 4, Sections 1.0 and 2.0, <u>AND FORWARD</u> this procedure to the SM/CRS for review.	Completes Attachment 4, Sections 1.0 and 2.0, and returns procedure to JPM Evaluator.		
			JPM is complete when procedure is returned to evaluator.		

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- YB 1. Task description and number, JPM description and number are identified.
- YB 2. Knowledge and Abilities (K/A) references are included.
- YB 3. Performance location specified. (in-plant, control room, or simulator)
- YB 4. Initial setup conditions are identified.
- YB 5. Initiating and terminating Cues are properly identified.
- YB 6. Task standards identified and verified by SME review.
- YB 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- YB 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 9 Date 8.24.12
- YB 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: John Brennan

Date: 8.24.12

SME/Instructor: \_\_\_\_\_

Date:

SME/Instructor: \_\_\_\_\_

Date:



## INITIAL CONDITIONS:

- Salem Unit 2 is at 100% power.
- 21 BAT pump developed a leak that went unnoticed until the cross-connected BAST's reached their low level alarm setpoint.
- Chemistry reported current RWST and BAST boron concentrations last shift. No additions to those tanks have occurred since that report.
  - 21 BAST – 6610 ppm
  - 22 BAST – 6610 ppm
  - RWST – 2350 ppm
- Off Normal and Off-Normal Tagged list review has been performed SAT.

## INITIATING CUE:

You are the Reactor Operator. Perform S2.OP-ST.CVC-0010, Borated Water Sources Data.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE (ALARA)		
TASK:	Perform Stay Time Calculation for Emergency Condition.		
TASK NUMBER:	N1200100104		
JPM NUMBER:	11-01 ILOT RO A3		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.3.4
APPLICABILITY:	IMPORTANCE FACTOR: <u>3.2</u>		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
EVALUATION SETTING/METHOD: Classroom			
REFERENCES: Radiological Survey Maps, RP-AA-203, NC.EP-EP.ZZ-0304			
TOOLS AND EQUIPMENT: Calculator			
VALIDATED JPM COMPLETION TIME: <u>10 minutes</u>			
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: <u>N/A</u>			
Developed By:	G Gauding Instructor	Date:	8-7-12
Validated By:	Brennan / Mulford SME or Instructor	Date:	8-24-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/6/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** ADMINISTRATIVE (ALARA)

**TASK:** Perform Stay Time Calculation for Emergency Condition.

**TASK NUMBER:** N1200100104

**INITIAL CONDITIONS:**

1. Unit 1 experienced Rx trip with a small RCS leak from 100% power.
2. The Rx failed to automatically trip on a valid trip demand, and was tripped successfully with the Rx trip handle.
3. Salem is currently in an Alert.
4. Your TEDE dose for the year is 1925 mrem.

**INITIATING CUE:**

You have been directed to perform a detailed inspection of 22 RHR pump room prior to starting the pump. You will **NOT** be going into the 22 RHR HX area. Your job is estimated to take 2 hours to complete.

Using the correct survey map, and conservatively using the **HIGHEST** dose rate in the room for your **ENTIRE** exposure, determine:

1. Can you complete the job without exceeding your current dose authorization
2. What would be your new TEDE dose for the year after performing the job (or as much as possible) **WITHOUT** exceeding your **current** dose authorization?

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Task Standard for Successful Completion:  
Determines:

1. YES job can be performed
2. Calculates new TEDE dose of 2025 mrem.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: ADMINISTRATIVE (ALARA)

TASK: Determine Radiological Conditions For Personnel Exposure

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	1	Provide the attached survey maps of 11 RHR and 12 RHR, 21 and 22 RHR, and S1 55 General area. Also have blank copies of RP-AA-203, Exposure Control and Authorization and NC.EP-EP.ZZ-0304, Operational Support Center (OSC) Radiation Protection Response if asked for.	Selects the Survey Map "S2 AUX 045' 22 RHR ROOMS" Map # 21045Z2		
		START TIME: _____			
		If asked, provide NC.EP-EP.ZZ-0304, OSC Radiation Protection Response.	Note: Contains guidance for automatic increase in allowed dose to 4500 mrem. (Section 5.0 Note.)		
			Determines dose limit is automatically raised to 4500 mrem upon the declaration of an ALERT or higher Emergency.		
*	2	Determine highest dose rate in room.	Per the survey map, squares are dose rates in mrem/hr, and circles are smear locations. The highest square is located under the words "Vertical Elbow" of the map and indicates 50 mrem/hr.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: ADMINISTRATIVE (ALARA)

TASK: Determine Radiological Conditions For Personnel Exposure

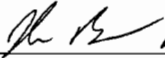
*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3	Calculate TEDE dose for year	Subtracts year to date TEDE dose from Emergency Dose limit of 4,500 mrem, and gets 2575 mrem. Determines 2 hours of work will result in 100 mrem dose, and new TEDE dose is 2025 mrem, which does NOT exceed to 4,500 mrem authorized in an Emergency		
			Terminate JPM when candidate has returned paperwork.		
	4	STOP TIME: _____			



## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- 76 1. Task description and number, JPM description and number are identified.
- 73 2. Knowledge and Abilities (K/A) references are included.
- 73 3. Performance location specified. (in-plant, control room, or simulator)
- 73 4. Initial setup conditions are identified.
- 73 5. Initiating and terminating Cues are properly identified.
- 73 6. Task standards identified and verified by SME review.
- 73 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- 71 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 6 Date 8-24-12  
RPTA 203
- 73 9. Pilot test the JPM: EP-1 r #  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:  Brennan

Date: 8-24-12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

**INITIAL CONDITIONS:**

1. Unit 1 experienced Rx trip with a small RCS leak from 100% power.
2. The Rx failed to automatically trip on a valid trip demand, and was tripped successfully with the Rx trip handle.
3. Salem is currently in an Alert.
4. Your TEDE dose for the year is 1925 mrem.

#### INITIATING CUE:

You have been directed to perform a detailed inspection of 22 RHR pump room prior to starting the pump. You will **NOT** be going into the 22 RHR HX area. Your job is estimated to take 2 hours to complete.

Using the correct survey map, and conservatively using the **HIGHEST** dose rate in the room for your **ENTIRE** exposure, determine:

1. Can you complete the job without exceeding your current dose authorization
2. What would be your new TEDE dose for the year after performing the job (or as much as possible) **WITHOUT** exceeding your **current** dose authorization?

1. \_\_\_\_\_

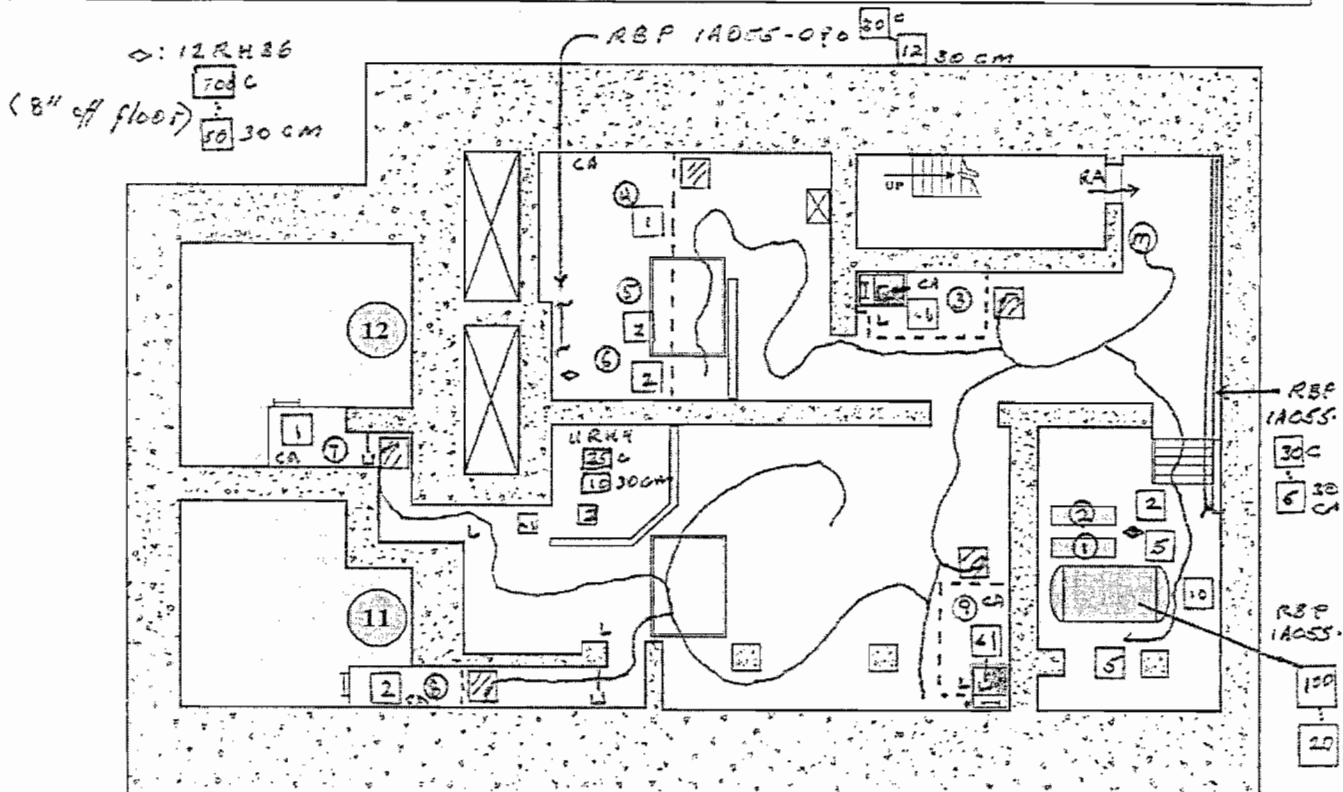
2. \_\_\_\_\_

**Salem**  
GENERATING STATION

# Radiological Survey

MAP #

1105500



**COPY**

☐ Dose Rate, mRem/hr

☐ Smear Location

Location: S1 AUX 055' GENERAL AREA				Date: 4.4.12		Time: 0930		RWP: 1	
Surveyed By: R. Doyle		Radiation Survey		Contamination Survey					
Print	Instrument	Serial#	BY	Instrument	Serial#				
	TELE	4355		RM14	2370				
Sign	Instrument	Serial#	α	Instrument	Serial#				
	N/A	N/A		N/A	N/A				
Contamination βγ									
LOC	dpm/100cm2	LOC	dpm/100cm2	LOC	dpm/100cm2	LOC	dpm/100cm2	LOC	dpm/100cm2
1	<1 K	6	1 K	N				N	
2	1 K	7	<1 K						
3	<1 K	8	<1 K						
4	<1 K	9	<1 K						
5	1 K	N		A			A		A

<input checked="" type="checkbox"/> Clean Area	COMMENTS: ↓: SWING GATE, POSTED HRA, NEWRA L: LOCKED DOOR OR HATCH ◇: CA ON PUMP/SHED
<input checked="" type="checkbox"/> Routine	
<input checked="" type="checkbox"/> S.O.J.	
<input checked="" type="checkbox"/> Other	

Technician Review		Supervisor Review	
NAME: <u>Chadman</u>	BADGE #: <u>2150</u>	NAME:	



# Radiological Survey

MAP # 11045Z1

Location: S1 AUX 045' 11 RHR ROOMS

Date: 5-24-12

Time: 1330

RWP: 1

## Radiation Survey

7	Instrument	Serial#
	R02	4511
7	Instrument	Serial#
	N/A	N/A

## Contamination Survey

$\beta, \gamma$	Instrument	Serial#
	R014	2407
$\alpha$	Instrument	Serial#
	N/A	N/A

## Contamination $\beta, \gamma$

LOC	dpm/100cm <sup>2</sup>	LOC	dpm/100cm <sup>2</sup>
1	21K		
2	1K		
3	10K		
4	6K		
5	1K		
6	1K		
7	1K		
8	1K		
9	21K		
10	21K		

## Survey Type

## Contamination $\alpha$

	LOC	ccpm	dpm/100cm <sup>2</sup>
N/A Clean Area			
X Routine		N	
A Monthly			A
A S.O.J.			
Other			

Surveyed By:

Print

Sign

COMMENTS

Lockers/ Posters (on SS')  
HRA  
CA  
NEW RPA

Dose Rates along masslinn path <1 mRem/hr  
unless otherwise noted

Masslinn results <1000 dpm/16cm<sup>2</sup> on floors,  
walls & equipment

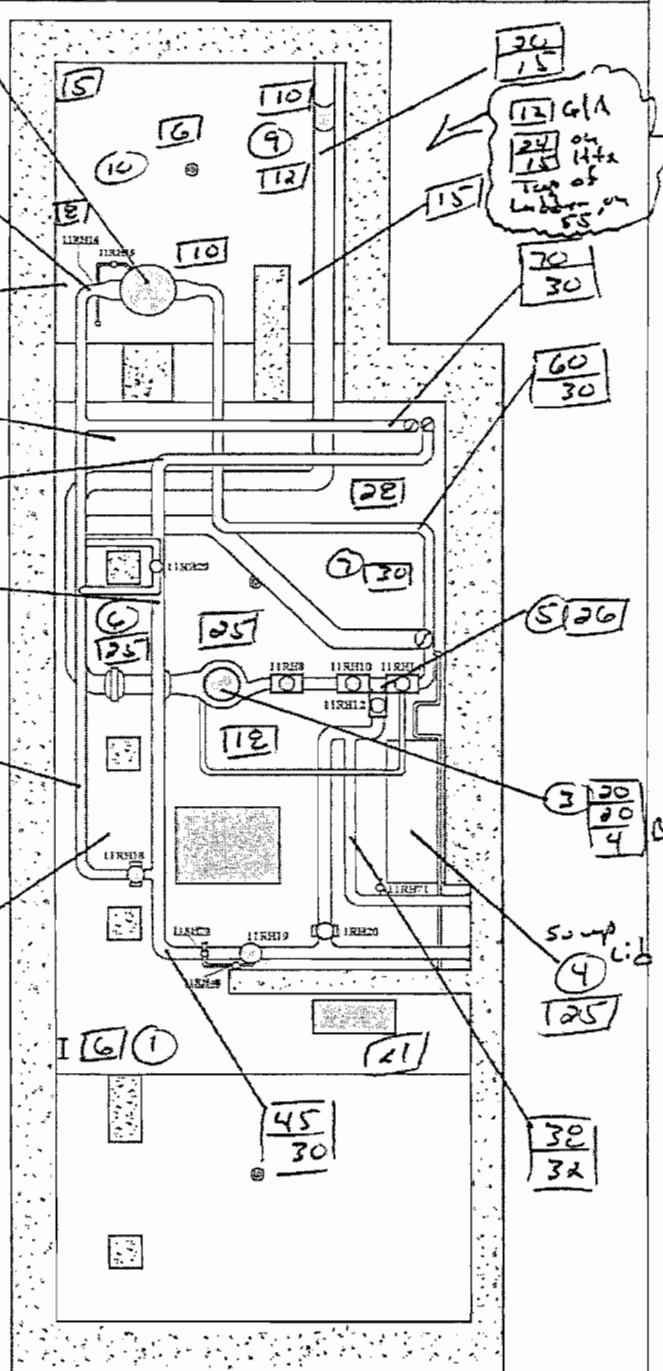
[X] Verified Radiological postings, labels, marking,  
and barriers

RDP  
1A-045-01300  
4532  
22

120

30  
250  
3642  
2535  
1816  
2

COPY



30cm dose rates

☐ Dose Rate, mRem/hr☐ Smear Location

## Technician Review

NAME

BADGE #

## Supervisor Review

NAME

BADGE #

DATE



# Radiological Survey

MAP #

21045Z1

Location: S2 AUX 045' 21 RHR ROOMS

Date: 6-6-12

Time: 1700

RWP: 1

## Radiation Survey

γ	Instrument	Serial#
	R02	4511
γ	Instrument	Serial#
	N/A	N/A

## Contamination Survey

β-γ	Instrument	Serial#
	Rm14	1865
α	Instrument	Serial#
	N/A	N/A

## Contamination β-γ

LOC	dpm/100cm <sup>2</sup>	LOC	dpm/100cm <sup>2</sup>
1	1K		
2	21K		
3	31K		
4	25K		
5	5K		
6	1K		
7	21K		
8	21K		
9	21K		
10	1K		

Survey Type	Contamination α	
	LOC	dpm/100cm <sup>2</sup>
N/A Clean Area		
X Routine		
N/A Monthly		
N/A S.O.J.		
Other		

Surveyed By:

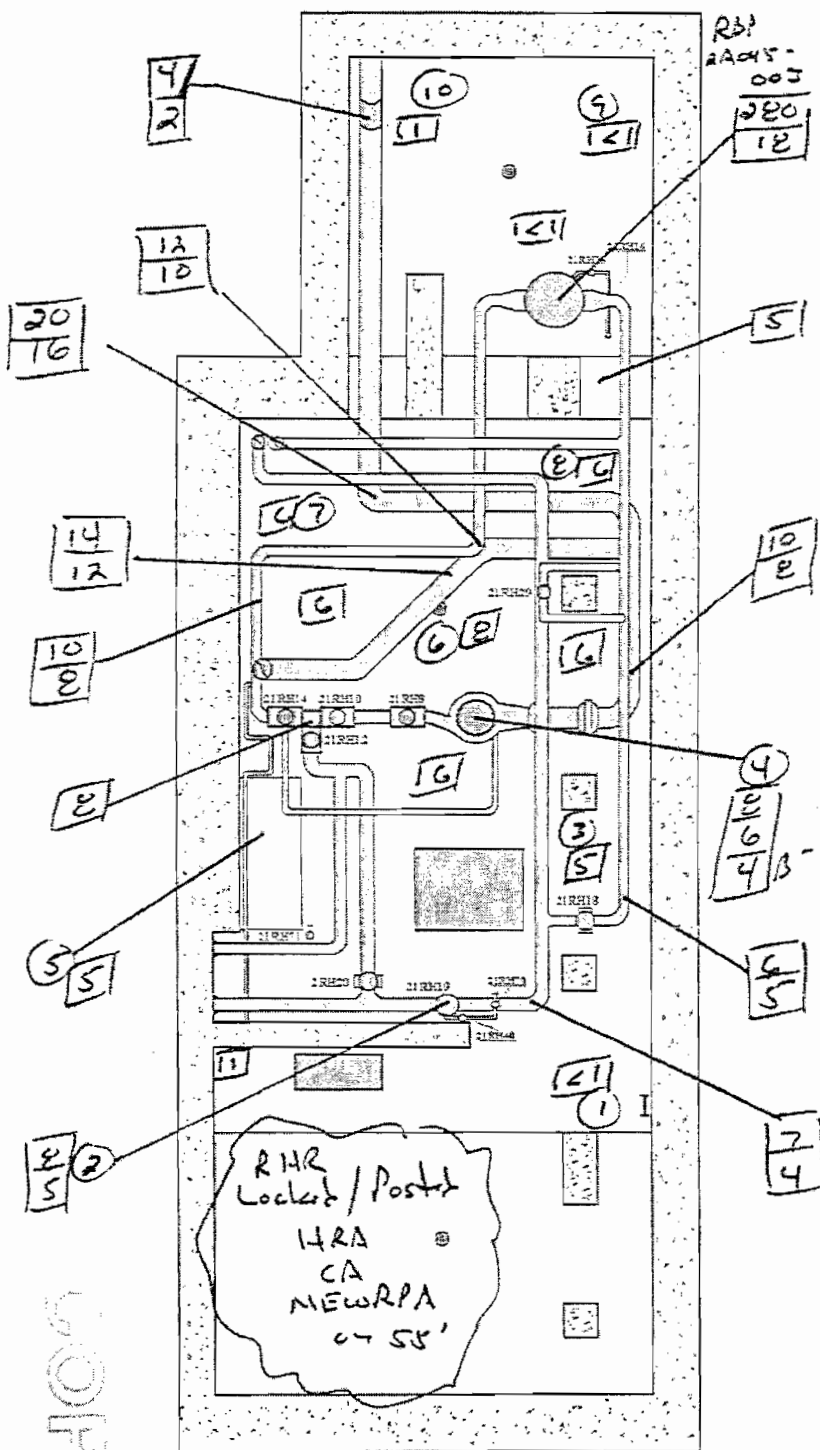
Print

Sign

COMMENTS:

17C 30cm dose rates

- ☒ Dose Rates along massline path <1 mRem/hr unless otherwise noted
- ☒ Massline results <1000 dpm/16cm<sup>2</sup> on floors, walls & equipment
- ☒ Verified Radiological postings, labels, marking, and barriers



□ Dose Rate, mRem/hr

○, Smear Location

## Technician Review

NAME: Robert W. Dore 6  
BADGE #: 12944

## Supervisor Review

NAME: [Signature]  
BADGE #: 01012  
DATE: 6-7-12

Location: SI AUX 045' 12 RHR ROOMS

Date: 6-1-12

Time: 1200

RWP: 1

Radiation Survey		
γ	Instrument Ro2	Serial# 4511
γ	Instrument N/A	Serial# N/A
Contamination Survey		
β,γ	Instrument RM14	Serial# 2370
α	Instrument N/A	Serial# N/A

Contamination β,γ			
LOC	dpm/100cm2	LOC	dpm/100cm2
1	<1K		
2	<1K		
3	<1K		
4	1K	14	
5	32K		A
6	1K		
7	3K		
8	<1K		
9	1K		
10	1K		

Survey Type	Contamination α	
	LOC	dpm/100cm2
N/A Clean Area		
✓ Routine	N	
N/A Monthly		A
N/A S.O.J.		
Other		

Surveyed By: *C. J. Kennedy*

Print

Sign

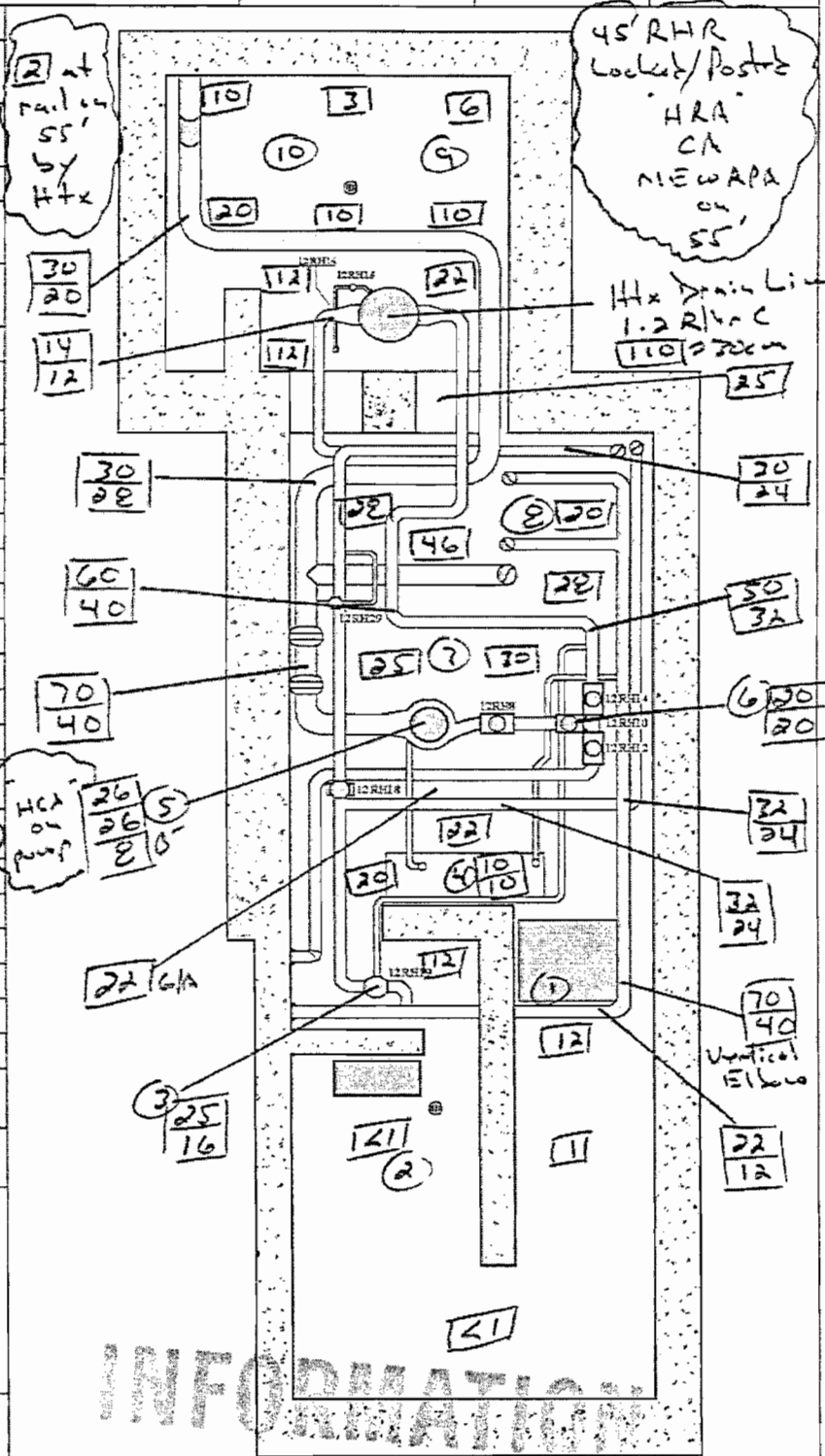
COMMENTS:

*E<sub>30cm</sub> post-rates*

*Dose Rates along masslinn path <1 mRem/hr unless otherwise noted*

*[ ] Masslinn results <1000 dpm/16cm2 on floors, walls & equipment*

*[x] Verified Radiological postings, labels, marking, and barriers*



☐ Dose Rate, mRem/hr

☐ Smear Location

Technician Review

NAME: *Deborah Kennedy* BADGE #: *01-879*

Supervisor Review

NAME: *John Kennedy* BADGE #: *01012* DATE: *6-4-12*



# Radiological Survey

MAP # 21045Z2

Location: S2 AUX.045' 22 RHR ROOMS

Date: 5-16-12

Time: 1250

RWP: 1

## Radiation Survey

γ	Instrument	Serial#
	R02	4511
γ	Instrument	Serial#
	N/A	N/A

## Contamination Survey

β,γ	Instrument	Serial#
	R214	1865
α	Instrument	Serial#
	N/A	N/A

## Contamination β,γ

LOC	dpm/100cm <sup>2</sup>	LOC	dpm/100cm <sup>2</sup>
1	<1K		
2	<1K		
3	<1K		
4	1K		
5	3K		
6	3K		
7	1K		
8	2K		
9	<1K		
10	<1K		

Survey Type		Contamination α	
		LOC	dpm/100cm <sup>2</sup>
N/A	Clean Area		
X	Routine		
N/A	Monthly		
N/A	S.O.J.		
	Other		

Surveyed By:

Print

Sign

COMMENTS:

E/C 30cm dose rates

✓ Dose Rates along masslinn path <1 mRem/hr  
✓ Masslinn results <1000 dpm/16cm<sup>2</sup> on floors,  
walls & equipment  
[ ] Verified Radiological postings, labels, marking,  
and barriers

Locked/Post'd  
on 55'  
"H2A"  
CA  
NEW RPA

220/15

10/2

110/7

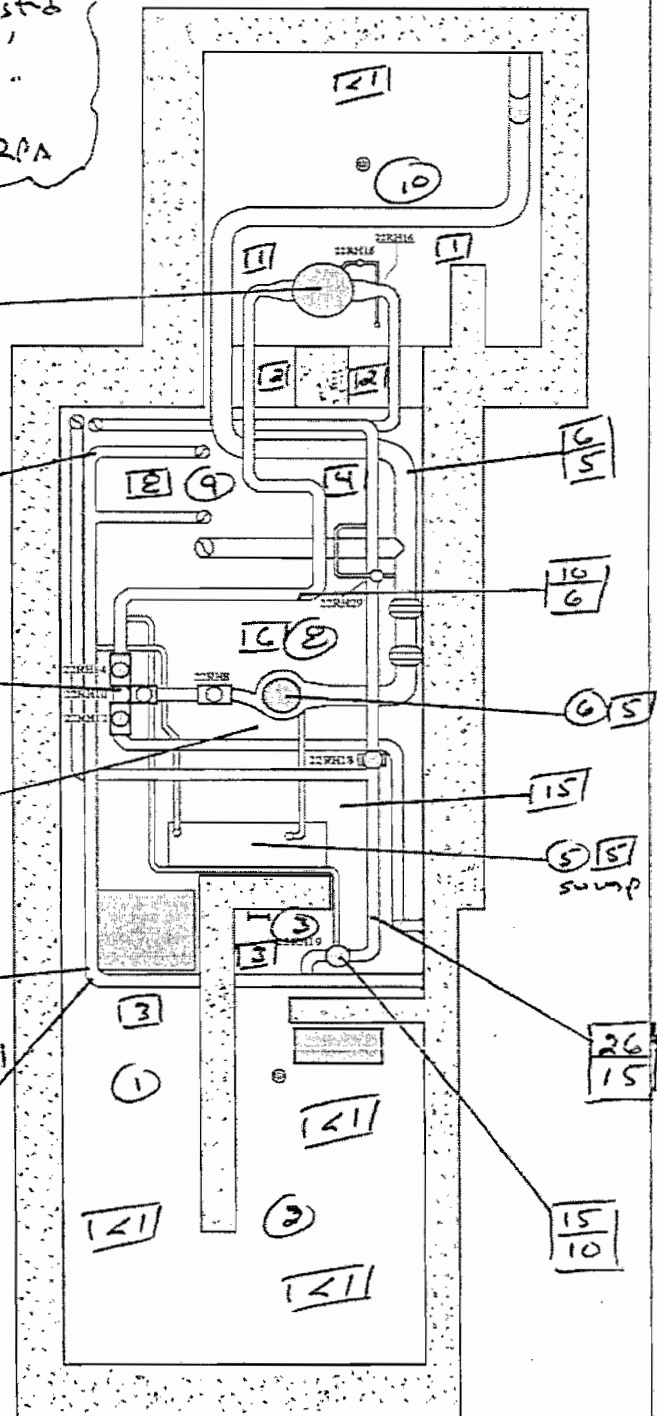
16/4

Vertical Elbow

50/20

Horizontal Elbow

17/10

☐ Dose Rate, mRem/hr☐ Smear Location

## Technician Review

NAME Dale L. Kennedy BADGE# 03511

## Supervisor Review

NAME [Signature] BADGE# 02230 DATE 5/16/12

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE		
TASK:	Review a completed surveillance to demonstrate Operability of 21 CFCU		
TASK NUMBER:	N1230300302		
JPM NUMBER:	11-01 NRC SRO Admin A1-1		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	2.1.25
		IMPORTANCE FACTOR:	4.2
APPLICABILITY:		RO	SRO
EO	<input type="checkbox"/>	RO	<input type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S2.OP-ST.CBV-0003, Rev. 17 (checked 8-14-12)		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	12 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	8-14-12
Validated By:	A Crampton SME or Instructor	Date:	9-10-12
Approved By:	<i>Paul Williams</i> Training Department	Date:	9/14/12
Approved By:	<i>Byron Kowen</i> Operations Department	Date:	9/11/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Administrative

**TASK:** Review a completed surveillance to demonstrate Operability of 21 CFCU

**TASK NUMBER:** N1230300302

**INITIAL CONDITIONS:** 21 CFCU was returned from corrective maintenance. S2.OP-ST.CBV-0003, Containment Systems - Containment Cooling was performed for the Operability Retest.

**INITIATING CUE:** You have been directed to review the surveillance for completeness and accuracy IAW Step 5.3.4.

Document any discrepancies that you identify and/or actions that you would take on Attachment 8, Section 1.0, Comments.

**Successful Completion Criteria:**

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Identify that the Minimum Flow Rate recorded on Attachment 1, page 1 of 1, Section 3.0, for 91 psid is incorrectly recorded as 1638. Identify the correct Minimum Flow Rate should be 1683.
2. Identify that the actual Cooling Water Flow Rate (1675) is below the Minimum Flow Rate required as shown on Attachment 1 and Exhibit 1, and the surveillance is UNSAT vs SAT.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Review a completed surveillance to demonstrate Operability of 21 CFCU

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Provide completed S2.OP-ST.CBV-0003 surveillance.		
			Reviews procedure.		
			<p>Identifies that the Minimum Flow Rate recorded on Attachment 1, page 1 of 1, Section 3.0, for 91 psid is incorrectly recorded as 1638. (This was due to operator performing ST rounding down as opposed to rounding up IAW P&amp;L 3.4.)</p> <p>Identifies correct value for Minimum Flow Required as 1683.</p> <p><b>Cue:</b> <u>IF</u> candidate only determines flow is wrong, <u>THEN</u> ask candidate to determine correct flow.</p> <p>Identifies that the actual Cooling Water Flow Rate of 1675 gpm is below the Minimum Flow Rate of 1683 as shown on Exhibit 1 and the ST is UNSAT.</p>		
			When candidate turns in JPM, ensure they have provided correct flow as per Cue above, then state JPM is complete.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

TQ-AA-106-0303  
Revision 4

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- h   1. Task description and number, JPM description and number are identified.
- h   2. Knowledge and Abilities (K/A) references are included.
- h   3. Performance location specified. (in-plant, control room, or simulator)
- h   4. Initial setup conditions are identified.
- h   5. Initiating and terminating Cues are properly identified.
- h   6. Task standards identified and verified by SME review.
- h   7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- h   8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev.   17   Date   3/24/08
- h   9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- h/A   10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:                     

SME/Instructor:                     

SME/Instructor:                     

Date:   9/10/12  

Date:                     

Date:

**INITIAL CONDITIONS:**

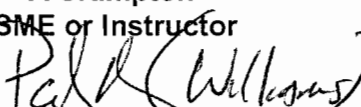
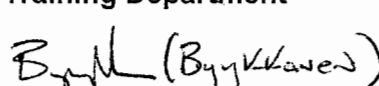
21 CFCU was returned from corrective maintenance. S2.OP-ST.CBV-0003, Containment Systems - Containment Cooling was performed for the Operability Retest.

**INITIATING CUE:**

You have been directed to review the surveillance for completeness and accuracy IAW Step 5.3.4.

Document any discrepancies that you identify and/or actions that you would take on Attachment 8, Section 1.0, Comments.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE		
TASK:	Direct Actions for Spent Fuel Movement (Determine work which would require suspension of Fuel Movement)		
TASK NUMBER:	N1120760102		
JPM NUMBER:	11-01 NRC SRO Admin A1-2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.42
		IMPORTANCE FACTOR:	3.4
APPLICABILITY:		RO	SRO
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S2.OP-IO.ZZ-0010, Rev. 31 , S2.OP-SO.CH-0001 Rev 30, S2.OP-SO.SW-0005 Rev 41, S2.OP-SO.DG-0005, Rev.6 (all checked 8-14-12) Salem Tech Specs		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	30 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	8-14-12
Validated By:	A Crampton SME or Instructor	Date:	9-10-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/12/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Administrative

**TASK:** Direct Actions for Spent Fuel Movement (Determine work which would require suspension of Fuel Movement)

**TASK NUMBER:** N1120760102

**INITIAL CONDITIONS:** Salem Unit 2 is operating at 99% power, coasting down into a refueling outage which will start in 2 weeks.  
Irradiated fuel movement is **in progress** in the Spent Fuel Pool IAW S2.OP-IO.ZZ-0010, Spent Fuel Pool Manipulations, and will continue without interruption for the next 8 hours, at which time it will terminate.  
The unit has no active Tech Spec LCOs.  
The current time is 0800.

**INITIATING CUE:** You have been directed to review the upcoming Unit 2 work for the shift and determine which activities would require suspension of fuel movement before that activity could be performed.

Work scheduled for today and expected duration

0900- 22 SW pump packing replacement (48 hours)

1000- 2A EDG Monthly surveillance run (2 hours)

1300- 21 Chiller compressor oil change (8 hours)

1400- Delivery of New Fuel into the Fuel Handling Building for upcoming refueling outage (6 hours)

**Successful Completion Criteria:**

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Determination that 22 SW pump work, 2A EDG surveillance, and 21 Chiller work do NOT require suspension of fuel movement.
2. Determination that New Fuel delivery DOES required suspension of fuel movement.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Direct Actions for Spent Fuel Movement (Determine work which would require suspension of Fuel Movement)

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Provide marked up copy of S2.OP-IO.ZZ-0010, Spent Fuel Pool Manipulations. All other procedures are located in the Salem LORT classroom, where this JPM should be administered one at a time.		
			<p>Notes:</p> <p>TSAS 3.8.1.2 applies during Modes 5 and 6 and during movement of irradiated fuel, and only requires one EDG.</p> <p>Only one FHB exhaust fan is required to be backed by an operable EDG (IOP-10 page 15)</p> <p>Operable SFP pumps only need one of them backed by operable EDG. (IOP-10 page 15)</p>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Direct Actions for Spent Fuel Movement (Determine work which would require suspension of Fuel Movement)

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<p><b>Notes:</b></p> <p>TSAS 3.7.10 allows a chiller to be taken out if movement of irradiated fuel is already on-going, and gives 14 days to restore it. 3.0.4 does NOT apply.</p> <p>Two SW pumps are required to be operable, one of which is EDG backed. (IOP-10 page 16.) Of the 5 remaining SW pumps, 4 are powered from B and C vital and their EDGs remain operable. Service Water Tech Specs will not be entered for a single SW pump being inoperable.</p>		



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Direct Actions for Spent Fuel Movement (Determine work which would require suspension of Fuel Movement)

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*			<p>Determines that:</p> <p><b>22 SW pump</b> does <b><u>NOT</u></b> require suspension of fuel movement.</p> <p><b>2A EDG</b> surveillance does <b><u>NOT</u></b> require suspension of fuel movement.</p> <p><b>21 Chiller</b> oil replacement does <b><u>NOT</u></b> require suspension of fuel movement.</p> <p><b>New Fuel</b> delivery <b><u>DOES</u></b> require suspension of fuel movement (based on requirement that the Truck Bay door to the Fuel Handling building must remain closed, page 17 of 33)</p> <p>Evaluator ensure tear off sheet has candidates name and status for each of the four work activities.</p>		

**Additional information:** TSAS 3.7.10 requires 3 Operable Chillers. The ACTIONS associated with having one chiller inoperable are found on page 3/4 7-29 under Modes 5 and 6 or during movement of irradiated fuel assemblies. The ACTION requires you to do: a.1 and a.2 or take action 3, which is suspend core alts and movement of irradiated fuel. Action a.1 would be performed, and a.2 states the chiller has 14 days to be returned to operable before the action of a.3 is required. Step 3.10 of S2.OP-IO.ZZ-0010 Spent Fuel Pool Manipulations, says to refer to TSAS 3.7.10 for required actions if a chiller is inoperable.

Name: \_\_\_\_\_

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- R*   1. Task description and number, JPM description and number are identified.
- R*   2. Knowledge and Abilities (K/A) references are included.
- R*   3. Performance location specified. (in-plant, control room, or simulator)
- R*   4. Initial setup conditions are identified.
- R*   5. Initiating and terminating Cues are properly identified.
- R*   6. Task standards identified and verified by SME review.
- R*   7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- R*   8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev.   31   Date   10/21/11
- R*   9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A*   10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:   *[Signature]*   Date:   9/10/12  

SME/Instructor: \_\_\_\_\_ Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_

**INITIAL CONDITIONS:**

Salem Unit 2 is operating at 99% power, coasting down into a refueling outage which will start in 2 weeks.

Irradiated fuel movement is **in progress** in the Spent Fuel Pool IAW S2.OP-IO.ZZ-0010, Spent Fuel Pool Manipulations, and will continue without interruption for the next 8 hours, at which time it will terminate.

The unit has no active Tech Spec LCOs.

The current time is 0800.

**INITIATING CUE:**

You have been directed to review the upcoming Unit 2 work for the shift and determine which activities would require suspension of fuel movement before that activity could be performed.

**Work scheduled for today and expected duration**

0900- 22 SW pump packing replacement (48 hours)

1000- 2A EDG Monthly surveillance run (2 hours)

1300- 21 Chiller compressor oil change (8 hours)

1400- Delivery of New Fuel into the Fuel Handling Building for upcoming refueling outage (6 hours)

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE		
TASK:	Review an OTSC to an Implementing Procedure		
TASK NUMBER:	N1230020302		
JPM NUMBER:	11-01 NRC SRO Admin A2		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	2.2.6
APPLICABILITY:	IMPORTANCE FACTOR:		3.6
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	AD-AA-101-101, Rev. 4, PSEG Implementing Procedure On The Spot Change (OTSC) Process		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	15 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	8-14-12
Validated By:	A Crampton SME or Instructor	Date:	9-10-12
Approved By:	<i>Paul (Wellman)</i> Training Department	Date:	9/14/12
Approved By:	<i>Byr (Byrken)</i> Operations Department	Date:	9/12/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:	DATE:		

## OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Administrative

**TASK:** Review an OTSC to an Implementing Procedure

**TASK NUMBER:** N1230020302

**INITIAL CONDITIONS:** Operators are performing S1.OP-PT.SW-0101, Differential Pressure Test of Turbine Area SW Stop Valves 11SW20, 13SW20, and 1SW26. The operator in the field identified an incorrect connection point for installation of a pressure instrument.

An OTSC has been initiated to allow the performance test to continue with the proper pressure test connection identified.

The OTSC Initiator has verified the correct revision (Rev. 6), and determined there are no other OTSCs associated with this procedure.

**INITIATING CUE:** As the operators Supervisor, review the proposed OTSC change. Determine if an OTSC is warranted for the condition. If so, review OTSC for completeness and accuracy. Note any problems, deficiencies, or comments on the OTSC form. If an OTSC is not warranted for this condition, inform the evaluator of this.

### Successful Completion Criteria:

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

### Task Standard for Successful Completion:

1. Identify that the OTSC process applies to this situation.
2. Identify the incorrect OTSC # during review of the OTSC.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Review an OTSC to an Implementing Procedure

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<p><b>NOTE TO EVALUATOR:</b> <u>IF</u> the candidate asks for drawings or other procedures with the intent of technically verifying the Component ID's, <u>THEN</u> cue candidate that the technical verification of the component IDs has been performed and verified by 2 other SROs.</p>		
		Candidate reviews OTSC for applicability, completeness, and accuracy.	<p>Provide OTSC Form F1, and pages 6,10,15-16, 18-20 of S1.OP-PT.SW-0101.</p> <p>When asked, provide a copy of AD-AA-101-101, PSEG Implementing Procedure On The Spot Change (OTSC) Process.</p>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Review an OTSC to an Implementing Procedure

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*			<p>Candidate reviews Form-1 and OTSC process procedure.</p> <p>The following should be noted:</p> <ul style="list-style-type: none"> <li>- The OTSC process is appropriate for this situation. The procedure steps cannot be performed as written because the pressure test connection is incorrect.</li> <li>- The OTSC No. on Form F1 is incorrect. As per the OTSC procedure, the sequential number is the current revision number followed by the next available sequential letter, and should be 6A, not 7A.</li> </ul>		
		Candidate identifies and records discrepancies.	When candidate records discrepancies, terminate JPM.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**JOB PERFORMANCE MEASURE VALIDATION CHECKLIST**

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- \_\_\_\_\_ 1. Task description and number, JPM description and number are identified.
- \_\_\_\_\_ 2. Knowledge and Abilities (K/A) references are included.
- \_\_\_\_\_ 3. Performance location specified. (in-plant, control room, or simulator)
- \_\_\_\_\_ 4. Initial setup conditions are identified.
- \_\_\_\_\_ 5. Initiating and terminating Cues are properly identified.
- \_\_\_\_\_ 6. Task standards identified and verified by SME review.
- \_\_\_\_\_ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- \_\_\_\_\_ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. \_\_\_\_\_ Date \_\_\_\_\_
- \_\_\_\_\_ 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- \_\_\_\_\_ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- Am 1. Task description and number, JPM description and number are identified.
- Am 2. Knowledge and Abilities (K/A) references are included.
- Am 3. Performance location specified. (in-plant, control room, or simulator)
- Am 4. Initial setup conditions are identified.
- Am 5. Initiating and terminating Cues are properly identified.
- Am 6. Task standards identified and verified by SME review.
- Am 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- Am 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 04 Date 9/10/11
- Am 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**

Operators are performing S1.OP-PT.SW-0101, Differential Pressure Test of Turbine Area SW Stop Valves 11SW20, 13SW20, and 1SW26. The operator in the field identified an incorrect connection point for installation of a pressure instrument.

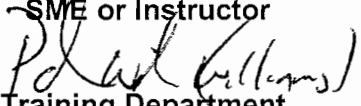

An OTSC has been initiated to allow the performance test to continue with the proper pressure test connection identified.

The OTSC Initiator has verified the correct revision (Rev. 6), and determined there are no other OTSCs associated with this procedure.

### **INITIATING CUE:**

As the operators Supervisor, review the proposed OTSC change. Determine if an OTSC is warranted for the condition. If so, review OTSC for completeness and accuracy. Note any problems, deficiencies, or comments on the OTSC form. If an OTSC is not warranted for this condition, inform the evaluator of this.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	ADMINISTRATIVE		
<b>TASK:</b>	Determine required actions upon Radioactive Effluent Monitor failure		
<b>TASK NUMBER:</b>	N1200010301		
<b>JPM NUMBER:</b>	11-01 NRC SRO Admin A3		
<b>ALTERNATE PATH:</b>	<input type="checkbox"/>	<b>K/A NUMBER:</b>	2.3.11
<b>APPLICABILITY:</b>	<b>IMPORTANCE FACTOR:</b>		4.3
		RO	SRO
EO	<input type="checkbox"/>	RO	<input type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	Classroom		
<b>REFERENCES:</b>	Salem ODCM, Salem Tech Specs, S1.OP-SO.WL-0001, Release of 11 CVCS Monitor Tank, S1.OP-SO.WG-0011, Release of 14 GDT, S1.OP-SO.CBV-0002 Containment Pressure-Vacuum Relief System		
<b>TOOLS AND EQUIPMENT:</b>			
<b>VALIDATED JPM COMPLETION TIME:</b>	25 min		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	8-15-12
<b>Validated By:</b>	A Crampton SME or Instructor	<b>Date:</b>	9-10-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/12/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/11/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
<b>GRADE:</b>	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>

## OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Administrative

**TASK:** Determine required actions upon Radioactive Effluent Monitor failure

**TASK NUMBER:** N1200010301

**INITIAL CONDITIONS:** Unit 1 is operating at 100% power.

Radiation Monitor 1R12A- Containment Noble Gas, failed its Source Check when preparing to perform a normal Containment Pressure Relief IAW S1.OP-SO.CBV-0002, Containment Pressure-Vacuum Relief System Operation.

11 CVCS Monitor Tank is ready for release.

14 Gas Decay Tank (GDT) is ready for release.

**INITIATING CUE:** Prior to initiating the Containment Pressure Relief, Rad Monitor 1R41D, Plant Vent Release Rate, indication fails high, and is confirmed as an instrument failure.

Determine the requirements, if any, which must be met to initiate:

- Containment Pressure Relief
- 11 CVCS Monitor Tank release
- 14 GDT release

List all compensatory actions, including times they must occur for each release to be initiated. If a release is prohibited from being initiated in this conditions then state that. If no additional restrictions apply to any of the releases then state that.

### Successful Completion Criteria:

1. All critical steps completed
2. All sequential steps completed in order
3. All time-critical steps completed within allotted time
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

### Task Standard for Successful Completion:

1. Determines additional compensatory measures apply for the Waste Gas Release and the Containment Pressure Relief per key.
2. Determines no additional compensatory actions required for Liquid Release.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Determine required actions upon Radioactive Effluent Monitor failure

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		<b>Note:</b> There is no controlled copy of the Salem ODCM in the classroom. Ensure the Simulator copy is placed in classroom prior to starting JPM.			
		Evaluate the effect the combined failure of the 1R12A and the 1R41D have upon the initiation of Containment Pressure Relief, Waste Liquid Release, and Gaseous Releases.			
		Waste Gas Release	Determines ODCM 3.3.3.9 applies to Gaseous Effluent which directs actions per Table 3.3-13.		
			Determines Table 3.3-13, Instrument #1, Waste Gas Holdup System is applicable, which requires (1) 1R41A & D. Action 31 applies.		

## DATE: \_\_\_\_\_

**Task:** Determine required actions upon Radioactive Effluent Monitor failure

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Determine required actions upon Radioactive Effluent Monitor failure

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Containment Pressure Relief	Determines that Precaution and Limitation 2.3 of S1.OP-SO.CBV-0001 directs operator to notify Chemistry to comply with the contingency actions associated with the ODCM prior to performing a Containment Pressure Relief.		
			Determines Table 3.3-13, Instrument #3, applies to the Containment Pressure Relief. With both channels (1R41A & D OR 1R12A) inoperable, <b>Action 37</b> applies.		
			<p><b>Action 37</b> states that with less than the minimum required Operable channels, Containment Pressure Reliefs may be performed provided that prior to initiating the release:</p> <ul style="list-style-type: none"> <li>a. <b>At least two independent samples of the tanks contents are analyzed, and</b></li> <li>b. <b>At least two technically qualified members of the facility Staff independently verify the release rate calculations and discharge valving lineup; otherwise suspend release of radioactive effluents via this pathway.</b></li> </ul>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**System:** ADMINISTRATIVE

**Task:** Determine required actions upon Radioactive Effluent Monitor failure

*	STEP NO.	STEP * Denotes a Critical Step	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Terminate JPM when all paperwork is handed in.			

**Note to Evaluator:** JPM modeled after Pilgrim Jan 2011 NRC Exam SRO Admin JPM RC.



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- R   1. Task description and number, JPM description and number are identified.
- R   2. Knowledge and Abilities (K/A) references are included.
- R   3. Performance location specified. (in-plant, control room, or simulator)
- L   4. Initial setup conditions are identified.
- L   5. Initiating and terminating Cues are properly identified.
- R   6. Task standards identified and verified by SME review.
- R   7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- L   8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 31 Date 5/17/06
- R   9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A   10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**

Unit 1 is operating at 100% power.

Radiation Monitor 1R12A- Containment Noble Gas, failed its Source Check when preparing to perform a normal Containment Pressure Relief IAW S1.OP-SO.CBV-0002, Containment Pressure-Vacuum Relief System Operation.

11 CVCS Monitor Tank is ready for release.

14 Gas Decay Tank (GDT) is ready for release.

### **INITIATING CUE:**

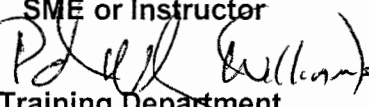
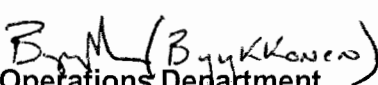
Prior to initiating the Containment Pressure Relief, Rad Monitor 1R41D, Plant Vent Release Rate, indication fails high, and is confirmed as an instrument failure.

Determine the requirements, if any, which must be met to initiate:

- Containment Pressure Relief
- 11 CVCS Monitor Tank release
- 14 GDT release

List all compensatory actions, including times they must occur for each release to be initiated. If a release is prohibited from being initiated in this conditions then state that. If no additional restrictions apply to any of the releases then state that.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Emergency Plan		
TASK:	Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)		
TASK NUMBER:	1240020502		
JPM NUMBER:	11-01 NRC SRO Admin A4-1 (ESG-1)		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.4.41
APPLICABILITY:	IMPORTANCE FACTOR:		4.6
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulate (Simulator or Classroom)		
REFERENCES:	Salem ECG		
TOOLS AND EQUIPMENT:	Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES		
VALIDATED JPM COMPLETION TIME:	12 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	15 minutes		
Developed By:	G Gauding Instructor	Date:	08-21-12
Validated By:	Boos SME or Instructor	Date:	08-23-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/6/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Emergency Plan

**TASK:** Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)

**TASK NUMBER:** 1240020502

**INITIAL CONDITIONS:**

1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

**INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Complete the ICMF with the classification of **ALERT under EAL RB2.L** and provide it to the Primary Communicator within 15 minutes of Start Time.  
OR
2. Complete the ICMF with the classification of **SAE under EAL RB2.L AND CB5.L** and provide it to the Primary Communicator within 15 minutes of Start Time. This is the classification if the cavitating charging pump is not recognized and it fails.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<b>Note:</b> This ECG call can either be an ALERT or a SAE based on whether or not the crew tripped the cavitating charging pump.		
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	<b>Cue:</b> The regulatory commitment time clock has started.		
		Reviews ECG to classify event	<b>Note:</b> It is acceptable to use the laminated tables in the simulator, rather than the ECG		
		Classifies the event	Determines the classification of the event and refers to ECG Attachment 2 (Alert) OR refers to Att. 3 (SAE)		
	Att 2 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM <b>Cue:</b> I am the Primary Communicator		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 A.2	IF a security Event is in progress, THEN <b>IMPLEMENT</b> the prompt actions of NC.EP-EP.ZZ-0102, EC Response, <b>Attachment 10</b> , prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	As time allows, <b>OBTAIN</b> Classification Independent Verification (ensure verifier understands the EAL assessment clock is running);  STA or designee performs Independent Verification for SM.  SM or designee performs Independent Verification for EDO.  EDO or designee performs Independent Verification for ERM.	<b>Cue:</b> No independent review will be performed.		
	Att 2 A.4	While classification verification is in progress and if time allows, <b>COMMENCE</b> filling out the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment)	Begins filling out ICMF.		
	Att 2 A.5	After classification verification and/or before 15 minute EAL assessment clock expires, <b>DECLARE</b> and <b>ALERT (or SAE if appropriate based on ESG performance)</b> at Salem Unit(s)_____	Before 15 minute assessment clock expires, declares <b>ALERT (or SAE if appropriate based on ESG performance)</b> at Salem Unit(s)_____		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 B.1	<b>ACTIVATE</b> "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment EP96-003)	<b>Cue:</b> Activation of ERO Emergency Callout is not required for this JPM.		
*	Att 2 B.2	<b>COMPLETE/APPROVE</b> the (ICMF) (last page of this attachment).	<u>Fills out Section II of ICMF:</u>  EAL#(s): <b>RB2.L (or RB2.L AND CB5.L)</b> Description of Event: <b>Loss of the Reactor Coolant System Barrier</b> OR <b>Loss of the Reactor Coolant System Barrier, Loss of the Containment Barrier.</b>  Note: Description of Event is found in EAL Description Table <u>Fills out Section III:</u> Checks for a Radiological Release is in progress. <u>Fills out Section IV:</u> Retrieves wind speed and direction data from SPDS <u>Initials for approval to transmit</u>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-1)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 B.3	IF time allows, <b>OBTAIN</b> an accuracy peer check of the completed ICMF.	<b>Cue:</b> Peer check is not provided.		
*	Att 2 B.4	<b>PROVIDE</b> the ICMF to the Primary Communicator and <b>DIRECT</b> the Communicator to implement ECG Attachment 6.	Provides ICMF to Primary Communicator within 15 minutes of START TIME COMPLETION TIME: _____		
			Terminate JPM when ICMF is given to the Evaluator.		



INITIAL CONTACT MESSAGE FORM

I. THIS IS \_\_\_\_\_, COMMUNICATOR IN THE ☒ CONTROL ROOM  
(NAME) ☐ TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO. 2.

II.

☒ THIS IS NOTIFICATION OF AN ALERT WHICH WAS

DECLARED AT \_\_\_\_\_ TIME \_\_\_\_\_ ON \_\_\_\_\_ TODAYS DATE \_\_\_\_\_.  
(Time-24 HR CLOCK) (DATE)

EAL #(s) **RB2.L** DESCRIPTION OF EVENT: **Loss of the Reactor**  
**Coolant System Barrier**

III.

**NOTE:**

Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 uCi/sec Noble Gas or 2.1E+01 uCi/sec I-131.

☒ NO RADIOLOGICAL RELEASE IS IN PROGRESS. see NOTE  
☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS for release  
definition

IV. ☒ 33 FT. LEVEL WIND DIRECTION (From): \_\_\_\_\_ WIND SPEED: \_\_\_\_\_  
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

Candidates Initial  
EC Initials  
(Approval to Transmit ICMF)

SGS

Rev. 00

INITIAL CONTACT MESSAGE FORM

I. THIS IS \_\_\_\_\_, COMMUNICATOR IN THE ☒ CONTROL ROOM  
(NAME) ☐ TSC  
☐ EOF

AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO. 2.

II. ☒ THIS IS NOTIFICATION OF A SITE AREA EMERGENCY WHICH WAS  
DECLARED AT \_\_\_\_\_ TIME \_\_\_\_\_ ON \_\_\_\_\_ TODAYS DATE \_\_\_\_\_.  
(Time-24 HR CLOCK) (DATE)

EAL #(s) **RB2.L AND CB5.L**

DESCRIPTION OF EVENT: **Loss of the Reactor Coolant System Barrier, Loss of the Containment Barrier**

III.

**NOTE:**

Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 uCi/sec Noble Gas or 2.1E+01 uCi/sec I-131.

☒ NO RADIOLOGICAL RELEASE IS IN PROGRESS. see NOTE  
☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS for release  
definition

IV. ☒ 33 FT. LEVEL WIND DIRECTION (From): \_\_\_\_\_ WIND SPEED: \_\_\_\_\_  
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

Candidates Initial  
EC Initials  
(Approval to Transmit ICMF)

SGS

Rev. 01

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- AS 1. Task description and number, JPM description and number are identified.
- AS 2. Knowledge and Abilities (K/A) references are included.
- AS 3. Performance location specified. (in-plant, control room, or simulator)
- AS 4. Initial setup conditions are identified.
- AS 5. Initiating and terminating Cues are properly identified.
- AS 6. Task standards identified and verified by SME review.
- AS 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- AS 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 00 Date 04/04/12
- \_\_\_\_\_ 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- \_\_\_\_\_ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: 

Date: 08-23-12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**

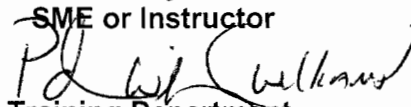
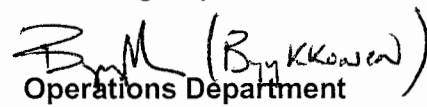
1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

### **INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Emergency Plan		
TASK:	Classify an event and complete an ICMF within the regulatory committed time limit (ESG-2)		
TASK NUMBER:	1240020502		
JPM NUMBER:	11-01 NRC SRO Admin A4-2 (ESG-2)		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.4.41
APPLICABILITY:		IMPORTANCE FACTOR:	4.6
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:		Simulate (Simulator or Classroom)	
REFERENCES:	Salem ECG		
TOOLS AND EQUIPMENT:	Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES		
VALIDATED JPM COMPLETION TIME:	12 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	15 minutes		
Developed By:	G Gauding Instructor	Date:	08-21-12
Validated By:	Wathey SME or Instructor	Date:	08-23-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/6/12

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ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Emergency Plan

**TASK:** Classify an event and complete an ICMF within the regulatory committed time limit (ESG-2)

**TASK NUMBER:** 1240020502

**INITIAL CONDITIONS:**

1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

**INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Complete the ICMF with the classification of **ALERT** under **EAL RB3.L** and provide it to the Primary Communicator within 15 minutes of Start Time.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Emergency Plan

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-2)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<b>Note:</b> This ECG call can either be an ALERT or a SAE based on whether or not the crew tripped the cavitating charging pump.		
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	<b>Cue:</b> The regulatory commitment time clock has started.		
		Reviews ECG to classify event	<b>Note:</b> It is acceptable to use the laminated tables in the simulator, rather than the ECG		
		Classifies the event	Determines the classification of the event and refers to ECG Attachment 2 (Alert)		
	Att 2 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM <b>Cue:</b> I am the Primary Communicator		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Emergency Plan  
TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-2)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 A.2	IF a security Event is in progress, THEN <b>IMPLEMENT</b> the prompt actions of NC.EP-EP.ZZ-0102, EC Response, <b>Attachment 10</b> , prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	As time allows, <b>OBTAIN</b> Classification Independent Verification (ensure verifier understands the EAL assessment clock is running);  STA or designee performs Independent Verification for SM.  SM or designee performs Independent Verification for EDO.  EDO or designee performs Independent Verification for ERM.	<b>Cue:</b> No independent review will be performed.		
	Att 2 A.4	While classification verification is in progress and if time allows, <b>COMMENCE</b> filling out the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment)	Begins filling out ICMF.		
	Att 2 A.5	After classification verification and/or before 15 minute EAL assessment clock expires, <b>DECLARE</b> and <b>ALERT</b> at Salem Unit(s) _____	Before 15 minute assessment clock expires, declares <b>ALERT</b> at Salem Unit(s) _____		
	Att 2 B.1	<b>ACTIVATE</b> "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment EP96-003)	<b>Cue:</b> Activation of ERO Emergency Callout is not required for this JPM.		



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Emergency Plan

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-2)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 2 B.2	<b>COMPLETE/APPROVE</b> the (ICMF) (last page of this attachment).	<u>Fills out Section II of ICMF:</u>  EAL#(s): <b>RB3.L</b> Description of Event: <b>Loss of the Reactor Coolant System Barrier</b>  Note: Description of Event is found in EAL Description Table  <u>Fills out Section III:</u>  Checks for a Radiological Release is in progress.  <u>Fills out Section IV:</u>  Retrieves wind speed and direction data from SPDS  <u>Initials for approval to transmit</u>		
	Att 2 B.3	IF time allows, <b>OBTAIN</b> an accuracy peer check of the completed ICMF.	<b>Cue:</b> Peer check is not provided.		
*	7	<b>PROVIDE</b> the ICMF to the Primary Communicator and <b>DIRECT</b> the Communicator to implement ECG Attachment 6.	Provides ICMF to Primary Communicator within 15 minutes of START TIME  COMPLETION TIME: _____		
			Terminate JPM when ICMF is given to the Evaluator.		

INITIAL CONTACT MESSAGE FORM

I. THIS IS \_\_\_\_\_, COMMUNICATOR IN THE ☒ CONTROL ROOM  
(NAME) ☐ TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO. 2.

II.

☒ THIS IS NOTIFICATION OF AN **ALERT** WHICH WAS

DECLARED AT \_\_\_\_\_ TIME \_\_\_\_\_ ON \_\_\_\_\_ TODAYS DATE \_\_\_\_\_.  
(Time-24 HR CLOCK) (DATE)

EAL #(s) **RB3.L**

DESCRIPTION OF EVENT: **Loss of the Reactor**

**Coolant System Barrier**

III.

**NOTE:**

Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 uCi/sec Noble Gas or 2.1E+01 uCi/sec I-131.

☒ NO RADIOLOGICAL RELEASE IS IN PROGRESS.

see NOTE  
for release  
definition

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS

IV. ☒ 33 FT. LEVEL WIND DIRECTION (From): \_\_\_\_\_ WIND SPEED: \_\_\_\_\_  
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

Candidates Initial  
EC Initials  
(Approval to Transmit ICMF)

SGS

Rev. 00

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- JM 1. Task description and number, JPM description and number are identified.
- JM 2. Knowledge and Abilities (K/A) references are included.
- JM 3. Performance location specified. (in-plant, control room, or simulator)
- JM 4. Initial setup conditions are identified.
- JM 5. Initiating and terminating Cues are properly identified.
- JM 6. Task standards identified and verified by SME review.
- JM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- JM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 00 Date 8/23/12
- JM 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A JM 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- N/A JM 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: J. Wathy Date: 8/23/12

SME/Instructor: \_\_\_\_\_ Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_ Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**


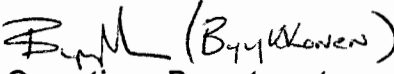
1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

### **INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Emergency Plan		
TASK:	Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)		
TASK NUMBER:	1240020502		
JPM NUMBER:	11-01 NRC SRO Admin A4-3 (ESG-3)		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.4.41
APPLICABILITY:	IMPORTANCE FACTOR:		4.6
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulate (Simulator or Classroom)		
REFERENCES:	Salem ECG		
TOOLS AND EQUIPMENT:	Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES		
VALIDATED JPM COMPLETION TIME:	12 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	15 minutes		
Developed By:	G Gauding Instructor	Date:	08-21-12
Validated By:	A Crampton SME or Instructor	Date:	9-10-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/12/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:	DATE:		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Emergency Plan

**TASK:** Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)

**TASK NUMBER:** 1240020502

**INITIAL CONDITIONS:**

1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

**INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Complete the ICMF with the classification of **SAE under EAL FB2.P AND RB2.P** and provide it to the Primary Communicator within 15 minutes of Start Time.

OPERATOR TRAINING PROGRAM

NAME: \_\_\_\_\_

JOB PERFORMANCE MEASURE

DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	<b>Cue:</b> The regulatory commitment time clock has started.		
		Reviews ECG to classify event	<b>Note:</b> It is acceptable to use the laminated tables in the simulator, rather than the ECG		
		Classifies the event	Determines the classification of the event and refers to ECG Attachment 3 (SAE)		
	Att 3 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM <b>Cue:</b> I am the Primary Communicator		
	Att 3 A.2	IF a security Event is in progress, THEN <b>IMPLEMENT</b> the prompt actions of NC.EP-EP.ZZ-0102, EC Response, <b>Attachment 10</b> , prior to the classification.	Determines Security Event is not in progress.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 3 A.3	As time allows, <b>OBTAIN</b> Classification Independent Verification (ensure verifier understands the EAL assessment clock is running);  STA or designee performs Independent Verification for SM.  SM or designee performs Independent Verification for EDO.  EDO or designee performs Independent Verification for ERM.	<b>Cue:</b> No independent review will be performed.		
	Att 3 A.4	While classification verification is in progress and if time allows, <b>COMMENCE</b> filling out the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment)	Begins filling out ICMF.		
	Att 3 A.5	After classification verification and/or before 15 minute EAL assessment clock expires, <b>DECLARE SITE AREA EMERGENCY</b> at Salem Unit(s)_____	Before 15 minute assessment clock expires, declares <b>SITE AREA EMERGENCY</b> at Salem Unit(s)_____		
	Att 3 B.1	<b>ACTIVATE</b> "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment EP96-003)	<b>Cue:</b> Activation of ERO Emergency Callout is not required for this JPM.		



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 3 B.2	<b>COMPLETE/APPROVE</b> the (ICMF) (last page of this attachment).	<u>Fills out Section II of ICMF:</u>  EAL#(s): <b>FB2.P AND RB2.P</b> Description of Event: <b>Potential Loss of the Fuel Clad Barrier,  Potential Loss of the Reactor Coolant  System Barrier</b>  Note: Description of Event is found in EAL Description Table  <u>Fills out Section III:</u>  Checks for a Radiological Release is in progress.  <u>Fills out Section IV:</u>  Retrieves wind speed and direction data from SPDS  <u>Initials for approval to transmit</u>		
	Att 3 B.3	IF time allows, <b>OBTAIN</b> an accuracy peer check of the completed ICMF.	<b>Cue:</b> Peer check is not provided.		
*	Att 3 B.4	<b>PROVIDE</b> the ICMF to the Primary Communicator and <b>DIRECT</b> the Communicator to implement ECG Attachment 6.	Provides ICMF to Primary Communicator within 15 minutes of START TIME  COMPLETION TIME: _____		

OPERATOR TRAINING PROGRAM

NAME: \_\_\_\_\_

JOB PERFORMANCE MEASURE

DATE: \_\_\_\_\_

SYSTEM: **Emergency Plan**

TASK: Classify an event and complete an ICMF within the regulatory committed time limit (ESG-3)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Terminate JPM when ICMF is given to the Evaluator.		

INITIAL CONTACT MESSAGE FORM

I. THIS IS \_\_\_\_\_, COMMUNICATOR IN THE ☒ CONTROL ROOM  
(NAME) ☐ TSC  
☐ EOF

AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO. 2.

II. ☒ THIS IS NOTIFICATION OF A SITE AREA EMERGENCY WHICH WAS  
DECLARED AT \_\_\_\_\_ TIME \_\_\_\_\_ ON \_\_\_\_\_ TODAYS DATE \_\_\_\_\_.  
(Time-24 HR CLOCK) (DATE)

EAL #(s) **FB2.P AND RB2.P** DESCRIPTION OF EVENT **Potential Loss of the Fuel Clad Barrier, Potential Loss of the Reactor Coolant System Barrier**

III.

**NOTE:**

Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 uCi/sec Noble Gas or 2.1E+01 uCi/sec I-131.

☒ NO RADIOLOGICAL RELEASE IS IN PROGRESS. see NOTE  
☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS for release  
definition

IV. ☒ 33 FT. LEVEL WIND DIRECTION (From): \_\_\_\_\_ WIND SPEED: \_\_\_\_\_  
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

Candidates Initial  
EC Initials  
(Approval to Transmit ICMF)

SGS

Rev. 01

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- h 1. Task description and number, JPM description and number are identified.
- h 2. Knowledge and Abilities (K/A) references are included.
- h 3. Performance location specified. (in-plant, control room, or simulator)
- h 4. Initial setup conditions are identified.
- h 5. Initiating and terminating Cues are properly identified.
- h 6. Task standards identified and verified by SME review.
- h 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- h 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 03 Date 4/4/12
- L 9. Pilot test the JPM: EP SA 111-131 ECG Rvw
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

(SME) Instructor: Alan Crompton

Date: 9/10/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**


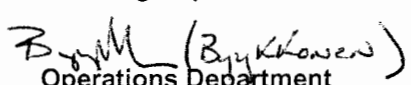
1. You have a maximum of 5 minutes to review the Emergency Operating Procedures used during this scenario to refresh your memory of all events/paths. At the end of your review you will become the Shift Manager (SM). Inform the Evaluator when you are ready to assume SM duties. You may continue to reference the procedures or to look at the control board but "the clock will be running." If there are multiple ECG calls, classify the most severe.

### **INITIATING CUE:**

You are the Duty SM. Classify the event, complete the correct ECG Attachment and provide an ICMF to the Primary Communicator.

This is a Time Critical JPM.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	Rod Control		
<b>TASK:</b>	Perform a Control Rod Operability Verification		
<b>TASK NUMBER:</b>	N0010070101		
<b>JPM NUMBER:</b>	11-01 NRC Sim a		
<b>ALTERNATE PATH:</b>	<input checked="checked" type="checkbox"/>	<b>K/A NUMBER:</b>	001 A4.03
<b>APPLICABILITY:</b>	<b>IMPORTANCE FACTOR:</b>		
EO <input type="checkbox"/>	RO <input checked="checked" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="checked" type="checkbox"/>
		RO	3.7
		SRO	4.0
<b>EVALUATION SETTING/METHOD:</b>	Simulator		
<b>REFERENCES:</b>	S2.OP-ST.RCS-0001, Rev. 20 (checked 08-06-12)		
<b>TOOLS AND EQUIPMENT:</b>	None		
<b>VALIDATED JPM COMPLETION TIME:</b>	10 min		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	08-04-2012
<b>Validated By:</b>	Mulford SME or Instructor	<b>Date:</b>	08-24-2012
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/6/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/4/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>		<b>DATE:</b>	

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE  
JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS

---

SYSTEM: Rod Control

TASK: Perform a Control Rod Operability Verification

TASK NUMBER: N0010070101

SIMULATOR IC: **IC-251** on NRC portable hard drive

MALFUNCTIONS  
REQUIRED: RT-1 will trip 21 SGFP  
MALF: BF0105A, 21 STM GEN FEED PUMP TRIP, Final Value: 3

OVERRIDES  
REQUIRED: None

SPECIAL  
INSTRUCTIONS: None

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Rod Control

**TASK:** Perform a Control Rod Operability Verification

**TASK NUMBER:** N0010070101

**INITIAL CONDITIONS:**

Unit 2 is operating at steady state, 100% power. Power has been at 100% for 30 days.

**INITIATING CUE:**

You are directed to perform S2.OP-ST.RCS-0001, Reactivity Control System Rod Control Assemblies.

A Maintenance Technician is stationed at the Rod Control System Power Cabinets.

Communications are established via plant page between the Control Room and Jeff Stevens, NEO, at the Rod Control System Power Cabinets.

The CRS has directed that steps 5.1.2 through 5.1.9 are to be performed in order.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

Operator trips the Rx when Shutdown Bank B is inserted in the core and a SGFP trips.



# OPERATOR TRAINING PROGRAM

## JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: Rod Control

TASK: Perform a Control Rod Operability Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide marked up copy of ST.RCS-0001, with Prerequisite Section 2.0 filled out.	Reviews Prerequisites.  Reviews and signs Precautions and Limitations. <b>Cue:</b> IF ASKED, state that no special contingency actions have been briefed other than what is in the P&L's.		
	5.1.1	IF this surveillance is to be performed....	N/As step based on steady state 100% operation.		

# OPERATOR TRAINING PROGRAM

## JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: Rod Control

TASK: Perform a Control Rod Operability Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*       *	5.1.2	<p>PERFORM Shutdown Bank A testing as follows:</p> <p>A. IF the Rx is critical, THEN ENSURE Tavg is within 1 degree of Tref.</p> <p>B. PLACE Bank Selector Switch in the SBA position.</p> <p>C. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21AC and 22AC.</p> <p>D. Maneuver Shutdown Bank A at least 10 steps in any one direction.</p> <p>E. ENSURE each rod in Shutdown Bank A indicated rod movement of at least 10 steps.</p> <p>F. RECORD Shutdown Bank A "Test Results" by initialing in attachment 1.</p> <p>G. RESTORE Shutdown Bank A to pre-test condition.</p> <p>H. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21AC and 22AC.</p>	<p>Checks Tave/Tref recorder on 2RP4 and notes Tavg is within 1° of Tref..</p> <p>Rotates Bank Selector Switch fully counter clockwise to the SBA position.</p> <p>Contacts NEO and directs him to verify lights.</p> <p><u>Cue:</u> GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21AC and 22AC.</p> <p>Inserts SBA at least 10 steps.</p> <p>Verifies rod movement by viewing rod position on P-250 computer.</p> <p>Initials SAT for Groups 1 and 2 for SBA on Att 1.</p> <p>Withdraws SBA to ARO position.</p> <p>Continuous rod withdrawal is acceptable.</p> <p><u>Cue:</u> GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21AC and 22AC.</p>		

# OPERATOR TRAINING PROGRAM

## JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: Rod Control

TASK: Perform a Control Rod Operability Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*   *   *	5.1.3	<p>PERFORM Shutdown Bank B testing as follows:</p> <p>A. IF the Rx is critical, THEN ENSURE Tavg is within 1 degree of Tref.</p> <p>B. PLACE Bank Selector Switch in the SBB position.</p> <p>C. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21BD and 22BD.</p> <p>D. Maneuver Shutdown Bank B at least 10 steps in any one direction.</p> <p>E. ENSURE each rod in Shutdown Bank B indicated rod movement of at least 10 steps.</p>	<p>Checks Tave/Tref recorder on 2RP4 and notes Tavg is within 1° of Tref..</p> <p>Rotates Bank Selector Switch clockwise to the SBB position.</p> <p>Contacts NEO and directs him to verify lights.</p> <p><b>Cue:</b> GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21BD and 22BD.</p> <p>Inserts SBB at least 10 steps.</p> <p><b><u>SIMULATOR OPERATOR:</u></b></p> <p><b><u>INSERT RT-1 when the operator is checking rod position after insertion.</u></b></p> <p><b><u>This will trip 21 SGFP.</u></b></p> <p>Responds to 21 SGFP trip by tripping the Rx IAW P&amp;L 3.13.</p> <p>Movement of the Rod Bank Selector Switch to MAN or AUTO under these conditions is incorrect.</p>		
			When the operator has either tripped the Rx or initiated rod insertion in MAN or AUTO, state JPM is complete.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

TQ-AA-106-0303

Revision 4

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- MM 1. Task description and number, JPM description and number are identified.
- MM 2. Knowledge and Abilities (K/A) references are included.
- MM 3. Performance location specified. (in-plant, control room, or simulator)
- MM 4. Initial setup conditions are identified.
- MM 5. Initiating and terminating Cues are properly identified.
- MM 6. Task standards identified and verified by SME review.
- MM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- MM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 20 Date 8/24/12
- MM 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. 0 If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:

N. Mulford

Date:

8/24/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**INITIAL CONDITIONS:**

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Unit 2 is operating at steady state, 100% power. Power has been at 100% for 30 days.

**INITIATING CUE:**

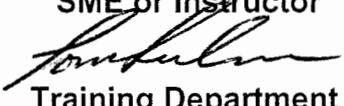
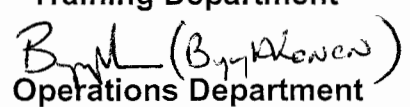
You are directed to perform S2.OP-ST.RCS-0001, Reactivity Control System Rod Control Assemblies.

A Maintenance Technician is stationed at the Rod Control System Power Cabinets.

Communications are established via plant page between the Control Room and Jeff Stevens, NEO, at the Rod Control System Power Cabinets.

The CRS has directed that steps 5.1.2 through 5.1.9 are to be performed in order.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE:

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	ECCS		
<b>TASK:</b>	Perform forward Flow IST of ECCS Accumulator Check Valves		
<b>TASK NUMBER:</b>	N0060160201		
<b>JPM NUMBER:</b>	11-01 ILOT Sim b		
<b>ALTERNATE PATH:</b>	<input checked="" type="checkbox"/>	<b>K/A NUMBER:</b>	006 A4.02
<b>IMPORTANCE FACTOR:</b>		4.0	3.8
<b>APPLICABILITY:</b>		RO	SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	Simulator / Perform		
<b>REFERENCES:</b>	S2.OP-ST.SJ-0006, Inservice Testing Safety Injection Valves Mode 6, Rev. 13		
<b>TOOLS AND EQUIPMENT:</b>	Stopwatch		
<b>VALIDATED JPM COMPLETION TIME:</b>	15 minutes		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	06-04-12
<b>Validated By:</b>	Mulford SME or Instructor	<b>Date:</b>	08-23-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/13/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/12/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE:

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

**TASK NUMBER:** N0060160201

**SIMULATOR SETUP**

IC-242 This IC was developed by: Simulating Mode 6 conditions. Depressurizing RCS with RHR remaining in service. Opening both PORVs. Simulating cavity level 126' by filling PZR full.

**Remote: SJ01D** 21SJ54 breaker 2AY2EP2D

**Remote: SJ02D** 22SJ54 breaker 2BY2EP2D

**ET-1 ka103anl** 22SJ54 open PB. Tied to:

22 Accumulator Channel I pressure (**I/O A105**) Final Value 33 with a ramp time of 38 seconds.

22 Accumulator Channel II pressure (**I/O A106**) Final Value 33 with a ramp time of 37 seconds.

**INITIAL CONDITIONS:**

Unit 2 is in MODE 6 with the Rx vessel head removed.

The control room is preparing to perform ECCS Accumulator Check Valve testing.

A second control room operator is available.

A NEO is stationed in the field for any operations required.

Reactor cavity level is 126'.

Refueling Transfer Tube Gate Valve is shut.

**INITIATING CUE:** Perform forward flow testing of 21-24 ECCS Accumulators Check Valves IAW S2.OP-ST.SJ-0006.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Perform forward flow test of 21 ECCS Accumulator and determine it is SAT.
2. Perform forward flow test of 22 ECCS Accumulator and determine it is UNSAT.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: ECCS

TASK: Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide copy of S2.OP-ST.SJ-0006 with prerequisites complete and calibration data filled in.	<b>Cue if required:</b> If asked during JPM performance about cavity level, evaluator will respond that the normal control room staff is monitoring level, and it remains stable at 126'.		
	3.0	PRECAUTIONS AND LIMITATIONS.	Reviews Precautions and Limitations		
	5.1.1	<b>RECORD</b> 21 Accumulator Initial Data in Attachment 2, Section 1.0.	Records 21 Accumulator Initial Data in Attachment 2, Section 1.0. as 69.2 psig and 96.6 %.		
*	5.1.2	<b>CLOSE</b> 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to shut 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE. <b>Simulator Operator: Modify Remote SJ01D from tagged to untagged to shut 2AY2EP2D and report back to control room.</b>		
	5.1.3	At Panel 2RP4, <b>ENSURE</b> 21SJ54 in the VALVE OPERABLE position.	At Panel 2RP4, checks 21SJ54 is in the VALVE OPERABLE position.		
	5.1.4	IF Scheduled Surveillance testing is to be performed (Refer to P&L Step 3.6), THEN:			
*	5.1.4.A	A. Simultaneously <b>PERFORM</b> the following: <ul style="list-style-type: none"> <li><b>OPEN</b> 21SJ54, 21 ACCUM OUT</li> <li><b>START</b> the Stopwatch</li> </ul>	Simultaneously depresses the open PB for 21SJ54 and starts stopwatch.		



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.4.B	B. When 21 Accumulator pressure is observed to be 35 psig, Simultaneously <b>PERFORM</b> the following: <ul style="list-style-type: none"> <li>• <b>STOP</b> the Stopwatch</li> <li>• <b>CLOSE</b> 21SJ54</li> </ul>	Simultaneously depresses the 21SJ54 close PB and stops the stopwatch when 21 Accumulator pressure indicates 35 psig.		
*  *	5.1.4.C	<b>PERFORM</b> the following IAW Attachment 2, Section 2.0: <ul style="list-style-type: none"> <li>• <b>RECORD</b> Stopwatch Number and Reading (A) in Attachment 2, Section 2.0.</li> <li>• <b>CALCULATE</b> Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B) from Stopwatch Reading (A) AND <b>RECORD</b> in Attachment 2, Section 2.0.</li> <li>• <b>DIRECT</b> a second Operator to perform Independent Verification of the calculation performed IAW Attachment 2, Section 2.0.</li> </ul>	Records stopwatch number and reading (A) in Attachment 2 Section 2.0 Calculates Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B-1.15 seconds) from Stopwatch Reading (A) AND records in Attachment 2, Section 2.0.  Directs a second Operator to perform Independent Verification of the calculation performed IAW Attachment 2, Section 2.0. <b>Cue: IV is complete SAT.</b>		
*	5.1.4.D	<b>RECORD</b> 21SJ55 and 21SJ56 OPEN "Test Results" by initialing the SAT or UNSAT column using the Acceptance Criteria in Attachment 2, Section 2.0.	Records 21SJ55 and 21SJ56 OPEN "Test Results" by initialing the SAT column using the Acceptance Criteria in Attachment 2, Section 2.0.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.5	IF Post-Maintenance Operability (Valve Exercise) testing is to be performed * (Refer to P&L Step 3.6), * THEN:  A. <b>OPEN</b> 21SJ54, 21 ACCUM OUT. B. When 21 Accumulator level has decreased by at least 20%, <b>CLOSE</b> 21SJ54, 21 ACCUM OUT. C. <b>RECORD</b> 21SJ55 and 21SJ56 VALVE EXERCISE "Test Results" by initialing the SAT or UNSAT column using the Acceptance Criteria in Attachment 2, Section 3.0.	Determines Post Maintenance Operability testing is N/A.		
	5.1.6	<b>OPEN</b> 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to open 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE. <b>Simulator Operator: Modify REMOTE SJ01D to tagged to open 2AY2EP2D.</b>		
	5.1.7	<b>DIRECT</b> a second Operator to perform Restoration Independent Verification of the components identified in Attachment 6, Section 1.0.	<b>Cue: Restoration Independent Verification of the components identified in Attachment 6, Section 1.0. is complete SAT.</b>		
	5.2.1	<b>RECORD</b> 22 Accumulator Initial Data in Attachment 3, Section 1.0.	Records 22 Accumulator Initial Data in Attachment 3, Section 1.0. as 67.4 psig and 97.6 %.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: ECCS

TASK: Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2.2	<b>CLOSE</b> 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to shut 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE. <b>Simulator Operator: Modify Remote SJ02D from tagged to untagged to shut 2BY2EP2D.</b>		
	5.2.3	At Panel 2RP4, <b>ENSURE</b> 22SJ54 in the VALVE OPERABLE position.	At Panel 2RP4, checks 22SJ54 is in the VALVE OPERABLE position.		
	5.2.4	IF Scheduled Surveillance testing is to be performed (Refer to P&L Step 3.6), THEN:			
*	5.2.4.A	A. Simultaneously <b>PERFORM</b> the following: <ul style="list-style-type: none"> <li>• <b>OPEN</b> 22SJ54, 22 ACCUM OUT</li> <li>• <b>START</b> the Stopwatch</li> </ul>	Simultaneously depresses the open PB for 22SJ54 and starts stopwatch. <b>Simulator Operator: Ensure ET-1 is TRUE when 22SJ54 Open PB is depressed.</b>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2.4.B	B. When 22 Accumulator pressure is observed to be 35 psig, Simultaneously <b>PERFORM</b> the following: <ul style="list-style-type: none"> <li>• <b>STOP</b> the Stopwatch</li> <li>• <b>CLOSE</b> 22SJ54</li> </ul>	Simultaneously depresses the 22SJ54 close PB and stops the stopwatch when 22 Accumulator pressure indicates 35 psig.  <b>Simulator Operator:</b> If 22SJ54 close PB is <u>not</u> depressed, DELETE overrides A105 and 106 when they reach their full ramp in time.		
*  *	5.2.4.C	<b>PERFORM</b> the following IAW Attachment 3, Section 2.0: <ul style="list-style-type: none"> <li>• <b>RECORD</b> Stopwatch Number and Reading (A) in Attachment 3, Section 2.0.</li> <li>• <b>CALCULATE</b> Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B) from Stopwatch Reading (A) AND <b>RECORD</b> in Attachment 3, Section 2.0.</li> <li>• <b>DIRECT</b> a second Operator to perform Independent Verification of the calculation performed IAW Attachment 3, Section 2.0.</li> </ul>	Records stopwatch number and reading (A) in Attachment 3 Section 2.0 Calculates Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B-1.15 seconds) from Stopwatch Reading (A) AND records in Attachment 3, Section 2.0.  Directs a second Operator to perform Independent Verification of the calculation performed IAW Attachment 3, Section 2.0. <b>Cue: IV is complete SAT.</b>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2.4.D	<b>RECORD</b> 22SJ55 and 22SJ56 OPEN "Test Results" by initialing the SAT or UNSAT column using the Acceptance Criteria in Attachment 3, Section 2.0.	Records 22SJ55 and 22SJ56 OPEN "Test Results" by initialing the UNSAT column using the Acceptance Criteria in Attachment 3, Section 2.0. based on blowdown time >27.79 seconds.		
	5.2.5	IF Post-Maintenance Operability (Valve Exercise) testing is to be performed * (Refer to P&L Step 3.6), * THEN:  A. <b>OPEN</b> 22SJ54, 21 ACCUM OUT. B. When 22 Accumulator level has decreased by at least 20%, <b>CLOSE</b> 22SJ54, 22 ACCUM OUT. C. <b>RECORD</b> 22SJ55 and 22SJ56 VALVE EXERCISE "Test Results" by initialing the SAT or UNSAT column using the Acceptance Criteria in Attachment 3, Section 3.0.	Determines Post Maintenance Operability testing is N/A.		
	5.2.6	<b>OPEN</b> 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to open 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE. <b>Simulator Operator: Modify REMOTE SJ02D to tagged to open 2BY2EP2D.</b>		

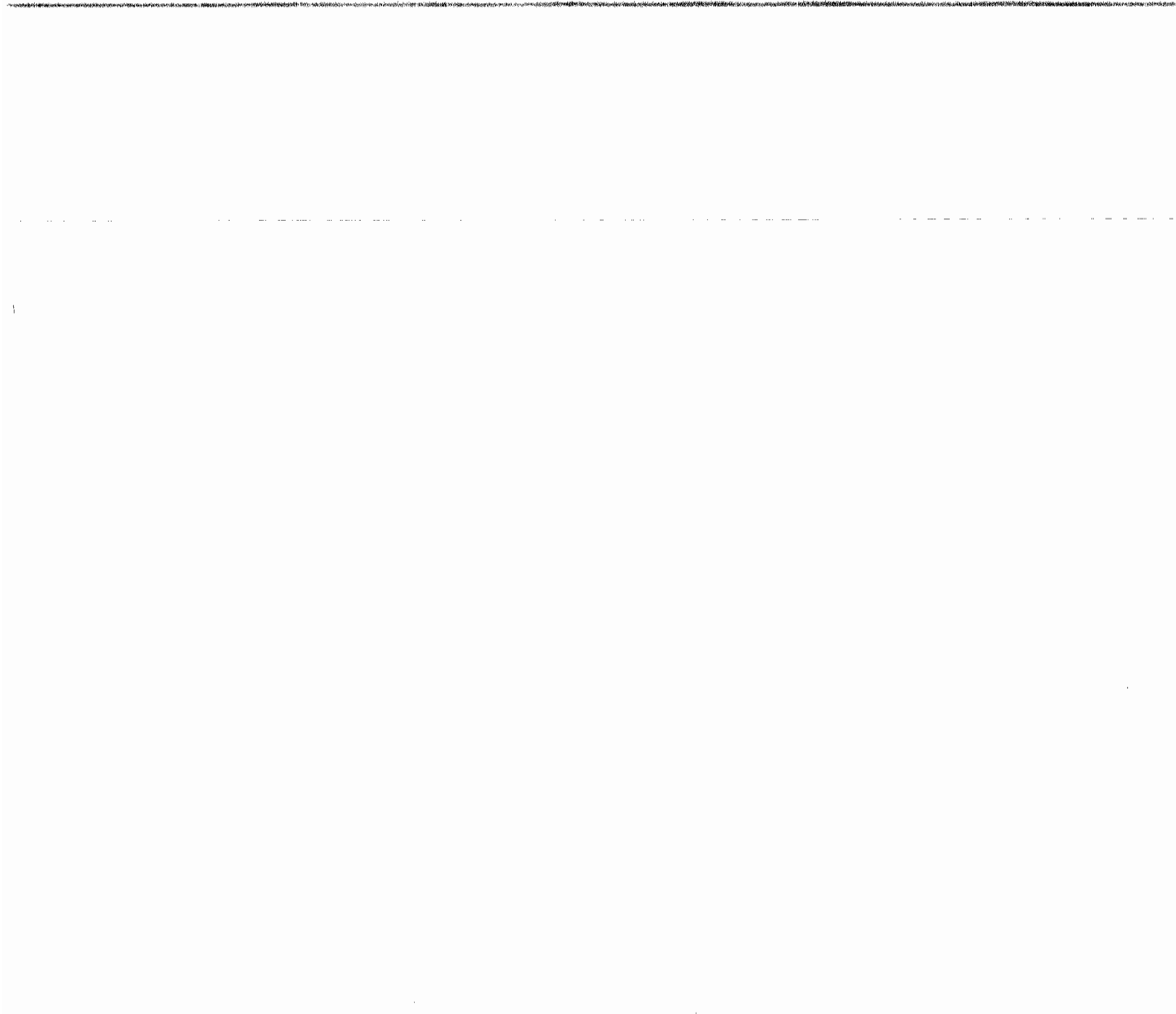
**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** ECCS

**TASK:** Perform forward Flow IST of ECCS Accumulator Check Valves

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.7	<b>DIRECT</b> a second Operator to perform Restoration Independent Verification of the components identified in Attachment 6, Section 2.0.	<b>Cue: Restoration Independent Verification of the components identified in Attachment 6, Section 2.0. is complete SAT.</b>		
			<b>Cue: JPM is complete.</b>		




## JOB PERFORMANCE MEASURE

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- M 1. Task description and number, JPM description and number are identified.
- M 2. Knowledge and Abilities (K/A) references are included.
- M 3. Performance location specified. (in-plant, control room, or simulator)
- M 4. Initial setup conditions are identified.
- M 5. Initiating and terminating Cues are properly identified.
- M 6. Task standards identified and verified by SME review.
- M 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- M 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 13 Date 8/23/12
- M 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A 10. ☒ If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:  N. Mulford

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_



## JOB PERFORMANCE MEASURE

### INITIAL CONDITIONS:



---

Unit 2 is in MODE 6 with the Rx vessel head removed.  
The control room is preparing to perform ECCS Accumulator Check Valve testing.  
A second control room operator is available.  
A NEO is stationed in the field for any operations required.  
Reactor cavity level is 126'.  
Refueling Transfer Tube Gate Valve is shut.

### INITIATING CUE:

Perform forward flow testing of 21-24 ECCS Accumulators Check Valves IAW S2.OP-ST.SJ-0006.

**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	Pressurizer Pressure and Level		
<b>TASK:</b>	TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)		
<b>TASK NUMBER:</b>	1140240401		
<b>JPM NUMBER:</b>	11-01 ILOT NRC Sim c		
<b>ALTERNATE PATH:</b>	<input checked="" type="checkbox"/>	<b>K/A NUMBER:</b>	010 A4.01
<b>APPLICABILITY:</b>		<b>IMPORTANCE FACTOR:</b>	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>		Simulator	
<b>REFERENCES:</b>	S2.OP-AB.PZR-0001, Rev. 18 (Rev. checked 08-21-12-12)		
<b>TOOLS AND EQUIPMENT:</b>	None		
<b>VALIDATED JPM COMPLETION TIME:</b>	4 min		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	04-12-12
<b>Validated By:</b>	Mulford SME or Instructor	<b>Date:</b>	08-24-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/12/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/4/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>

**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

**TASK  
NUMBER:** 114 024 04 01

**SIMULATOR SETUP:** IC-253 4% power, BOL.  
I/O B304 OVLO Pressurizer Relief Valve Outlet Temperature- Value: 98.6  
MALF: PR018A PZR PORV 2PR1 develops leak – Value:40000 Tied to ET-1

**RT-1** PR0019A PZR Spray Valve 2PS1 fails open

**ET-1** kal06tph 23 RCP Stop

**INITIAL  
CONDITIONS:**

Reactor power is stable at 4.0% power. The power ascension is on hold temporarily.

**INITIATING CUE:**

You are the Reactor Operator . Respond to all indications and alarms.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Trip Rx.
2. Stops 21 and 23 RCP.
3. Stops 22 OR 24 RCP.

**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		<b>Simulator Operator:</b>  Insert <b>RT-1</b> on direction of evaluator.  MALF: <b>PR0019A</b> , 2PS1 fails open	<b>Note:</b> The time between the 2PS1 failing open and RCS pressure reaching 2,000 psig is ~ 4 minutes and 15 seconds.		
			Recognizes lowering PZR Pressure and/or alarm and/or change in 2PS1 position.  Acknowledges OHA E-28 PZR HTR ON PRESS LO. Recognizes 22 PZR B/U heaters energized. If operator refers to ARP for OHA E-28, it directs entry into S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction.		
			Enters S2.OP-AB.PZR-0001 directly or via OHA E-28 ARP.  <b>Note:</b> It is acceptable to attempt closing 2PS1 prior to entering S2.OP-AB.PZR-001.		

**OPERATIONS TRAINING PROGRAM**  
**JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.1	<b>INITIATE</b> Attachment 1 Continuous Action Summary.	<p>Initiates Attachment 1 Continuous Action Summary.</p> <p><b>Note:</b> There is a CAS action to trip the Rx if RCS pressure lowers to 2,000 psig and continues to drop. <b>IF</b> the operator were to trip the Rx during this JPM based on that CAS action and not at step 3.24.A on page 6 as expected, <b>THEN AFTER</b> the operator has tripped the Rx, verified the Main Turbine is tripped, verified SI not actuated or required and all 4KV vital buses energized, the following cue must be given:</p> <p><b>Cue: The immediate actions of TRIP-1 have been verified by the CRS and RO. The CRS directs you to continue actions of S2.OP-AB.PZR-0001, while the remaining crew members will continue to perform TRIP-1.</b></p>		
	3.2	Is POPS in service?	Determines POPS is not in service by initial conditions or console indications.		

**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.3	Is the controlling Pressurizer Pressure Control Channel (I or III) failed?	Determines Pressurizer Pressure Control Channel (I or III) is not failed and <b>GOES TO</b> Step 3.11		
	3.11	Is the Master Pressure Controller failed? (Refer to Attachment 2 for guidance)	Determines Master Pressure Controller is not failed and <b>GOES TO</b> Step 3.17 (may not refer to Attachment 2 if 2PS1 has been noted open with pressure below closing setpoint.)		
	3.17	Is a Spray Valve(s) failed? (Refer to Attachment 2 for guidance)	Determines 2PS1 is failed open.		
	3.18	<b>PLACE</b> the Spray Valve(s) in MANUAL	Depresses MANUAL PB for 2PS1 and verifies AUTO light extinguished and MANUAL light illuminates.		
	3.19	<b>OPERATE</b> the Spray Valves to control pressure consistent with Attachment 2.	Depresses the CLOSE PB for 2PS1 and recognizes that 2PS1 remains open.		
	3.20	<b>PLACE</b> all Pressurizer heaters in MANUAL and ON	Determines all PZR heaters are in MANUAL and ON.		

**OPERATIONS TRAINING PROGRAM**  
**JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.21	Has pressure control been regained?	Determines pressure control has not been regained since 2PS1 remains open.		
	3.22	Is RCS pressure dropping rapidly?	Determines RCS pressure is dropping rapidly from console indication.		
	3.23	Are Reactor Trip Breakers CLOSED?	Determines Reactor Trip Breakers are closed by initial conditions or console indication.		
*	3.24 A	<b>PERFORM</b> the following:  A. <b>TRIP</b> the Reactor.	Initiates a Reactor Trip using either MANUAL TRIP handle.		
	3.24 B	B. Is Reactor Trip Confirmed?	Determines Reactor Trip is confirmed after identifying PRNI reading < 5% and IR NI indication dropping.		
*	3.24 C	<b>STOP</b> 21 <u>AND</u> 23 RCPs:	Depresses STOP PBs for 21 and 23 RCP and verifies start lights extinguish and stop lights illuminates. <b>Simulator Operator:</b> Ensure <b>ET-1</b> is TRUE when 23 RCP stop PB is depressed.		

**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Pressurizer Pressure and Level

**TASK:** TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	3.24 D	<u>IF</u> Pressurizer Pressure continues to drop, <u>THEN</u> <b>STOP</b> all but one RCP.	Determines Pressurizer Pressure continues to drop, and depresses STOP PB on 22 <u>OR</u> 24 RCP and verifies start light extinguishes and stop light illuminates.		
	3.24 E	<b>GO TO</b> 2-EOP-TRIP-1, Reactor Trip or Safety Injection, <u>AND</u> <b>CONTINUE</b> with this procedure.	Begins performing Immediate Actions of 2-EOP-TRIP-1, Reactor Trip or Safety Injection.  <b>Cue:</b> When operator begins performing Immediate Actions of 2-EOP-TRIP-1, Reactor Trip or Safety Injection, state JPM is complete.		



**OPERATIONS TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**JOB PERFORMANCE MEASURE VALIDATION CHECKLIST**

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- MM 1. Task description and number, JPM description and number are identified.
- MM 2. Knowledge and Abilities (K/A) references are included.
- MM 3. Performance location specified. (in-plant, control room, or simulator)
- MM 4. Initial setup conditions are identified.
- MM 5. Initiating and terminating Cues are properly identified.
- MM 6. Task standards identified and verified by SME review.
- MM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- MM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 18 Date 8/24/12
- MM 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: \_\_\_\_\_

N. M. J. Ford

Date: \_\_\_\_\_

8/24/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_


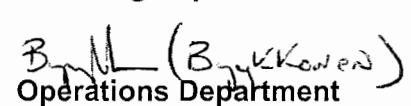
## **OPERATIONS TRAINING PROGRAM JOB PERFORMANCE MEASURE**

### **INITIAL CONDITIONS:**

Reactor power is stable at 4.0% power. The power ascension is on hold temporarily.

**INITIATING CUE:** You are the Reactor Operator. Respond to all indications and alarms.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

<b>STATION:</b> SALEM					
<b>SYSTEM:</b> Residual Heat Removal					
<b>TASK:</b> TCAF a Loss of RHR					
<b>TASK NUMBER:</b> N1140300401					
<b>JPM NUMBER:</b> 11-01 NRC Sim d					
<b>ALTERNATE PATH:</b> <input type="checkbox"/>	<b>K/A NUMBER:</b> APE 025 AA1.09				
<b>IMPORTANCE FACTOR:</b>					
<table style="width: 100%; border: none;"><tr><td style="width: 50%; border: none;">3.2</td><td style="width: 50%; border: none;">3.1</td></tr><tr><td style="width: 50%; border: none;">RO</td><td style="width: 50%; border: none;">SRO</td></tr></table>		3.2	3.1	RO	SRO
3.2	3.1				
RO	SRO				
<b>APPLICABILITY:</b>					
EO <input type="checkbox"/> RO <input checked="" type="checkbox"/> STA <input type="checkbox"/> SRO <input checked="" type="checkbox"/>					
<b>EVALUATION SETTING/METHOD:</b> Simulator					
<b>REFERENCES:</b> S2.OP-AB.RHR-0001, Rev. 17 (Rev checked 8-6-12)					
<b>TOOLS AND EQUIPMENT:</b> None					
<b>VALIDATED JPM COMPLETION TIME:</b> 25 min					
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b> N/A					
<b>Developed By:</b> G Gauding Instructor	<b>Date:</b> 08-18-12				
<b>Validated By:</b> Brennan SME or Instructor	<b>Date:</b> 08-24-12				
<b>Approved By:</b>  Training Department	<b>Date:</b> 9/12/12				
<b>Approved By:</b>  Operations Department	<b>Date:</b> 9/4/12				
<b>ACTUAL JPM COMPLETION TIME:</b>					
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>					
<b>PERFORMED BY:</b>					
<b>GRADE:</b> <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT					
<b>REASON, IF UNSATISFACTORY:</b>					
<b>EVALUATOR'S SIGNATURE:</b>	<b>DATE:</b>				

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Residual Heat Removal

**TASK:** TCAF a Loss of RHR

**TASK  
NUMBER:** N1140300401

**SIMULATOR SETUP:** IC-254

**MALF VL0626 22RH18 fails to position (0-100%)** Final Value 100% (This is to mimic the 22RH18-A/S being C/T in the SHUT position).

**RT-1 MALF RH0026A 21 RHR pump trip**

**RT-3 REM RH02A 22RH12 Initial -0 Final 100 Ramp 60 sec**

**RT-3 REM RH06A 22RH17 Initial -0 Final 100 Ramp 120 sec**

**INITIAL CONDITIONS:**

Unit 2 is in MODE 4.

RCS pressure is 315 psig and stable.

RHR HX inlet temp is 289 degrees with a 10°F/hr cooldown in progress.

21 RHR loop is in service in shutdown cooling mode.

22 RHR loop is aligned for ECCS.

**INITIATING CUE:**

You are the Reactor Operator. Monitor the cooldown and report when 21 RHR HX inlet temp reaches 285°F.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Place 22 RHR loop in service in Shutdown Cooling (SDC) mode by:
  - A. Aligning RHR valves to SDC lineup. (Step 3.52 & Att. 2)
  - B. Starting 22 RHR pump. (Step 3.52 & Att. 2)
  - C. Establishing stable RHR flow of 1800-3000 gpm (Step 3.68)
  - D. Establishing RCS temperature stable or lowering (Step 3.68)

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
		Simulator Operator insert <b>RT-1</b> on Evaluators direction.  MALF: <b>RH0026A</b> 21 RHR Pump Trip			
			Responds to trip of 21 RHR pump by depressing the STOP PB.		
			Recognizes there is no RHR cooling, and enters S2.OP-AB.RHR-0001, Loss of RHR.		
	3.1	<b>INITIATE</b> Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	3.2	<u>IF</u> the RCS is vented to the Containment...	Recognizes the RCS is not vented to the containment and N/A's step.		
	3.3	Is RCS aligned for operation <101 ft. elevation (Reduced Inventory)?	Determines RCS is not aligned for operation <101 ft. elevation (Reduced Inventory) and goes to step 3.5.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
	3.5	Is the loss of RHR due to a mechanical failure or loss of electrical power to the in-service RHR pump?	Determines the loss of RHR is due to a mechanical failure or loss of electrical power to the in-service RHR pump and goes to step 3.50.  <b>Note:</b> If operator answers NO here, then they will perform steps which are designed for system, rather than pump, problems, and is incorrect.		
	3.6	<b>GO TO</b> Step 3.50	Goes to Step 3.50		
	3.50	Is a heat sink available for Residual Heat Removal? <ul style="list-style-type: none"> <li>• Component Cooling to RHR System</li> <li>• Service Water to Component Cooling System</li> </ul>	Determines a heat sink available for Residual Heat Removal since SW and CCW are unaffected.		
	3.51	Is an RHR Loop available?	Determines a RHR Loop is available since 22 RHR loop is available (lined up in ECCS Mode).		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
	3.52	<b>PLACE</b> the alternate RHR Loop in service: <ul style="list-style-type: none"> <li>• <u>IF</u> alternate loop is aligned for ECCS, <b>THEN PERFORM</b> Attachment 2, Aligning RHR Loop From ECCS To Shutdown Cooling.</li> <li><u>OR</u></li> <li>• <u>IF</u> alternate RHR Loop is aligned for Shutdown Cooling, <b>THEN PERFORM</b> Attachment 3, Aligning RHR Loop For Shutdown Cooling.</li> </ul>	Performance steps on next page		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
*	Att. 2 2.0	<p><u>IF</u> placing RHR Loop 22 in service, <u>THEN</u>:</p> <p>A. <b>ENSURE</b> RHR Loop 22 is aligned for ECCS injection.</p> <p>B. <b>PLACE</b> 22RH29 RHR PUMP MINIMUM FLOW VALVE in AUTO.</p> <p>C. Locally:</p> <ul style="list-style-type: none"> <li>• <b>OPEN</b> 22RH12 RHR HX BYPASS ISOLATION VALVE</li> <li>• <b>OPEN</b> 22RH17 RHR LETDOWN ISOLATION VALVE</li> <li>• <b>OPEN</b> 22RH18-A/S RHR LETDOWN ISOLATION VALVE AIR SUPPLY</li> </ul> <p>(Note: Time compression will be utilized for operators performing actions in the field.)</p>	<p>Determines 22 RHR loop is aligned for ECCS injection from initial conditions. Determines 22RH29, RHR PUMP MINIMUM FLOW VALVE is in AUTO.</p> <p>Directs a local operator to open 22RH12 RHR HX BYPASS ISOLATION VALVE, open 22RH17 RHR LETDOWN ISOLATION VALVE, and open 22RH18-A/S RHR LETDOWN ISOLATION VALVE AIR SUPPLY</p> <p><b>Simulator Operator:</b> When directed to open 22RH18-A/S, delete <b>MALF VL0626 22RH18 fails to position (0-100)</b> (This allows valve to move when control console PBs are depressed.)</p> <p><b>Then</b> insert <b>RT-3</b> to open the 22RH12 and 22RH17 with ramps built in, and report to operator when they are open. Also report that you have released the Red Blocking Tag and opened 22RH18-A/S, RHR LETDOWN ISOLATION VALVE AIR SUPPLY</p>		<p>This step to open 3 local valves is considered a critical task because failure to have these local valves opened will prevent placing 22 RHR loop in service in SDC.(No bypass or 22RH18 flow <u>control</u>)</p>



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
			<u><b>Simulator Operator Cue:</b></u> IF requested for WCC to release tag, state that the NEO has the release for 22RH18- A/S LOCAL A/S TO 22RH18.		
		D. In the Control Room: <ul style="list-style-type: none"> <li>• <b>CLOSE</b> 22RH18, RHR PUMP FLOW CONTROL VALVE</li> <li>• <b>CLOSE</b> 21RH18, RHR PUMP FLOW CONTROL VALVE</li> <li>• <b>CLOSE</b> 2RH20, RHR HX BYPASS</li> <li>• <b>CLOSE</b> 21CC16, RHR HX COMPONENT COOL OUT VALVE</li> <li>• <b>OPEN</b> 22CC16, RHR HX COMPONENT COOL OUT VALVE</li> </ul>	Depresses CLOSE PB's for: <ul style="list-style-type: none"> <li>• 22RH18 RHR PUMP FLOW CONTROL VALVE</li> <li>• 21RH18 RHR PUMP FLOW CONTROL VALVE</li> <li>• 2RH20 RHR HX BYPASS</li> <li>• 21CC16 RHR HX COMPONENT COOL OUT VALVE</li> </ul> And verifies valves stroke closed.  Depresses OPEN PB for 22CC16 and verifies it strokes open.		
		E. <b>START</b> 22 RHR PUMP	Depresses the START PB for 22 RHR pump and verifies the pump started.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM** Residual Heat Removal  
**TASK:** TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
*		F. <b>OPERATE</b> 22RH18 and 2RH20, to maintain stable RHR flow to the Reactor Coolant System.	Adjusts 22RH18 RHR PUMP FLOW CONTROL VALVE and 2RH20 RHR HX BYPASS to establish stable RHR pump flow.		
		<b>RETURN</b> to procedure step in effect.	Returns to step 3.52 and initials step as complete.		
	3.53	Is RHR in service?	Determines RHR is in service by previous step performance.		
	3.54	Is a heat sink available for Residual Heat Removal? <ul style="list-style-type: none"> <li>• Component Cooling to RHR System</li> <li>• Service Water to Component Cooling System</li> </ul>	Determines a heat sink available for Residual Heat Removal since SW and CCW are unaffected.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM**    Residual Heat Removal  
**TASK:**      TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
	3.55	Is RHR flow stable?	<p>Checks RHR flow and determines flow is stable, and goes to Step 3.68</p> <p><b>Note:</b> Operator may adjust 22RH18 RHR PUMP FLOW CONTROL VALVE and 2RH20 RHR HX BYPASS if flow is not stable, or not 1800-3000 gpm per step 3.56.</p> <p>If this is the case, RHR system verification is performed at step 3.59. (It is the same as step 3.68).</p>		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM**    Residual Heat Removal  
**TASK:**        TCAF Loss of RHR

	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	S / U	COMMENTS (Required for UNSAT Evaluation)
	3.68	Is RHR System normal as indicated by <u>ALL</u> of the following? <ul style="list-style-type: none"> <li>RHR Pumps – at least one running</li> <li>RCS level- &gt;97.5 ft. elevation <u>AND</u> stable <u>OR</u> rising consistent with current RCS makeup <u>AND</u> no excessive indication of RCS Leakage.</li> <li>RHR flow – stable between 1800 and 3000 gpm</li> <li>RCS temperature – stable or lowering</li> </ul>	<p>Verifies 22 RHR pump I/S</p> <p>Determines RCS is full (PZR level)</p> <p>Adds 21SJ49 RHR DISCH TO COLD LEGS flow and 22SJ49 RHR DISCH TO COLD LEGS flow to get 1800-3000 gpm. Uses P-250 computer to verify RCS temperature is stable or lowering. <u>IF</u> temperature is NOT stable or lowering, raises flow through HX by opening 22RH18 RHR PUMP FLOW CONTROL VALVE while lowering bypass flow by closing 2RH20 RHR HX BYPASS to turn RCS temperature.</p> <p><b>Note:</b> It is acceptable to use either RCS temperature indication(s) OR RHR HX inlet temperature to determine if RCS temperature is stable or lowering. CETs will respond the quickest. After determining RCS temp is stable or lowering and goes to Step 4.0, state: "<b>JPM is complete.</b>"</p>		

# OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- JB*   1. Task description and number, JPM description and number are identified.
- JB*   2. Knowledge and Abilities (K/A) references are included.
- JB*   3. Performance location specified. (in-plant, control room, or simulator)
- JB*   4. Initial setup conditions are identified.
- JB*   5. Initiating and terminating Cues are properly identified.
- JB*   6. Task standards identified and verified by SME review.
- JB*   7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- JB*   8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev.   17   Date   8.24.12
- JB*   9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A*   10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:   *JB Brennan*  

Date:   8.24.12  

SME/Instructor:                     

Date:                     

SME/Instructor:                     

Date:

## **OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE**

### **INITIAL CONDITIONS:**

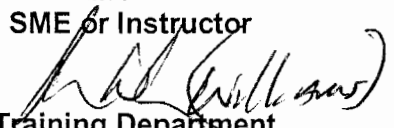
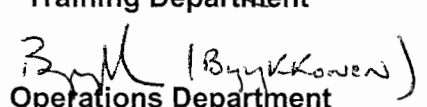
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Unit 2 is in MODE 4.  
RCS pressure is 315 psig and stable.  
RHR HX inlet temp is 289 degrees with a 10°F/hr cooldown in progress.  
21 RHR loop is in service in shutdown cooling mode.  
22 RHR loop is aligned for ECCS.

### **INITIATING CUE:**

You are the Reactor Operator. Monitor the cooldown and report when 21 RHR HX inlet temp reaches 285°F.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	Main Turbine		
<b>TASK:</b>	TCAF Main Turbine Trip < P-9 (Main Turb ASO trip)		
<b>TASK NUMBER:</b>	N1140420401		
<b>JPM NUMBER:</b>	11-01 NRC Sim e		
<b>ALTERNATE PATH:</b>	<input checked="" type="checkbox"/>	<b>K/A NUMBER:</b>	2.4.31
<b>APPLICABILITY:</b>		<b>IMPORTANCE FACTOR:</b>	4.2
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	Simulator - Perform		
<b>REFERENCES:</b>	S2.OP-AR.ZZ-0007, Rev. 48, Overhead Window G S2.OP-AB.TRB-0001, Rev. 14, Turbine Trip <P-9 (Both rev checked 8-6-12)		
<b>TOOLS AND EQUIPMENT:</b>	None		
<b>VALIDATED JPM COMPLETION TIME:</b>	5 min		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	8-6-12
<b>Validated By:</b>	Mulford SME or Instructor	<b>Date:</b>	8-23-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/12/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/5/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
<b>GRADE:</b>	SAT	UNSAT	
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** Main Turbine

**TASK:** TCAF Main Turbine Trip < P-9 (Loss of Turbine Auxiliaries Cooling Expansion Tank Level)

**TASK NUMBER:** N1140420401

**SIMULATOR SETUP** IC-255

**MALF** TU0118A 21MS28 Turb Stop Valve Fails Open

**RT-1**

I/O 4505 OVLO Low Oil Pressure – I

**MALF AN0244 SER 244Fails- :G4 Turbine Auto Stop Oil Pressure Low**

**RT-3**

**MALF AN0605 SER 605 Fails - : F32 DEHC Trip**

I/O 4506 OVLO Low Oil Pressure – II

I/O 4507 OVLO Low Oil Pressure – III

**INITIAL CONDITIONS:**

40% power, BOL.

A power reduction to bring the Main Turbine off-line is on hold.

**INITIATING CUE:** You are the Reactor Operator. Respond to all alarms and indications.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Task Standard for Successful Completion:

1. Trip the Main Turbine.
2. Trip the Rx.



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		<u><b>SIMULATOR OPERATOR:</b></u>  Insert <b>RT-1</b> after candidate assumes the watch.	Announces unexpected <b>OHA G-4 TURB AUTO STOP OIL PRESS LO</b>		
			Refers to S2.OP-AR.ZZ-0007, Overhead Window G.		
	ARP 1.0/2.0		Reviews causes and determines <u>one</u> of <u>three</u> Auto Stop Oil Pressure channels reading $\leq 50$ psig causes the alarm, and 2 of 3 channels in alarm will trip the Main Turbine.		
	ARP 3.1	IF alarm is due to testing OR alarm is expected for current plant conditions, THEN no further action is required.	Determines no testing in progress and alarm is not expected.		
	3.2	<b>CONFIRM</b> alarm by verifying 2RP4 AST Oil Press Low status light indications.	Checks 2RP4 AST Oil Press Low status light is illuminated for Channel I.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.3	<p>IF a Turbine Trip occurs, <u>THEN</u>:</p> <p>A. IF <math>\geq</math>P-9 (49% power), <u>THEN GO TO</u> 2-EOP-TRIP-1, Reactor Trip or Safety Injection.</p> <p>B. IF &lt;P-9 (49% power), <u>THEN GO TO</u> S2.OP-AB.TRB-0001(Q), Turbine Trip Below P-9.</p>			
	3.4	<p>IF instrument failure is suspected, <u>THEN</u>:</p> <p>A. <b>REFER TO</b> Technical Specifications.</p> <p>B. <b>REMOVE</b> affected channel from service IAW S2.OP-SO.RPS-0006(Q), Main Turbine Channel Trip/Restoration.</p> <p>C. <b>INITIATE</b> a NOTF to determine and correct the cause of the alarm.</p>	<p>There is no justification for suspecting instrument failure without having technician investigate.</p> <p>May dispatch operator to check turbine or call for assistance from WCC or maintenance.</p> <p><b>Note:</b> Allow sufficient time for candidate to try and initiate action to investigate.</p>		
			<p><b>Simulator Operator:</b> Insert <u>RT-3</u> on direction from Evaluator.</p> <p>This simulates the remaining 2 channels see a low Auto Stop Oil signal and actuates OHA F-32, which indicates a demand for a Turbine Trip, which does not occur.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*			<p>Candidate recognizes a demand for a turbine trip has occurred, but the turbine has not tripped.</p> <p>Initiates a turbine trip from trip handle and verifies turbine is tripped. Recognizes step 3.3 states...</p> <p><u>"IF</u> &lt;P-9 (49% power), <u>THEN GO TO</u> S2.OP-AB.TRB-0001(Q), Turbine Trip Below P-9." And goes to S2.OP-AB.TRB-0001.</p>		
	AB.TRB 3.1	<b>INITIATE</b> Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.2	VERIFY the Turbine is tripped.	<p><b>Note:</b> IF the candidate observes the 21MS28 remaining open at this point, <u>THEN</u> they may determine the turbine is not tripped, and perform a MSLI by depressing all 4 MSLI PBs on either Safeguards bezel. Initiating a MSLI before the Rx is tripped is an <u>incorrect action</u> which may challenge SG safeties if they lift. Initiating a MSLI renders the Main Steam Dumps inoperable and prematurely isolates the SGFPs. With Rx power &gt;P-10 (10%) and steam dumps not available, a Rx trip is required IAW CAS actions 1.0 and 2.0. See page 8 for complete discussion. See <u>next page</u> for required actions <u>IF</u> a Rx trip is performed here.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	EOP- TRIP-1				
*	1	TRIP REACTOR	IF candidate initiates a Rx trip prior to initiating a MSLI based on CAS actions 1.0 and 2.0 which would occur if they initiated a MSLI, then successful performance of TRIP-1 immediate actions must be performed as follows:		
*	2	IS REACTOR TRIP CONFIRMED	Trips the Rx using either Trip handle.		
	3	TRIP TURBINE	Confirms Rx trip Attempts to trip the Main Turbine using the Trip handle. Determines the Trip handle did not close all Main Turbine Stop Valves. Depresses Turbine Trip bezel. Determines the Trip handle did not close all Main Turbine Stop Valves.		
	EOP- TRIP-1 3	TRIP TURBINE (MSLI step)	Initiates a MSLI. Terminate JPM after MSLI has been performed.		
	3.3	Are all Turbine Stop Valves closed?	Determines all Turbine Stop Valves are NOT closed from 2RP4. Goes to Step 3.7.		
	3.7	TRIP the Reactor, GO TO 2-EOP-TRIP-1, Reactor Trip or Safety Injection.	Trips the Reactor using either of the Reactor Trip handles.		
			Begins performing immediate actions of 2-EOP-TRIP-1, Reactor Trip or Safety Injection.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Low ASO pressure)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Terminate JPM when Reactor has been tripped.		

**Turbine Trip requirements-** During performance of this JPM, the candidate will receive direction from the Alarm Response Procedure S2.OP-AR.ZZ-0007, Overhead Window G, OHA G-4, page 9, which states “**TRIP** the Turbine and GO TO S2.OP-AB.TRB-0001, Turbine Trip <P-9.”

When outside the EOP network, initiating a MSLI to perform a Turbine Trip is NOT an appropriate action, since in TRIP-1 the steps for tripping the Rx precede the steps for tripping the Turbine, and the MSLI would only be performed AFTER all attempts to trip the Rx from the control room have already been performed. IF the Rx trip were NOT confirmed, then the Turbine trip steps would include the MSLI since the overriding concern at that point would be reduction of Rx power by removing the Main Turbine from service.


After entering the EOP Network, actions for tripping the Reactor and tripping the Turbine have special definitions as described in OP-AA-101-111-1003, Use of Procedures, which **ONLY** apply while in the EOP network. When defining turbine trip while in EOP-TRIP-1, it states on page 13, “Steps 2.2 and 3, **TRIP TURBINE**, are defined as, “Operate the turbine trip switch”  
IF turbine trip NOT confirmed,  
THEN trip the turbine using the Turbine Trip bezel.  
IF turbine trip NOT confirmed,  
THEN initiate main steam isolation.””

For these reasons, initiating a MSLI during this JPM **prior** to initiating a Rx trip will be considered failure criteria due to the possible challenge to SG safeties which may occur due to this action, and which otherwise would not occur in the JPM.

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- M 1. Task description and number, JPM description and number are identified.
- M 2. Knowledge and Abilities (K/A) references are included.
- M 3. Performance location specified. (in-plant, control room, or simulator)
- M 4. Initial setup conditions are identified.
- M 5. Initiating and terminating Cues are properly identified.
- M 6. Task standards identified and verified by SME review.
- M 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- M 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 48/14 Date 8/23/12
- M 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:  N. M. Ford

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

### **INITIAL CONDITIONS:**

40% power, BOL.

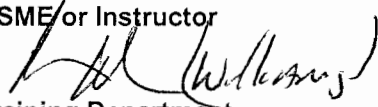

A power reduction to bring the Main Turbine off-line is on hold.

### **INITIATING CUE:**

You are the Reactor Operator. Respond to all alarms and indications.



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

<b>STATION:</b>	SALEM						
<b>SYSTEM:</b>	Pressurizer and PRT						
<b>TASK:</b>	Adjust PRT level and pressure						
<b>TASK NUMBER:</b>	N0100110101						
<b>JPM NUMBER:</b>	11-01 NRC Sim f						
<b>ALTERNATE PATH:</b>	<input type="checkbox"/>	<b>K/A NUMBER:</b>	007 A4.04				
<b>APPLICABILITY:</b>		<b>IMPORTANCE FACTOR:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; text-align: center;">2.6</td><td style="width: 50%; text-align: center;">2.6</td></tr><tr><td style="text-align: center;">RO</td><td style="text-align: center;">SRO</td></tr></table>	2.6	2.6	RO	SRO
2.6	2.6						
RO	SRO						
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>				
<b>EVALUATION SETTING/METHOD:</b>	Simulator / Perform						
<b>REFERENCES:</b>	S2.OP-SO.PZR-0003, Rev. 15 (checked 08-22-12)						
<b>TOOLS AND EQUIPMENT:</b>	None						
<b>VALIDATED JPM COMPLETION TIME:</b>	<u>8 min</u>						
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	<u>N/A</u>						
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	08-22-12				
<b>Validated By:</b>	Brennan SME or Instructor	<b>Date:</b>	08-24-12				
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/14/12				
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/5/12				
<b>ACTUAL JPM COMPLETION TIME:</b>							
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>							
<b>PERFORMED BY:</b>							
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT							
<b>REASON, IF UNSATISFACTORY:</b>							
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>				

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Pressurizer and PRT

**TASK:** Adjust PRT level and pressure

**TASK NUMBER:** N0450040101

**SIMULATOR SETUP:** IC- 256, PRT level 55.9% (or low enough for the PRT Hi-Lo Lvl alarm to be locked in) with PRT pressure 9.8 psig. Paper copies of procedure needed.

**INITIAL CONDITIONS:**

Unit 2 is at 100% power.

2PR1 is leaking and 2PR6 is shut with power applied. Operators have been attempting to determine the leak rate through 2PR1.

Console alarm PRT Level Hi-Lo is in alarm (lo) with PRT level at 55.9%.

**INITIATING CUE:**

You are directed to raise PRT level to 60% IAW S2.OP-SO.PZR-0003, Pressurizer Relief Tank Operation. A review of the Components Off Normal and Off Normal Tagged lists is complete with no issues identified.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

**Task Standard for Successful Completion:**

1. Raise PRT level to > 57% while maintaining PRT pressure  $\leq$  10 psig.

# OPERATOR TRAINING PROGRAM

## JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: PZR and PRT

TASK: Adjust PRT level and pressure

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide blank paper copy of S2.OP-SO.PZR-0003.	Reviews and initials Prerequisites, Precautions and Limitations.		
	5.1.1	<u>IF</u> PRT level is low, <u>THEN</u> <b>PERFORM</b> the following:	<b>Note:</b> The step for reducing PRT pressure may be performed prior to raising level, since pressure is close to the maximum allowed. (See Step 5.1.1.D)		
*	5.1.1.A	<u>IF</u> required, <u>THEN</u> <b>START</b> 21 or 22 Primary Water Pump.	Depresses start pushbutton for 22 Primary Water Pump. (aligned for manual start)  OR  Places 21 Primary Water Pump in manual and depresses start pushbutton for 21 Primary Water Pump.  <u>IF</u> operator does not start a Primary Water Pump and will gravity feed to makeup to the PRT, <u>THEN Cue:</u> The CRS directs you to use a Primary Water pump to makeup to the PRT.		
*	5.1.1.B	<b>OPEN</b> 2WR80, CONT PRI WATER STOP.	Depresses open pushbutton for 2WR80 CONT PRI WATER STOP and verifies open light lit.		

**OPERATOR TRAINING PROGRAM**  
**JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: PZR and PRT

TASK: Adjust PRT level and pressure

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.1.1.C	<b>OPEN</b> 2WR82, PRT WATER SUPPLY.	Depresses open pushbutton for 2WR82, PRT WATER SUPPLY and verifies open light lit.		
*	5.1.1.D	<u>IF</u> PRT pressure approaches 10 psig, <u>THEN</u> <b>OPEN</b> 2PR15, VENT, as necessary, to maintain PRT pressure at >3 psig and ≤10 psig.	Depresses open pushbutton for 2PR15, VENT <b>prior to PRT pressure rising above 10.0 psig</b> , and depresses close pushbutton prior to PRT pressure lowering below 3.1 psig.  <b>Note:</b> IF PRT Hi Pressure alarm is received, it prevents the 2PR15 from opening, and pressure cannot be reduced.  <b>When</b> candidate has demonstrated that they can raise level without exceeding 10 psig, <b>then Cue: PRT level is now 60%</b>		
* * *	5.1.1.E	When PRT level increases to between 59% and 86%:  1. <b>CLOSE</b> 2WR80, CONT PRI WATER STOP. 2. <b>CLOSE</b> 2WR82, PRT WATER SUPPLY 3. <b>ENSURE</b> 2PR15, VENT is closed. 4. <u>IF</u> Primary Water Pump is in service IAW Step 5.1.1.A, <u>AND</u> is <u>NOT</u> required to be in service for any other reason, <b>THEN STOP</b> running Primary Water Pump.	When PRT level rises to 60%:  Closes 2WR80, CONT PRI WATER STOP.  Closes 2WR82, PRT WATER SUPPLY. Ensures 2PR15, VENT is closed. Depresses stop pushbutton for running Primary Water Pump. <u>IF</u> 21 Primary Water pump was used to fill PRT, <b>THEN</b> places 21 or 22 Primary Water pump in auto.		

**OPERATOR TRAINING PROGRAM**  
**JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

**SYSTEM:** PZR and PRT

**TASK:** Adjust PRT level and pressure

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.1.1.F	<b>DIRECT</b> a second Operator to perform an Independent Verification of component position in Attachment 1, Section 1.0			

TERMINATING CUE: After candidate reads Step 5.1.1.F, state JPM is complete.

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

- YB 1. Task description and number, JPM description and number are identified.
- YB 2. Knowledge and Abilities (K/A) references are included.
- YB 3. Performance location specified. (in-plant, control room, or simulator)
- YB 4. Initial setup conditions are identified.
- YB 5. Initiating and terminating Cues are properly identified.
- YB 6. Task standards identified and verified by SME review.
- YB 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- YB 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 15 Date 8-24-12
- YB 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- N/A 10. (If) the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

Date: 8.24.12

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**INITIAL CONDITIONS:**

Unit 2 is at 100% power.



2PR1 is leaking and 2PR6 is shut with power applied. Operators have been attempting to determine the leak rate through 2PR1.

Console alarm PRT Level Hi-Lo is in alarm (lo) with PRT level at 55.9%.

**INITIATING CUE:**

You are directed to raise PRT level to 60% IAW S2.OP-SO.PZR-0003, Pressurizer Relief Tank Operation. A review of the Components Off Normal and Off Normal Tagged lists is complete with no issues identified.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM 1 & 2		
SYSTEM:	Loss of Control Air		
TASK:	TCAF a Loss of Control Air		
TASK NUMBER:	N1140070401		
JPM NUMBER:	11-01 ILOT Sim g		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	APE 065 AA2.06
IMPORTANCE FACTOR:		3.6	4.2
APPLICABILITY:		RO	SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator - Perform		
REFERENCES:	S2.OP-AB.CA-0001, Rev. 17 Loss of Control Air S2.OP-AR.ZZ-0011, Rev. 58, pages 118-128		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	8 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	8-4-12
Validated By:	Brennan SME or Instructor	Date:	8-24-12
Approved By:	 Training Department	Date:	9/12/12
Approved By:	 Operations Department	Date:	9/5/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: Loss of Control air

TASK: TCAF Loss of Control Air

TASK NUMBER: N1140070401

**SIMULATOR SETUP:**

IC-252

RT-1

MALF: CA0221 #2 STATION AIR CMPRSSR TRIP

REM: CA13D LOCKOUT #1 STATION AIR CMPRSR, Delay 1:30

I/O : AQ01 OVLO COMP 1 TROUBLE ALARM, Fin Val: ON, Delay 1:30

Other setup:

REM: CA15D LOCKOUT #3 STATION AIR CMPRSR

CA11D #1 EMERGENCY AIR COMPRSR IN AUTO Fin Val: MANUAL

I/O : AQ01 OVLO COMP 3 TROUBLE ALARM, Fin Val: ON

**INITIAL CONDITIONS:**

- Unit 2 is operating at 100% power.
- A WG release is in progress from 21 GDT.
- #3 SAC is C/T for scheduled maintenance.
- Unit 1 is operating at 100% power.

**INITIATING CUE:**

You are the Unit 2 Reactor Operator. Respond to all indications and alarms.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Isolate Letdown
2. Terminate Gaseous Release
3. Trip the Rx prior to auto trip on lo lo SG NR level.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<b>Note:</b> The #1 and #3 Compressor Trouble alarms on 2CC1 do NOT have audible or flash capabilities (S2.OP-AR.ZZ-0011 page 120).		
		<b>Simulator Operator:</b> Insert <b>RT-1</b> after operator assumes watch.			
			Determines #2 Station Air Compressor (SAC) has tripped, and the Unit 2 Emergency Control Air Compressor (ECAC) has automatically started.  <b>Note:</b> All 3 SAC supply breakers open is an auto start signal for both ECAC's. The Unit 2 ECAC will auto start, (Unit 1 will not). By design, the ECAC will not load until its control air header pressure lowers to 85 psig. 2A control air header is supplied from #2 ECAC, 2B control air header is supplied from #1 ECAC.		
			<b>Note:</b> The next-to-load SAC (follow) will not immediately start. It requires Station Air header pressure to drop to 5 psig below the follow setpoint (105 psig) for ~ 5 seconds.		
			Refers to the S2.OP-AR.ZZ-0011, Control Console 2CC1, ARP for COMPR 2 TROUBLE.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP 3.1	<u>IF</u> SAC 2 trips, <u>THEN</u> : A. <b>COORDINATE</b> (as necessary) with Unit 1 B. <b>ENSURE</b> operating <u>OR</u> <b>START</b> at least one SAC IAW SC.OP-SO.SA-0001(Z), Station Air System Operation.	Coordinates with Unit 1 to start at least one SAC IAW SC.OP-SO.SA-0001(Z), Station Air System Operation.  <b>Cue when contacted as Unit 1:</b> Unit 1 will ensure #1 SAC is placed in service.		
	ARP 3.2	<u>IF AT ANY TIME</u> Station Air pressure cannot be maintained $\geq 100$ psig, <u>THEN</u> <b>GO TO</b> S2.OP-AB.CA-0001(Q), Loss of Control Air.	GOES TO S2.OP-AB.CA-0001(Q), Loss of Control Air, when Station Air pressure lowers to 100 psig if AB not entered previously.		
			<b>Simulator Operator:</b> Ensure #1 SAC locks out 1:30 after insertion of <b>RT-1</b> , then <b>announce twice on plant page: "#1 Station Air Compressor Trip."</b>		
			Recognizes that no SAC's are running, and enters S2.OP-AB.CA-0001 if not entered previously.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<p><b>Note:</b> Approximate event times are listed below <u>from insertion of RT-1</u>.</p> <p>1 min – 1 SAC auto starts. 1 min 30 sec – 1 SAC trips. 3 min 50 sec – 2 ECAC begins loading. 4 min 10 sec - 2B Control Air header pressure reaches 80 PSIG, and SA low pressure alarm. 4 min 25 sec – CA low pressure alarm. 6.5 min – 21-24BF19 Feed Reg Valves begin closing. 7 min 10 sec – G-15 OHA ADFCS TRBL.</p>		
	AB.CA 3.1	<b>INITIATE</b> Attachment 1, Continuous Action Summary.	<p>Initiates Attachment 1, Continuous Action Summary.</p> <p><b>Cue IF Required:</b> If CAS Step 8.0 action is being taken to refer to Attachment 2 for valve fail positions and for further action to be taken, then: <b>Cue: The CRS will refer to Attachment 2</b></p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.2	Do either of the following conditions exist? <ul style="list-style-type: none"> <li>All Station Air Compressors stopped</li> </ul> <u>OR</u> <ul style="list-style-type: none"> <li>Either Station Air Header &lt;100 psig</li> </ul>	Determines all SAC's are stopped or determines Station Air Header pressure is <100 psig.		
	3.3	IF a loss of 1F Group Bus has occurred, AND 1H Group Bus is available, THEN <b>SEND</b> an Operator to restore power to #1 SAC Auxiliary Oil pump by transferring 11 Turbine West 230V Control Center IAW Attachment 14, Section 1.0.	Determines a loss of 1F Group Bus has not occurred.  <b>Cue if required:</b> Unit 1 reports 1F Group Bus is energized.		
	3.4	IF a loss of 2F Group Bus has occurred, AND 2H Group Bus is available, THEN <b>SEND</b> an Operator to restore power to #2 SAC Auxiliary Oil pump by transferring 21 Turbine West 230V Control Center IAW Attachment 14, Section 2.0.	Determines a loss of 2F Group Bus has not occurred.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.5	IF a loss of 1H Group Bus has occurred, AND 1F Group Bus is available, THEN <b>SEND</b> an Operator to restore power to #3 SAC Auxiliary Oil pump by transferring 11 Turbine East 230V Control Center IAW Attachment 14, Section 3.0.	Determines a loss of 1H Group Bus has not occurred.  <b>Cue if required:</b> Unit 1 reports 1H Group Bus is energized.		
	3.6	<b>START</b> or have Unit One Control Room <b>START</b> the Next to Load Station Air Compressor.	Determines no SAC's are available.  <b>Cue if required:</b> If Unit 1 is contacted, report that #3 Station Air Compressor is tagged out and #1 Station Air Compressor has tripped, and that an operator has been dispatched to the Station Air Compressors.		
	3.7	Is either Station Air Header <100 psig?	Determines both Station Air Headers are <100 psig.		
	3.8	Attempt to <b>START</b> , or have Unit One Control Room <b>START</b> , the remaining Station Air Compressor.	Determines no SAC's can be started.		
	3.9	<b>NOTIFY</b> the SM/CRS to evaluate use of temporary air compressors.	<b>Cue:</b> CRS will evaluate use of temporary air compressors.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.10 3.11	Is 2A Control Air Header $\leq$ 88 psig?	Determines 2A control air header pressure is: $\leq$ 88 psig and determines #2 ECAC is in service OR >88 psig.		
	3.12 3.13	Is 2B Control Air Header $\leq$ 88 psig?	Determines 2B control air header pressure is: $\leq$ 88 psig and contacts Unit 1 to place #1 ECAC in service OR >88 psig.  <b>Cue:</b> When Unit 1 is contacted to start #1 ECAC, state: " # 1 ECAC has tripped. "		
	3.14	<b>SEND</b> operators as necessary to:  <ul style="list-style-type: none"> <li><b>LOCATE AND ISOLATE</b> any air system leaks.</li> <li><b>INVESTIGATE</b> cause of air compressor trip/trouble.</li> </ul>	Dispatches operators to:  <ul style="list-style-type: none"> <li><b>LOCATE AND ISOLATE</b> any air system leaks.</li> <li><b>INVESTIGATE</b> cause of air compressor trip/trouble.</li> </ul>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.15	<p>IF Station Air is lost, <u>AND</u> either of the following are in service:</p> <ul style="list-style-type: none"> <li>Spent Fuel Pool Transfer Pool Weir Gate Seals</li> <li>SG Nozzle Dams</li> </ul> <p><u>THEN</u>:</p> <p>A. <b>EVACUATE</b> personnel from the areas subject to leakage/flooding.</p> <p>B. <b>INITIATE</b> monitoring of Fuel Pool and/or Reactor Vessel levels for the need to makeup due to leakage.</p>	<p>Determines Station Air is lost, and <u>neither</u> of the following are in service:</p> <ul style="list-style-type: none"> <li>Spent Fuel Pool Transfer Pool Weir Gate Seals</li> <li>SG Nozzle Dams</li> </ul>		
	3.16	<p>IF cooling water to the Station or Emergency Air Compressors is lost, <u>THEN</u> <b>INITIATE</b> the applicable portion of Attachment 6, Abnormal Cooling Water Lineups.</p>	<p>Determines cooling water to the Station or Emergency Air Compressors is not lost.</p>		
	3.17	<p>Are both 2A and 2B Control Air Headers &lt;80 psig?</p>	<p>Determines both 2A and 2B Control Air Headers are not &lt;80 psig.</p>		
	3.18	<p>Is 2B Control Air Header &lt;80 psig?</p>	<p>Determines 2B Control Air Header is &lt;80 psig.</p>		
	3.55	<p><b>CONTINUE</b></p>			



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

SYSTEM: Loss of Control Air

TASK: TCAF a Loss of Control Air

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3.56	<b>ISOLATE</b> Letdown by closing the following valves: A. 2CV3, 45 GPM ORIFICE B. 2CV4, 75 GPM ORIFICE C. 2CV5, 75 GPM ORIFICE D. 2CV2 E. 2CV277 F. 2CV7	Isolates Letdown by closing the following valves: A. 2CV3, 45 GPM ORIFICE B. 2CV4, 75 GPM ORIFICE C. 2CV5, 75 GPM ORIFICE D. 2CV2 E. 2CV277 F. 2CV7		
*	3.57	<b>VERIFY</b> any Liquid or Gaseous release is STOPPED by ensuring the following valves are closed: • 2WL51, TO CIRC WTR DISCHARGE • 2WG41, GAS DECAY TK TO PLANT VENT	Determines 2WG41, GAS DECAY TK TO PLANT VENT is open, and shuts 2WG41, GAS DECAY TK TO PLANT VENT.  Verifies 2WL51 is shut.		
*	CAS	<b><u>IF AT ANY TIME</u></b> Station Air is lost, <b><u>THEN:</u></b>  • <b>INITIATE</b> monitoring of 21-24BF19 operation. • <b><u>IF</u></b> any BF19 goes CLOSED, <b><u>AND</u></b> the applicable SG water level cannot be maintained, <b><u>THEN</u></b> <b>TRIP</b> the Reactor, <b>CONTINUE</b> with this procedure <b><u>AND</u></b> <b>GO TO</b> 2-EOP-TRIP-1, Reactor Trip Or Safety Injection.	Identifies all BF19 valves closing.  Trips the Reactor.		
			Terminate JPM once Rx has been tripped.		

### **NOTE TO EVALUATORS**

The plant response to the loss of Control Air will occur the same way for all performers of this JPM. However, the individual performers of this JPM may go through procedures in different ways or with different times, i.e., S2.OP-AB.CA-0001 could be entered directly upon the trip of the operating SAC, or after SA header pressure lowers to <100 psig IAW ARP. Additionally, some operators may spend more time with the Continuous Action Summary with regards to the 21-24 BF19 operation. For these reasons, certain actions identified as Critical Tasks, as well as the Task Standards themselves, may not be performed. This in itself is not failure criteria for this JPM, but should be identified in the Comments Section of the JPM and the Performance Criteria of TQ-AA-106-0116, LORT JPM Evaluation Summary. This may result in this JPM only containing a single Critical Task, which is to trip the Reactor prior to an automatic trip on lo-lo SG NR level.

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- 13 1. Task description and number, JPM description and number are identified.
- 13 2. Knowledge and Abilities (K/A) references are included.
- 13 3. Performance location specified. (in-plant, control room, or simulator)
- 13 4. Initial setup conditions are identified.
- 13 5. Initiating and terminating Cues are properly identified.
- 13 6. Task standards identified and verified by SME review.
- 13 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- 13 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 17 Date 8-24-12
- 13 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: KK Brennan

Date: 8.24.12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date:

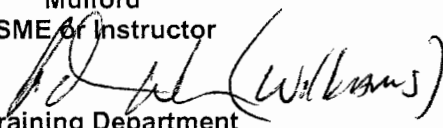

### **INITIAL CONDITIONS:**

- Unit 2 is operating at 100% power.
- A WG release is in progress from 21 GDT.
- #3 SAC is C/T for scheduled maintenance.
- Unit 1 is operating at 100% power.

### **INITIATING CUE:**

You are the Unit 2 Reactor Operator. Respond to all indications and alarms.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

<b>STATION:</b>	Salem Generating Station		
<b>SYSTEM:</b>	Radioactive Waste Liquid		
<b>TASK:</b>	Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System (and respond to High Radiation with failure of 2WL51 to automatically shut.)		
<b>TASK NUMBER:</b>	N0685140104		
<b>JPM NUMBER:</b>	11-01 NRC Sim h		
<b>ALTERNATE PATH:</b>	<input checked="" type="checkbox"/>	<b>K/A NUMBER:</b>	068 A4.03
<b>APPLICABILITY:</b>		<b>IMPORTANCE FACTOR:</b>	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	Simulator / Perform		
<b>REFERENCES:</b>	S2.OP-AB.RAD-0001, Rev. 29 (Rev checked 08-06-12) Abnormal Radiation S2.OP-SO.WL-0001, Rev. 25, (Rev checked 08-06-12) Release of Radioactive Liquid Waster from 21 CVCS Monitor Tank		
<b>TOOLS AND EQUIPMENT:</b>	None		
<b>VALIDATED JPM COMPLETION TIME:</b>	8 minutes		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	08-06-12
<b>Validated By:</b>	Mulford SME or Instructor	<b>Date:</b>	08-23-12
<b>Approved By:</b>	 Training Department	<b>Date:</b>	9/12/12
<b>Approved By:</b>	 Operations Department	<b>Date:</b>	9/5/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>		<b>DATE:</b>	

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: Radioactive Waste Liquid

TASK: Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System (and respond to High Radiation w/ failure of WL51 to automatically shut.)

TASK NUMBER: N0685140104

SIMULATOR SETUP IC-258  
Have S2.OP-SO.WL-0001 open on U desk.  
**MALF: RM0235A** Process Rad Mon 2R18 fails high tied to ET-3 with 30 second delay  
**MALF: VL0305** 2WL51 Fails to position (0-100%) tied to ET-3 with 5 second ramp.  
**ET-3 kao07pnu** 2WL51 open PB  
**ET-5 kao07tcu** 2WL51 close PB (DMF VL0305)

INITIAL CONDITIONS:

Unit 2 is operating at 100% power.

An authorized radioactive liquid release from 21 CVCS Monitor Tank through 21 CCHX to Unit 1 Circ Water is being aligned in the field. The RWO performing the release is currently beginning Step 5.5, Release of 21 CVCS MT via SW System to CW System.

INITIATING CUE:

You are the Unit 2 Reactor Operator. Respond to all indications and alarms.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Task Standard for Successful Completion:

1. Operator opens 2WL51 to commence the Liquid Release.
2. Operator shuts 2WL51 after receipt of Hi Radiation Alarm on 2R18.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Waste Liquid

**TASK:** Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<b>Note to Evaluator:</b> The RWO has the official copy of the procedure in the field.		
			<b>Cue:</b> This is the RWO. Open 2WL51, Liquid Release Stop Valve IAW step 5.5.2 of S2.OP-SO.WL-0001.		
	5.5.2	Direct Unit 2 NCO to <b>OPEN</b> 2WL51, LIQUID RELEASE STOP VALVE.			
*			Depresses open pushbutton for 2WL51 LIQUID RELEASE STOP VALVE and verifies red open light illuminates.  <b>Simulator Operator:</b> Ensure <b>ET-3</b> is TRUE when the operator depresses 2WL51 open PB. This inserts the 2R18 High Radiation condition after a 30 second delay.		
(* If it applies here)			Announces OHA A-6, RMS HI RAD OR TRBL, as unexpected, and refers to S2.OP-AR.ZZ-0001, Overhead Annunciators - Window A.  <b>OR</b> Checks CRT and reports CRT point 725, RMS Hi Rad or Trbl-Liq Waste Disposal CH 2R18 in alarm, and after observing 2WL51 open, shuts 2WL51 using Step 5.5.9 of S2.OP-SO.WL-0001 or S2.OP-AR.ZZ-0001 for guidance.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Waste Liquid

**TASK:** Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			<b>Evaluator Note:</b> The 2WL51 status control should be maintained by the release procedure. Once the 2WL51 is shut, the Control Room operator must contact the RWO to inform them of the 2WL51 status.		
			<p><b>IF</b> the operator calls the RWO to report 2R18 status (on Panel 104) OR states that they would go to rack area of Control Room to verify 2R18 reading, <b>THEN</b> cue as follows as required:</p> <p><b>Cue:</b> The RWO reports 2R18 reading <math>1 \times 10^5</math> cps.</p> <p><b>Cue:</b> The 2R18 in the rack area reads <math>1 \times 10^5</math> cps.</p>		
			<b>Evaluator Note:</b> <b>IF</b> the operator shuts the 2WL51 based on the Hi Radiation signal, without reporting which procedure directs the action, <b>THEN</b> allow the operator to continue until they justify their action based on procedure direction. Once the 2WL51 is shut, its status communicated to the RWO, and procedure direction for shutting the 2WL51 identified, terminate the JPM.		



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Waste Liquid

**TASK:** Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Checks CRT and reports CRT point 725, RMS Hi Rad or Trbl-Liq Waste Disposal CH 2R18 in alarm.		
	ARP 3.18	IF 2R18 indicates Hi Radiation or trouble, <u>THEN GO TO</u> S2.OP-AB.RAD-0001, Abnormal Radiation.	Enters S2.OP-AB.RAD-0001, Abnormal Radiation.		
	AB.RAD 3.1	<b>DETERMINE</b> affected Radiation Monitor.	Verifies 2R18 is the affected rad monitor.		
	AB.RAD 3.2	Is the alarm, warning, or rising indication valid? <b>(EVALUATE</b> the following): <ul style="list-style-type: none"> <li>• Chemistry Sampling</li> <li>• Rising activity on related monitors</li> <li>• Maintenance activities in vicinity of radiation detector</li> <li>• Transfer of radioactive resins or other materials in affected area</li> <li>• No indication of failure or fault on affected Radiation Monitor</li> <li>• Radioactive release from Salem or Hope Creek</li> </ul>	Determines alarm must be considered valid since a radioactive liquid release has just commenced and the 2R18 is sampling that release, and the monitor has been proven operable during performance of Attachment 2, Section 2.3, which performed a source check on 2R18.		

**OPERATOR TRAINING PROGRAM**  
**JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SYSTEM:** Waste Liquid

**TASK:** Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.RAD 3.6	Announce the following on Plant PA system: <ul style="list-style-type: none"> <li>Affected Radiation Monitor number and name</li> <li>Location of Radiation Monitor area with elevated indication</li> </ul>	Announces "Radiation Monitor 2R18 Liquid Waste Disposal is in alarm, Auxiliary Building 84 elevation"  <b>Note:</b> Operator may also include 64' elevation.		
	AB.RAD 3.7	IF a release to the environment is in progress, <b>THEN DIRECT</b> Shift Radiation Protection Technician (SRPT) to complete and provide Page 2 of the Station Status Checklist (SSCL) for release rate determination.	If the operator has NOT shut the 2WL51, THEN the operator directs the Shift Radiation Protection Technician (SRPT) to complete and provide Page 2 of the Station Status Checklist (SSCL) for release rate determination.  <b>Cue if required:</b> IF required, state the CRS will contact the SRPT to complete page 2 of SSCL.  <b>Note:</b> This step may not be performed based on the operators knowledge of the ECG and that the SSCL looks at Gaseous Releases.		
	AB.RAD 3.8	<b>NOTIFY</b> SM/CRS to REFER to Event Classification Guide, ODCM, and Technical Specifications.	Directs SM/CRS to refer to Event Classification Guide, ODCM, and Technical Specifications		
	AB.RAD 3.9	<b>INITIATE</b> the applicable attachment for affected Radiation Monitor:	Initiates Attachment 1 of S2.OP-AB.RAD-0001, Abnormal Radiation.		

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SYSTEM:** Waste Liquid

**TASK:** Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
(* If it applies here)	AB.RAD Att. 1 5.0	<p><u>IF</u> 2R18, Liquid Waste Disposal, is the affected monitor, <u>THEN</u>:</p> <p>5.1 <b>ENSURE</b> 2WL51, TO CIRC WTR DISCHARGE, is CLOSED to stop all Liquid Waste releases.</p> <p>5.2 <b>TERMINATE</b> Liquid Waste Release procedure in effect.</p>	<p>Shuts (or checks shut) 2WL51, TO CIRC WTR DISCHARGE</p> <p>Contacts RWO and directs them to terminate release procedure in effect.</p>		
			<p>Once the 2WL51 is shut, its status communicated to the RWO, and procedure direction for shutting the 2WL51 identified, terminate the JPM.</p>		

**Terminating Cue: None**

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- M 1. Task description and number, JPM description and number are identified.
- M 2. Knowledge and Abilities (K/A) references are included.
- M 3. Performance location specified. (in-plant, control room, or simulator)
- M 4. Initial setup conditions are identified.
- M 5. Initiating and terminating Cues are properly identified.
- M 6. Task standards identified and verified by SME review.
- M 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- M 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 8/23/12
- M 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:

N. Mulford

Date:

8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

Unit 2 is operating at 100% power.

An authorized radioactive liquid release from 21 CVCS Monitor Tank through 21 CCHX to Unit 1 Circ Water is being aligned in the field. The RWO performing the release is currently beginning Step 5.5, Release of 21 CVCS MT via SW System to CW System.

**INITIATING CUE:**

You are the Unit 2 Reactor Operator. Respond to all indications and alarms.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE:

STATION:	SALEM		
SYSTEM:	CVCS		
TASK:	Locally Borate the RCS		
TASK NUMBER:	N1130140504		
JPM NUMBER:	11-01 NRC IP-i		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	APE 068 AA1.08
		IMPORTANCE FACTOR:	4.2      4.2
APPLICABILITY:			RO      SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Inplant Simulate		
REFERENCES:	S1.OP-AB.CR-0001, Control Room Evacuation Rev. 17 (checked 8-6-12)		
TOOLS AND EQUIPMENT:	JAM key		
VALIDATED JPM COMPLETION TIME:	5 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	08-06-12
Validated By:	Tait SME or Instructor	Date:	08-23-12
Approved By:	<i>Pd Wilson</i> (williams) Training Department	Date:	9/12/12
Approved By:	<i>B. K. Kaven</i> Operations Department	Date:	9/5/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE:

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: CVCS

TASK: Locally Borate the RCS

TASK NUMBER: N1130140504

**INITIAL CONDITIONS:**

- Unit 1 control room was evacuated due to a security event.
- The immediate actions of S1.OP-AB.CR-0001, Control Room Evacuation were completed successfully.
- 3 control rods remain withdrawn following the Rx trip.
- 1CV55 is in local manual controlling charging flow at 90 gpm.
- Total RCP seal injection flow is 30 gpm.

**INITIATING CUE:**

You are the Reactor Operator.

Perform emergency boration for the stuck control rods IAW Attachment 5, Step 10, of S1.OP-AB.CR-0001.

Steps 1-9 are complete.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

**Task Standard for Successful Completion:**

1. Locate panels 701-1A and 701-1B for 11 and 12CV160.
2. Simulate establishing boration through 1CV175.
3. Simulate adjusting charging flow to 105 gpm.

**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: CVCS

TASK: Locally borate the RCS

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide copy of S1.OP-AB.CR-0001, Attachment 5.			
	10.0	WHEN directed by the CRS, THEN:			
	10.1	<b>PROCEED</b> to Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1A, EI 122', near the Boric Acid Storage Tanks.	Locates Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1A		
	10.2	<b>CLOSE</b> the Air Supply Isolation Valve, 11CV160 A/S, IR SUPPLY FOR 11CV160.	Locates and simulates closing the Supply Isolation Valve, 11CV160 A/S, IR SUPPLY FOR 11CV160.		
	10.3	<b>OPEN</b> draincock for control air regulator for 11CV160.	Simulates opening draincock for control air regulator for 11CV160.		
	10.4	<b>PROCEED</b> to Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1B, EI 122", near the Boric Acid Storage Tanks.	Locates Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1B		
	10.5	<b>CLOSE</b> the Air Supply Isolation Valve, 12CV160 A/S, AIR SUPPLY FOR 12CV160.	Locates and simulates closing the Supply Isolation Valve, 12CV160 A/S, IR SUPPLY FOR 12CV160.		
	10.6	<b>OPEN</b> draincock for control air regulator for 12CV160.	Locates and simulates closing the Air Supply Isolation Valve, 12CV160 A/S		



**OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: CVCS

TASK: Locally borate the RCS

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	10.7	<b>OPEN</b> 1CV175, Rapid Borate Stop Valve.	Locates and discusses opening 1CV175, Rapid Borate Stop Valve by disengaging clutch and rotating handwheel.		
*	10.8	<b>PROCEED</b> to 1CV55 and <b>ADJUST</b> the flow for 75 gpm above existing total flow for all RCP seal flows.	Locates Unit 1 CVC Chg Pmps FL & PR Inst Pnl, Panel 216-1.  Determines charging flow must be raised to 105 gpm.  Adjusts 1CV55 air signal to raise charging flow.		
	11.0	<b>REQUEST</b> NEO#1 to adjust 1CV73 to maintain flow to RCP seals between 6 and 10 gpm.			
	12.0	<b>NOTIFY</b> the CRS that rapid Boration has commenced.	<b>Cue if Required:</b> If charging flow is raised to 165 gpm (75 gpm above total charging flow), then when CRS is notified, state PZR level is rising quicker than it should be, and to ensure charging flow is adjusted to 75 gpm > Seal Injection flow.)  Adjusts charging flow to 105 gpm. Terminate JPM.		

## JOB PERFORMANCE MEASURE

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- ☒ 1. Task description and number, JPM description and number are identified.
- ☒ 2. Knowledge and Abilities (K/A) references are included.
- ☒ 3. Performance location specified. (in-plant, control room, or simulator)
- ☒ 4. Initial setup conditions are identified.
- ☒ 5. Initiating and terminating Cues are properly identified.
- ☒ 6. Task standards identified and verified by SME review.
- ☒ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- ☒ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 17 Date 8/23/12
- ☒ 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- ☐ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- ☐ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:  Tait

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

## JOB PERFORMANCE MEASURE

### INITIAL CONDITIONS:

- Unit 1 control room was evacuated due to a security event.
- The immediate actions of S1.OP-AB.CR-0001, Control Room Evacuation were completed successfully.
- 3 control rods remain withdrawn following the Rx trip.
- 1CV55 is in local manual controlling charging flow at 90 gpm.
- Total RCP seal injection flow is 30 gpm.

### INITIATING CUE:

You are the Reactor Operator.

Perform emergency boration for the stuck control rods IAW Attachment 5, Step 10, of S1.OP-AB.CR-0001.

Steps 1-9 are complete.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Emergency Diesel Generator		
TASK:	Start and synchronize an Emergency Diesel Generator		
TASK NUMBER:	113 001 05 01		
JPM NUMBER:	11-01 NRC IP-j		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	064 A2.09
APPLICABILITY:	IMPORTANCE FACTOR:		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	In Plant / Simulate		
REFERENCES:	2A Diesel Generator Operation, S2.OP-SO.DG-0001(Q)Rev. 37 (checked 08-13-12)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	20 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	08-13-12
Validated By:	Rydell SME or Instructor	Date:	8-23-12
Approved By:	<i>Pal Wil (Wilkins)</i> Training Department	Date:	9/14/12
Approved By:	<i>B. M. (ByukKorod)</i> Operations Department	Date:	9/6/12
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** EDG

**TASK:** Start and synchronize an Emergency Diesel Generator

**TASK  
NUMBER:** 113 001 05 01

**INITIAL  
CONDITIONS:** Unit 2 is operating at 100% power, with no equipment OOS. Engineering has requested a loaded run of 2A EDG.

**INITIATING CUE:**

The Unit 2 CRS has directed you to locally start and load 2A D/G IAW S2.OP-SO.DG-0001(Q), Section 5.2. & 5.4

Prerequisites, Precautions and Limitations, and Section 5.1, Diesel Generator Startup Checks have been performed.

**Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

Task Standard for Successful Completion:

Perform S2.OP-SO.DG-0001 Sections 5.2 and 5.4 in correct order and to completion.

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide marked up copy of S2.OP-SO.DG-0001 2A Diesel Generator Operation			
	5.2.1	NOTIFY NCO that 2A Diesel Generator is to be locally started.	Locates nearest page.  <b>Cue:</b> NCO acknowledges.		
	5.2.2	CHECK voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE, on Generator Control Panel is OFF	Points out voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE, on Generator Control Panel.  <b>Cue:</b> Light is off		
	5.2.3	CHECK speed permissive indicator light 2DAE4-LT3, EDG SPEED, on Generator Control Panel is OFF.	Points out speed permissive indicator light 2DAE4-LT3, EDG SPEED, on Generator Control Panel.  <b>Cue:</b> Light is off		
*	5.2.4	PLACE 2A-DF-GCP-1, 2A DIESEL GEN LOADING SW in MANUAL (DROOP).	Points out 2A-DF-GCP-1, 2A DIESEL GEN LOADING SW., and simulates rotating to DROOP position.  <b>Cue:</b> Annunciator B-9, Generator loading in Droop Mode annunciates.		
	5.2.5	ENSURE B-9, GENERATOR LOADING IN DROOP MODE, is in alarm.	Acknowledges alarm B-9, Generator Loading in Droop Mode, and simulates depressing Silence PB.  <b>Cue:</b> Alarm B-9, Generator Loading in Droop Mode has silenced.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.6	PLACE 2A-DF-SS, 2A DG STOP/START SWITCH in START.	Points out 2A-DF-SS, 2A DG STOP/START SWITCH, and simulates placing in START.  <b>Cue:</b> 2A Diesel is accelerating.		
*	5.2.7	<u>IF</u> Diesel Generator Speed is <u>NOT</u> 900 rpm, <u>THEN</u> SET speed to 900 rpm using the SPEED CONTROL SWITCH (GS).	<b>Cue when Speed indicator is checked:</b> Speed is 880 rpm.  Points out SPEED CONTROL SWITCH (GS) and simulates turning in RAISE direction.  <b>Cue:</b> 2A Diesel Speed is 900 rpm.		
	5.2.8	<u>IF</u> 2AD1AX6D*, 2A Diesel Generator 125VDC breaker is closed, THEN: <ul style="list-style-type: none"> <li>CHECK voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE, on Generator Control Panel is ON.</li> <li>CHECK speed permissive indicator light 2DAE4-LT3, EDG SPEED, on Generator Control Panel is ON.</li> </ul>	Points out voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE.  <b>Cue:</b> Voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE Light is on  Points out speed permissive indicator light 2DAE4-LT3, EDG SPEED  <b>Cue:</b> Speed permissive indicator light 2DAE4-LT3, EDG SPEED light is on		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.9	IF Field Ground Relay 64/G white indicating light is OFF, <u>AND</u> C-6, GENERATOR FIELD GROUND, is clear, <u>THEN</u> : A. RESET 64/G relay B. ENSURE 64/G white indicating light is illuminated.	Points out Field Ground Relay 64/G white indicating light.  <b>Cue:</b> Field Ground Relay 64/G white indicating light is illuminated.		
	5.2.10	ENSURE 2A Diesel Generator K1C Field Flashing Relay Supervisory Light is OFF.	Points out 2A Diesel Generator K1C Field Flashing Relay Supervisory Light  <b>Cue:</b> 2A Diesel Generator K1C Field Flashing Relay Supervisory Light is off.		
	5.2.11	RECORD the following Diesel Generator Start Readings:	Points out gages and switches to determine readings. <b>Cue when proper gauge is pointed out :</b>  <u>2VM189</u> Gen. Volts - <b>4160 Volts on all 3 phases</b> <u>2FM186</u> Gen. Frequency - <b>60 Hz</b> <u>2PL6429</u> LO Hdr. Press - <b>80 psig</b> <u>2PL6449</u> JW Hdr. Press - <b>45 psig</b> <u>2PL7209</u> Air Manifold Press - <b>0 psig</b> <u>2TA16524</u> Gen. Stator Temp - <b>187°</b>		



OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.12	IF 2A Diesel Generator is to be operated unloaded for an extended period of time(>30 minutes), <u>THEN</u> INITIATE Section 5.7, Diesel Generator Running Checks.	<b>Cue:</b> Diesel will be parallel loaded.		
	5.2.13	IF Diesel Generator is to be parallel loaded, <u>THEN</u> INITIATE Section 5.4, Diesel Generator Parallel Loading.			
	5.4.1	IF Section 5.1 Diesel Generator Startup Checks, was <u>NOT</u> performed, <u>THEN</u> at 2A DG 4KV cabinet cubicle breaker 2AD1AX6D, <b>PLACE</b> selector switch 2A DG SYNC ENABLE in ENABLE.	Verifies Section 5.1 is complete.		
	5.4.2	NOTIFY NCO that 2A EDG is to be synchronized and loaded locally.	<b>Cue:</b> NCO acknowledges 2A DG is to be synchronized and loaded locally.		
	5.4.3	ENSURE 2A-DF-GCP-1, 2A DIESEL GEN LOADING SW, in MANUAL (DROOP)	Verifies 2A-DF-GCP-1, 2A DIESEL GEN LOADING SW, is in MANUAL (DROOP)		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.4.4	ADJUST 2A EDG output voltage, as indicated on VOLTMETER-GEN (2VM189) to 50 - 100 Volts higher than that of 2A 4KV Vital Bus voltage, as indicated by VOLTMETER-BUS (2VM190), using the VOLTAGE CONTROL SWITCH (VCS).	<p><b>When operator points out 2VM189 and 2VM190, then Cue:</b> 2VM189 reads 4150, and 2VM190 reads 4150.</p> <p>Points out VOLTAGE CONTROL SWITCH (VCS) and simulates going to RAISE.</p> <p><b>Cue:</b> 2VM189 reads 4210, and 2VM190 reads 4150.</p>		
	5.4.5	ENSURE generator terminal voltage is present on all 3 phases by rotating VOLTMETER SWITCH - GEN (VS-G) through each position <u>AND</u> OBSERVING voltmeter 2VM189.	<p>Points out VOLTMETER SWITCH - GEN (VS-G), simulates rotating through each position, while observing 2VM189</p> <p><b>Cue:</b> Voltage is present on all three phases.</p>		
	5.4.6	ENSURE 2A 4KV Vital Bus voltage is present on all 3 phases by rotating VOLTMETER SWITCH - BUS (VS-B) through each position <u>AND</u> OBSERVING voltmeter 2VM190.	<p>Points out VOLTMETER SWITCH - BUS (VS-B), simulates rotating through each position, while observing 2VM190</p> <p><b>Cue:</b> Voltage is present on all three phases.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.4.7	PLACE the following switches in "1-2": <ul style="list-style-type: none"> <li>VOLTMETER SWITCH - GEN (VS-G)</li> <li>VOLTMETER SWITCH - BUS (VS-B)</li> </ul>	Points out VOLTMETER SWITCH - GEN (VS-G) and VOLTMETER SWITCH - BUS (VS-B)  <b>Cue:</b> Switches are in 1-2.		
	5.4.8	ENSURE 2DAE4-LT2, EDG Voltage indication light is ON.	Points out 2DAE4-LT2, EDG Voltage indication light.  <b>Cue:</b> 2DAE4-LT2, EDG Voltage indication light is on.		
	5.4.9	ENSURE 2DAE4-LT3, EDG Speed indication light is ON.	Points out 2DAE4-LT3, EDG Speed indication light.  <b>Cue:</b> 2DAE4-LT2, EDG Voltage indication light is on.		
	5.4.10	<b>SYNCHRONIZE</b> 2A Diesel Generator to 2A 4KV Vital Bus as follows:			
*	A.	PLACE 2A-DF-SYNCH, 2A DG SYNC SWITCH (SS) to ON.	Points out 2A-DF-SYNCH, 2A DG SYNC SWITCH (SS), and simulates placing in ON position.		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	B.	ADJUST Diesel speed using the SPEED CONTROL SWITCH (GS) such that Synchroscope pointer rotates slowly in the FAST (clockwise) direction.	<p><b>When operator points out synchroscope, then Cue:</b> Scope is going in the slow direction.</p> <p>Points out SPEED CONTROL SWITCH (GS) and simulates going to RAISE.</p> <p><b>Cue</b> Synchroscope pointer rotating slowly in the FAST direction.</p>		
	C.	ENSURE the following four SYNC CHECK RELAY 25 UPPER AND LOWER VOLTAGE LIMIT LEDS are ON. "Upper Voltage Limit" "L OK" "B OK" "Lower Voltage Limit" "L OK" "B OK"	<p>Points out four SYNC CHECK RELAY 25 UPPER AND LOWER VOLTAGE LIMIT LEDS.</p> <p><b>Cue as each LED is located:</b> Light is on.</p>		
	D.	<u>IF</u> the SYNC CHK RELAY 25 ΔF OK LED is OFF, <u>THEN</u> ADJUST 2A Diesel Generator speed using the SPEED CONTROL SWITCH (GS) until the ΔF OK LED is ON.	<p>Points out SYNC CHK RELAY 25 ΔF OK LED.</p> <p><b>Cue</b> Light is on.</p>		
	E.	ENSURE DG SYNC PERMISSIVE green indicating light is ON each time the synchroscope indicator is near 12 o'clock position (+/- approximately 3 minutes), <u>AND</u> is OFF in any other position of the synchroscope.	<p><b>Cue</b> DG SYNC PERMISSIVE green indicating light is ON each time the synchroscope indicator is near 12 o'clock position (+/- approximately 3 minutes), <u>AND</u> is OFF in any other position of the synchroscope.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**SYSTEM:** Emergency Diesel Generator  
**TASK:** Locally start and load an Emergency Diesel Generator

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	F	<p>COORDINATE the following when the synchroscope is at "12 o'clock" (+zero, -2 minutes):</p> <ol style="list-style-type: none"> <li>1. CLOSE 2A-DF-GCP-3 GENERATOR CIRCUIT BREAKER SWITCH (BCS)</li> <li>2. RAISE 2A Diesel Generator load to <math>\geq 500\text{KW}</math> using SPEED CONTROL SWITCH (GS) to prevent tripping the Diesel Generator Breaker on reverse power.</li> </ol>	<p>Points out 2A-DF-GCP-3 GENERATOR CIRCUIT BREAKER SWITCH (BCS) and simulates taking to the CLOSE position when the synch scope is at 12 o'clock.</p> <p><b>Cue</b> 2A Diesel Generator Breaker has closed.</p> <p>Points out SPEED CONTROL SWITCH (GS) simulates going to RAISE while observing KW meter.</p> <p><b>Cue</b> Load is 500 KW.</p>		
	G	<p><b>PLACE</b> 2A-DF-SYNCH, 2A DG SYNCH SWITCH (SS) to OFF.</p>	<p>Points out 2A-DF-SYNCH, 2A DG SYNCH SWITCH (SS), and simulates placing it in OFF position.</p> <p><b>Cue:</b> JPM is complete.</p>		

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**JOB PERFORMANCE MEASURE VALIDATION CHECKLIST**

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- SAN 1. Task description and number, JPM description and number are identified.
- SAN 2. Knowledge and Abilities (K/A) references are included.
- SAN 3. Performance location specified. (in-plant, control room, or simulator)
- SAN 4. Initial setup conditions are identified.
- SAN 5. Initiating and terminating Cues are properly identified.
- SAN 6. Task standards identified and verified by SME review.
- SAN 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- SAN 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 37 Date 4/26/12
- SAN 9. Pilot test the JPM:  
a. verify Cues both verbal and visual are free of conflict, and  
b. ensure performance time is accurate.
- \_\_\_\_\_ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: Scott A. Ryell

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

Unit 2 is operating at 100% power, with no equipment OOS. Engineering has requested a loaded run of 2A EDG.

**INITIATING CUE:**

The Unit 2 CRS has directed you to locally start and load 2A D/G IAW S2.OP-SO.DG-0001(Q), Section 5.2. & 5.4

Prerequisites, Precautions and Limitations, and Section 5.1, Diesel Generator Startup Checks have been performed.

**Operations Training Program  
Job Performance Measure**

<b>STATION:</b>	SALEM		
<b>SYSTEM:</b>	Control Air		
<b>TASK:</b>	Perform Actions for a Loss of All AC Power (Start the SBO Compressor)		
<b>TASK NUMBER:</b>	N1150140501		
<b>JPM NUMBER:</b>	11-01 NRC IP-k		
<b>ALTERNATE PATH:</b>	<input type="checkbox"/>	<b>K/A NUMBER:</b>	2.1.23
<b>APPLICABILITY:</b>		<b>IMPORTANCE FACTOR:</b>	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
<b>EVALUATION SETTING/METHOD:</b>	In Plant		
<b>REFERENCES:</b>	SC.OP-SO.CA-0001, SBO Diesel Control Air Compressor, Rev. 14 2-EOP-LOPA-1, Loss of All AC Power, Rev. 27 S2.OP-AB.LOOP-1, Loss of Off-Site Power, Rev. 27 S2.OP-AB.CA-0001, Loss of Control Air, Rev. 17 DWG 604495 (Rev. 2) and 205347-2 Rev. 40 (H-6)		
<b>TOOLS AND EQUIPMENT:</b>	SBO Compressor Building is normally unlocked (L-3 key if locked)		
<b>VALIDATED JPM COMPLETION TIME:</b>	12 min		
<b>TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:</b>	N/A		
<b>Developed By:</b>	G Gauding Instructor	<b>Date:</b>	08-13-12
<b>Validated By:</b>	Rydell SME or Instructor	<b>Date:</b>	08-23-12
<b>Approved By:</b>	<i>[Signature: P. Williams]</i> Training Department	<b>Date:</b>	9/13/12
<b>Approved By:</b>	<i>[Signature: Ben Kowen]</i> Operations Department	<b>Date:</b>	9/13/12
<b>ACTUAL JPM COMPLETION TIME:</b>			
<b>ACTUAL TIME CRITICAL COMPLETION TIME:</b>			
<b>PERFORMED BY:</b>			
<b>GRADE:</b>	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
<b>REASON, IF UNSATISFACTORY:</b>			
<b>EVALUATOR'S SIGNATURE:</b>			<b>DATE:</b>



## Operations Training Program Job Performance Measure

**SYSTEM:** Control Air

**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**TASK  
NUMBER:** N1150140501

### **INITIAL CONDITIONS:**

Both Salem Units have tripped due to a loss of off-site power. Equipment problems have resulted in NO Emergency Control Air Compressors (ECACs) running.

### **INITIATING CUE:**

The Unit 2 CRS has directed you to start the Station Blackout Compressor (SBO) IAW SC.OP-SO.CA-0001, SBO Diesel Control Air Compressor, starting with Step 5.1.3.

The Component Off Normal and Off Normal Tagged review has been performed SAT.

It is **NOT** the summer operating period.

The inspection covers have already been removed, Step 5.1.1 was performed SAT, and the inspection covers replaced IAW Step 5.1.2

### **Successful Completion Criteria:**

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

#### Task Standard for Successful Completion:

1. Operator performs SC.OP-SO.CA-0001, SBO Diesel Control Air Compressor, SECTION 5.1 in the correct sequence which would result in SBO Compressor running supplying air through 1CA1913 SBO COMPRESSOR DISCHARGE VALVE, and 1CA1886 BLACKOUT AIR COMPRESSOR ISOLATION, and 2CA584 YARD CONTROL AIR SUPPLY VALVE to Aux Building headers 1A and 2A.

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air

**NAME:** \_\_\_\_\_

**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide marked up copy of the SC.OP-SO.CA-0001, SBO Diesel Control Air Compressor with Prerequisites signed off. Additionally, Step 5.1.1 for removing Inspection Covers will be previously completed, as will Step 5.1.2 to re-install inspection covers.	Operator has and uses standard personnel safety equipment. Dons hardhat, safety glasses. Uses hearing protection when entering high noise areas that are posted as hearing protection required. Uses gloves when operating equipment or climbing.		
			Operator reviews and signs Precautions and Limitations, and performs P&L 3.10 as described in next step. Operator <u>must</u> obtain hearing protection per P&L 3.1 All other P&Ls require no action other than reading and initialing with the exception of P&L 3.10 which will be performed at the SBO as identified below.		
			Operator proceeds to SBO Compressor Building.		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air

**NAME:** \_\_\_\_\_

**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	P&L 3.10	Ensure the Battery Tender has power by observing the Red and Green lamps on the front. The placard next to the Battery Tender explains the Red and Green lamps and their significance.	Operator observes the battery Tender GREEN light is illuminated, and the RED light is not illuminated in the SBO building. (Green is a float charge on the battery, Red (full charging current) would only be present after a discharge)		
	5.1.3	<b>OPEN</b> both Engine intake louvers (located outside building on west wall.)	<b>Cue:</b> After operator <b>locates</b> and describes how to open Engine intake louvers, state that the Engine intake louvers are open.		
	5.1.4	<b>OPEN</b> 1CA1920, BLACKOUT AIR COMPRESSOR DRAIN VALVE, to drain any water accumulation, then <b>CLOSE</b> 1CA1920.	<b>Cue:</b> After operator locates 1CA1920, BLACKOUT AIR COMPRESSOR DRAIN VALVE, and describes how to open, including that the drain cap must be removed, state 1CA1920, BLACKOUT AIR COMPRESSOR DRAIN VALVE, has been cycled and no water came out of pipe. <b>Since the cue would be the same whether or not the drain cap was removed (nothing came out the end of pipe) only comment here for review if pipe cap was not removed.</b>		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air

**NAME:** \_\_\_\_\_

**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.1.5	<b>OPEN</b> 2FZSBO10, BATTERY CHARGER, breaker.	Operator locates 2FZSBO10, BATTERY CHARGER, breaker in Panel 2FZSBO, SBO Compressor Bldg Distribution Panel, and simulates opening. <b>Cue:</b> 2FZSBO10, BATTERY CHARGER, breaker, is open.		
	5.1.6	<b>PLACE</b> SBO Control Air Dryer switch in ON position.	Operator locates SBO Control Air Dryer switch and simulates turning switch to ON position.  <b>Cue:</b> SBO Control Air Dryer switch is ON, and Control Air On light is illuminated.		
	5.1.7	<b>RECORD</b> Engine Hourmeter reading on Attachment 1, Section 1.0, and in log book at SBO compressor.	Operator locates Engine Hourmeter, 1XA16993, Tachometer/Hourmeter, inside engine control panel labeled Compressor Noise Emission Control Information, and records current reading in Section 1.0 of Att. 1. Operator locates logbook hanging from side of panel 2FZSBO, SBO Compressor Bldg Distribution Panel, and identifies where Engine Hourmeter should be logged.		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air  
**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.1.8	<b>PLACE</b> UNLOADER VALVE selector switch in START position.	Operator locates UNLOADER VALVE selector switch, and ensures switch in START position.  <b>Note:</b> UNLOADER VALVE selector switch is normally in Start when engine is shutdown.		
*	5.1.9	<b>PRESS AND HOLD</b> BY-PASS VALVE pushbutton.	Operators locates BY-PASS VALVE pushbutton in control panel, and simulates depressing AND holding depressed.		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air  
**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.1.10	<b>PLACE</b> SBO-IGN-SWT, ENGINE IGNITION SWITCH in START position until engine starts, then <b>RELEASE</b> to RUN position.	<p>While keeping the Bypass Valve pushbutton depressed, operator simulates placing the SBO-IGN-SWT SBO Air Comp Inst Pnl Engine Ignition Switch in START.</p> <p><b>Cue:</b> Engine has started.</p> <p>After cue is given, operator releases SBO-IGN-SWT SBO Air Comp Inst Pnl Engine Ignition Switch to RUN.</p> <p><b>Note: If operator also releases the BYPASS VALVE pushbutton at this point, without checking oil pressure &gt;15 psig, then CUE that the engine has stopped.</b></p>		
*	5.1.11	When engine oil pressure is >15 psig, <b>RELEASE</b> BY-PASS VALVE pushbutton.	<p>Operator identifies oil pressure reading on gauge labeled oil pressure gauge inside control panel.</p> <p><b>Cue:</b> Oil pressure is 40 psig.</p> <p>Operator releases BY-PASS VALVE pushbutton.</p>		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air  
**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.1.12	<b>ALLOW</b> engine to run for 5 minutes to warm up.	<b>Cue:</b> 5 minutes has elapsed.		
*	5.1.13	<b>OPEN</b> 1CA1913 SBO COMPRESSOR DISCHARGE VALVE, to pressurize Control Air header.	Operator locates and describes opening 1CA1913 SBO COMPRESSOR DISCHARGE VALVE <b>Cue:</b> 1CA1913 SBO COMPRESSOR DISCHARGE VALVE, is open.		
*	5.1.14	<b>OPEN</b> 1CA1886, BLACKOUT AIR COMPRESSOR ISOLATION.	Operator locates and describes opening 1CA1886, BLACKOUT AIR COMPRESSOR ISOLATION.  <b>Note:</b> 1CA1886 is located near the entrance to Service Building on right side past the U2 mixing bottle  <b>Cue:</b> 1CA1886, BLACKOUT AIR COMPRESSOR ISOLATION is open.		

**Operations Training Program  
Job Performance Measure**

**SYSTEM:** Control Air  
**TASK:** Perform Actions for a Loss of All AC Power (Start the SBO Compressor)

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.1.15	<b>OPEN</b> 2CA584, YARD CONTROL AIR SUPPLY VALVE, to pressurize Aux. Building 1A and 2A Control Air headers.	Operator locates and describes opening 2CA584, YARD CONTROL AIR SUPPLY VALVE.  Note: 2CA584 is located near the entrance to Service Building on right side past the U2 mixing bottle.  <b>Cue:</b> 2CA584, YARD CONTROL AIR SUPPLY VALVE is open.		
*	5.1.16	<b>PLACE</b> UNLOADER VALVE selector switch in RUN position.	Operator returns to SBO Compressor Building and points out UNLOADER VALVE selector switch describes placing it in RUN position.  <b>Cue:</b> JPM is complete.		



## JOB PERFORMANCE MEASURE

### JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**NOTE:** All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

- SAR 1. Task description and number, JPM description and number are identified.
- SAR 2. Knowledge and Abilities (K/A) references are included.
- SAR 3. Performance location specified. (in-plant, control room, or simulator)
- SAR 4. Initial setup conditions are identified.
- SAR 5. Initiating and terminating Cues are properly identified.
- SA 6. Task standards identified and verified by SME review.
- SA 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- SA 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 14 Date 10/01/10
- SA 9. Pilot test the JPM:
  - a. verify Cues both verbal and visual are free of conflict, and
  - b. ensure performance time is accurate.
- \_\_\_\_\_ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: Scott Arylee

Date: 8/23/12

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

SME/Instructor: \_\_\_\_\_

Date: \_\_\_\_\_

## JOB PERFORMANCE MEASURE

### INITIAL CONDITIONS:

Both Salem Units have tripped due to a loss of off-site power. Equipment problems have resulted in NO Emergency Control Air Compressors (ECACs) running.

### INITIATING CUE:

The Unit 2 CRS has directed you to start the Station Blackout Compressor (SBO) IAW SC.OP-SO.CA-0001, SBO Diesel Control Air Compressor, starting with Step 5.1.3.

The Component Off Normal and Off Normal Tagged review has been performed SAT.

It is **NOT** the summer operating period.

The inspection covers have already been removed, Step 5.1.1 was performed SAT, and the inspection covers replaced IAW Step 5.1.2

Facility: SALEM 1 & 2 Scenario No.: ESG-1 Op-Test No.: 11-01 NRC

Examiners: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Operators: \_\_\_\_\_

Initial Conditions: 100% power, EOL. PZR Pressure channel II is O/S for calibration.

Turnover: Maintain current power. Perform IST Room Cooler Valves Modes 1-6 IAW S2.OP-ST.SW-0014.

Event No.	Malf. No.	Event Type*	Event Description
1		N CRS/PO	Safety Related Room cooler surveillance (TS)
2	SG0095A	I	SG NR Ch failure (TS)
3	TA0314 RD0061	R ALL	Stator Water runback w/ subsequent auto rod control failure
4	O/R CF12	C CRS/PO	MS10 failure in automatic
5	RP0176A C812/C809 RC0001	M ALL	Inadvertent SI, 2C 4KV vital bus UV following Rx trip, LBLOCA
6	RP318A1,2	C ALL	Lo Head ECCS fails to actuate
7	RP0277A,B	C CRS RO	CS fails to actuate
8	CV62B	C RO	Charging pump cavitation
			CT's: Init Cont Spray, initiate Lo head ECCS, xfer to CLR, trip cavitating charging pp.

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

## SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 11-01 NRC ESG-1

SCENARIO NUMBER: 11-01 NRC ESG-1

EFFECTIVE DATE: See Approval Dates below

EXPECTED DURATION: 70 minutes

REVISION NUMBER: 01

PROGRAM: ☐ L.O. REQUAL

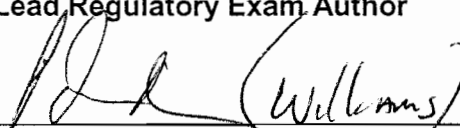

☒ INITIAL LICENSE

☐ STA

☐ OTHER \_\_\_\_\_

### Revision Summary

New issue for 09-01 NRC Exam (Spare Scenario not used)  
Rev. 01 – Modified to SBT format.

PREPARED BY:	<u>G Gauding</u> Lead Regulatory Exam Author	<u>08-4-12</u> Date
APPROVED BY:	<u> (Williams)</u> Operations Training Manager	<u>9/12/12</u> Date
APPROVED BY:	<u> (Bryk Kowen)</u> Facility Representative	<u>9/6/12</u> Date

**I. OBJECTIVES**

- A. Given the unit with a condition requiring a stator water runback, the crew will take action to verify or perform the actions needed for the runback, IAW approved station procedures.
- B. Given a situation requiring rapid boration, the crew will initiate a rapid boration and terminate when required IAW approved station procedures.
- C. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- D. Given the order or indications of a reactor trip perform actions as the nuclear control operator to RESPOND to the reactor trip in accordance with the approved station procedures.
- E. Given indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.
- F. Given the order or indications of a safety injection perform actions as the nuclear control operator to RESPOND to the safety injection in accordance with the approved station procedures.
- G. Given a safety injection has occurred and equipment has failed to START equipment that has failed to automatically start in accordance with the approved station procedures.
- H. Given indication of a loss of coolant accident (LOCA) DIRECT the immediate response to the LOCA in accordance with the approved station procedures.
- I. Given the order or indications of a loss of coolant accident (LOCA), complete actions as the nuclear control operator to PERFORM the immediate response to the LOCA in accordance with the approved station procedures.
- J. Given a loss of coolant accident (LOCA) and plant conditions to support cold leg recirculation DIRECT actions to transfer to cold leg recirculation DIRECT actions to transfer to cold leg recirculation.
- K. Given the order or a loss of coolant accident (LOCA) and plant conditions to support cold leg recirculation perform actions as the nuclear control operator to TRANSFER to cold leg recirculation in accordance with the approved station procedures.
- L. Given indication of excessive containment pressure DIRECT the response to the excessive pressure in accordance with the approved station procedures.
- R. Given the order or indications of excessive containment pressure perform actions as the nuclear control operator to RESPOND to the excessive pressure in accordance with the approved station procedures.
- S. Given the unit in the EOPs and an excessive containment pressure the crew will reduce containment pressure IAW approved station procedures.

## II. MAJOR EVENTS

- A. Room cooler surveillance unsat
- B. 21 SG Ch II NR level fails high.
- C. Automatic Stator Water Runback
- D. MS10 failure
- E. LBLOCA

## III. SCENARIO SUMMARY

- A. The crew will take the turnover at 100% power, EOL. I&C is performing a channel calibration of PZR Pressure Channel II. 2PR7 is shut with power removed to comply with TSAS 3.4.5.b. All bistables associated with PZR Pressure Channel II are tripped IAW S2.IC.-CC.RCP-0018, 2PT-456 Pressurizer Pressure Protection Channel II: Orders for the shift are to complete IST of Room Cooler valves (RHR pump room coolers) IAW S2.OP-ST.SW-0014, Inservice Testing Room Cooler Valves Modes 1-6 for the RHR pump room coolers. Maintain 100% power.
- B. After assuming the watch, the crew will test the RHR pump room coolers. The 21SW153 room cooler SW valve stroke time will be in the Required Evaluation Range. The CRS will either declare the valve inoperable, or retest the valve as called for in the procedure. If a second test is performed, the stroke time will fall in the Required Action Range, and the CRS will declare the valve inoperable. IAW S2.OP-SO.SW-0005, Service Water System Operation, the RHR pump must be declared inoperable when its room cooler is inoperable. (page 104). The CRS enters TS 3.5.2 for only 1 train of ECCS.
- C. After completing the surveillance, 21 SG NR level Ch. II fails high. The crew will verify no ADFCS malfunction and the CRS will enter the appropriate Tech Spec.
- D. A Stator Water Main Turbine runback will initiate and the runback will terminate at ~900 Mwe when the initiating condition clears. Control Rod speed fails to minimum, and operators will place Rod control in manual to insert rods. Operators will ensure positive control of the Main Turbine and borate the RCS in conjunction with rod insertion to restore Tavg and AFD.
- E. Once the plant has been stabilized, 21MS10 fails ~ 33% open in auto. The PO will take manual control and shut 21MS10.
- F. A false Safety Injection signal is generated, and the Rx automatically trips. Operators will backup the Rx trip and Safety Injection actuation.
- G. 2C 4KV Vital bus will deenergize upon the Rx trip, and the SEC will load 2C vital bus on its EDG. 21 CCW pump will trip, and 23 CCW pump control will transfer and remain in manual. 22 charging pump will not start on SEC initiation, and operators will block the SEC and start 22 charging pump. A LBLOCA occurs 5 minutes after the Rx trips. Automatic Phase B and Containment Spray will not occur, and operators will manually initiate Cont Spray and manually start Containment Spray pumps. Operators will perform diagnostics in TRIP-1 and transition to LOCA-1. 21 charging pump will trip 15 minutes after the Rx trip.

- H. The crew will transition to LOCA-3 when RWST level reaches 15.2 ft. The crew will perform the transfer to CL Recirc with all 4KV vital busses energized and 2C bus energized from its EDG. During the transfer, 22 charging pump will cavitate when 2SJ1 and 2SJ2 are shut, and operators will stop the pump. If the pump is not stopped, it will fail, and a LOCA outside containment will occur.
- I. The scenario will terminate when 22 charging pump is tripped, or after indications of CVCS system piping failure have occurred if the pump was not secured.

#### IV. INITIAL CONDITIONS

\_\_\_\_\_ IC-3 or Pre-snapped IC-241

#### PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

Initial	Description
_____ 1	RH1 and RH2 C/T
_____ 2	RH18s C/T
_____ 3	VC1and VC4 C/T
_____ 4	RCPs (SELF CHECK)
_____ 5	RTBs (SELF CHECK)
_____ 6	MS167s (SELF CHECK)
_____ 7	500 KV SWYD (SELF CHECK)
_____ 8	SGFP Trip (SELF CHECK)
_____ 9	23 CV PP (SELF CHECK)
_____ 10	OHA G-20 in alarm.
_____ 11	2PR7 shut and deenergized.
_____ 12	S2.IC-CC-RCP-0018, 2PT-456 Pressurizer Pressure Protection Channel II, Exhibit 1 signed and on NCO desk or provided to crew for turnover.
_____ 13	Marked up S2.OP-ST.SW-0014, Inservice Testing Room Cooler Valves Modes 1-6 and S2.RA-ST.SW-0014 Rev. 29, Acceptance Criteria, provided to crew with turnover.
_____ 14	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

Note: Tables with blue headings may be populated by external program, do not change column name without consulting Simulator Support group

### EVENT TRIGGERS:

Initial	ET #	Description
	1	EVENT ACTION: MONP254 <10 // CONT ROD BANK C < 10 ( RX TRIP ) COMMAND: PURPOSE: <update as needed>
	3	EVENT ACTION: gbc18axd < 0.851 // (2D5) CONTROL ROD POSITION COMMAND: DMF TA0314 PURPOSE: <update as needed>
	5	EVENT ACTION: kb117lck // 2SJ2 RWST TO CHG PUMP CLOSE COMMAND: PURPOSE: <update as needed>
	7	EVENT ACTION: MONP254 <10 // CONT ROD BANK C < 10 ( RX TRIP ) COMMAND: PURPOSE: <update as needed>
	11	EVENT ACTION: gcf11bx1 > 0.2 // 21MS10 VALVE DEM COMMAND: DOR KCF12LW1 PURPOSE: <update as needed>



MALFUNCTIONS:						
SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	AN0302 SER 302 FAILS - :E35 2PR2 PROTECTION CH II LOOP UNSAFE/IN TEST	N/A	N/A	N/A	N/A	SER POINT FAILS/OVRD TO ON
02	AN0328 SER 328 FAILS - :A12 REACTOR PROT SYS CHANNEL II INSTRUMENT LOOP IN TEST	N/A	N/A	N/A	N/A	SER POINT FAILS/OVRD TO ON
03	TA0314 STATOR WATER FLOW SIGNAL FAIL	N/A	N/A	N/A	RT-3	
04	SG0095A 21 SG LVL XMTR (519) CH II FAIL	N/A	N/A	N/A	RT-1	120
05	RC0001A RCS RUPTURE OF RC LOOP 21	00:05:00	N/A	N/A	ET-7	
06	RP318S2 22 CHRGR PMP FAILS TO STRT ON SEC	N/A	N/A	N/A	N/A	
07	CV0208A 21 CHARGING PUMP TRIP	00:15:00	N/A	N/A	ET-7	
08	RP0277A AUTO CNT SPRY FAILS TO ACT,TRN	N/A	N/A	N/A	N/A	
09	RP0277B AUTO CNT SPRY FAILS TO ACT,TRN	N/A	N/A	N/A	N/A	
10	CV0043 CHARGING LINE LEAK IN AUX BLDG	N/A	N/A	N/A	RT-9	550
11	CV0208B 22 CHARGING PUMP TRIP	00:02:00	N/A	N/A	RT-9	
12	AN0289 SER 289 FAILS - :H45 GENERATOR STATOR COOLING SYSTEM TROUBLE	N/A	N/A	N/A	RT-11	SER POINT FAILS/OVRD TO OFF
13	RM0210B1 AREA RAD MONITOR 2R4 FAILS ANYWHERE	00:00:30	N/A	N/A	RT-9	15
14	AN0737 SER 737 FAILS - :A6 RMS HI RAD OR TRBL-CHG PUMPROOM CH 2R4	00:00:30	N/A	N/A	RT-9	SER POINT FAILS/OVRD TO ON
15	CC0172A 21 COMPONENT COOLING PUMP TRIP	00:00:30	N/A	N/A	ET-1	
16	RP318A1 RHR PUMP 21 Fails to Start on SEC	N/A	N/A	N/A	N/A	
17	RP318A2 RHR PUMP 22 Fails to Start on SEC	N/A	N/A	N/A	N/A	
18	AN0269 SER 269 FAILS - :G20 SEAL & CYLINDER HEATING STEAM SYSTEM TROUBLE	N/A	N/A	N/A	N/A	SER POINT FAILS/OVRD TO ON
19	RD0061 ROD SPEED CONTROL PROGRAM FAILS	N/A	N/A	N/A	ET-3	8
20	RP0176A FALSE SAFETY INJ ACT SIGNAL A	N/A	N/A	N/A	RT-7	

## REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	PR02D PZR HI PR RX TRP CH 2 PC456A BS	N/A	N/A	N/A	N/A	TRIP
02	PR13D PZR LO PR BLK SI CH 2 PC456B BS	N/A	N/A	N/A	N/A	TRIP
03	PR06D PZR LO PR RX TRP CH 2 PC456C BS	N/A	N/A	N/A	N/A	TRIP
04	PR10D PZR LOW PRESS SI CH 2 PC456D BS	N/A	N/A	N/A	N/A	TRIP
05	RC02D OT DELTA T TRIP CH II BS (421C)	N/A	N/A	N/A	N/A	TRIP
06	RC06D OT DELTA T R/BCK CH II BS (421D)	N/A	N/A	N/A	N/A	TRIP
07	PR35D PORV STOP VALVE 2PR7 TAGGED	N/A	N/A	N/A	N/A	TAGGED
08	CV62B 22 CHG PUMP SUCTION VALVE 2CV49	N/A	N/A	N/A	ET-5	.000045

## OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	A604 B DI 23 CC PUMP - MANUAL	N/A	N/A	N/A	ET-7	ON
02	A604 A DI 23 CC PUMP - AUTO	N/A	N/A	N/A	ET-7	OFF
03	C812 F DI 24CSD 2C VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	N/A	ON
04	C809 F DI 23CSD 2C VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	ET-7	ON
05	A604 E DI 23 CC PUMP - START	N/A	N/A	N/A	ET-7	OFF
06	CF12 D DI 21MS10 PRESSURE SET PT. DECREASE	N/A	N/A	N/A	RT-5	ON

## OTHER CONDITIONS:

Description
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1. PZR Pressure Channel IV selected for Alarm

## **V. SEQUENCE OF EVENTS**

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<b>1. Valve surveillance with Unsat result</b>  <b>Role Play:</b> Report after the room cooler is started that the 21SW153 stroke time was 5.2 seconds.  <b>Role Play:</b> If PO retests 2SW153, report stroke time is 5.7 seconds			
	CRS directs PO to commence testing of 21 RHR pump room cooler.		
	PO records as found position (auto) of room cooler on Attachment 2.		
	PO contacts field operators for performance of valve stroke time monitoring.		
	PO and field operators test 21SW153.		
	PO reports stroke time is in the Required Evaluation Range.		
	CRS either directs valve to be retested, or declares valve inoperable.		
	After the second stroke time test is performed, CRS declares the 2SW153 inoperable if not already done.		
	CRS declares 21 RHR pump inoperable, and enters TSAS 3.5.2 for less than 2 full ECCS trains.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> S2.OP-SO.SW-0001, Service Water System Operation, Attachment 2, SW System Operability Guidelines, page 104 discusses RHR Pump Room Cooler and RHR pump operability.</p> <p>Proceed to next event on direction from Lead Evaluator.</p> <p><b>2. 21 SG NR level Channel II fails high</b></p>			
<p>Simulator Operator: Insert <b>RT-1</b> on direction from Lead Evaluator</p> <p><b>MALF: SG0095A</b> 21 SG lvl xmtr (519) CH II fails Final Value: 120</p>			
	PO announces OHA G-15 ADFCS Trouble, and 21 SG Isolation Level Hi-Hi console alarms as unexpected.		
	PO refers to ARP.		
	PO identifies 21 SG NR level CH II has failed high.		
	PO verifies all ADFCS parameters are normal and still being controlled in automatic.		
	CRS contacts I&C or WCC and informs them of channel failure.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Proceed to next event after Tech Spec call at direction of Lead Evaluator.</p> <p><b>3. Stator Water Runback</b></p>	CRS enters TSAS 3.3.1.1 Action 6, and 3.3.2.1 action b 19.		
<p><b>Simulator Operator:</b> Insert <b>RT-3</b> on direction from Lead Evaluator.</p> <p><b>MALF:</b> TA0314 Stator Water Flow Signal Fail Final Value: True</p>			
<p><b>Simulator Operator:</b> Ensure <b>ET-3</b> is True when control bank D lowers to 192 steps. This deletes the Main Turbine runback and inserts the rod speed failure to 8 spm.</p>	PO announces OHA's H-38 GEN STAT RUNBACK, and H-45 GEN STAT CLG SYS TRBL as unexpected.		
<p><b>Note:</b> The runback was initiated at</p>	PO reports the Main Turbine is running back.		
	RO monitors primary plant and ensures control rods start stepping inward in auto when demanded due to power mismatch and Tref-Tavg deviation OR inserts rods if in Manual.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>30% per minute, but the Main Turbine Governor valves respond slower than that. When the load reduction signal clears, the DEHC reference will stop changing, but the turbine governor valves will still be closing, and Mwe will lower another ~100 before reference equals actual.</p> <p><b>Role Play:</b> 5 minutes after being dispatched, insert <b>RT-11</b> which will clear OHA H-45. Then call control room as NEO and report: Panel 968 alarm A-1L, Inlet Flow Low was flashing, but cleared when I acknowledged it. Inlet flow is</p>			
	RO reports control rod speed is not consistent with temperature and power deviation, and receives permission from CRS to place control rods in manual.		
	RO inserts control rods in manual to maintain Tavg-Tref mismatch in the band given by CRS.		
	PO starts standby Stator Cooling Water pump IAW ARP.		
	RO/PO initiates boration.		
	CRS dispatches an operator to the Stator Water Panel 968 to investigate and determine panel alarm status IAW ARP for OHA H-38.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
reading 600 gpm. There are currently NO alarms on the panel.			
	PO verifies that when OHA H-38 clears, the DEHC reference stops lowering.		
	<p><u>IF</u> OHA E-16 ROD INSERT LMT LO-LO annunciates, <u>THEN</u> RO/PO initiates Emergency Boration IAW S2.OP-SO.CVC-0008 as directed by ARP by:</p> <ul style="list-style-type: none"> <li>- Determining that there is no set time duration for the boration per step 5.1.1.</li> <li>- Starts at least one Boric Acid Transfer pump in FAST speed.</li> <li>- Ensures charging flow is &gt; 75 gpm.</li> <li>- Opens 2CV175 Rapid Borate Stop Valve</li> <li>- Closes 21 and 22CV160, Recirc Vlvs</li> <li>- Ensures boric acid flow is &gt;36 gpm on 2FI-113A.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>- Ensures charging flow is &gt;75 gpm on 2FI-128B</li> <li>- Starts at least one Boric Acid Transfer pump in FAST speed.</li> <li>- Ensures the 2CV179 and 2CV181 shut.</li> <li>- Manually open 2CV172.</li> <li>- Open 2CV185.</li> <li>- Close 2CV160 and 2CV161.</li> <li>- Ensure Boric Acid flow &gt;36gpm on 2FI-110A.</li> </ul>		

**Note:** Emergency Boration is to continue until control rods are at least 2 steps higher than the RIL,



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
and OHA E-16 clears.			
	PO ensures generator MVARs within band.		
	CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction.		
	IF emergency boration was initiated, THEN WHEN OHA E-16 clears, RO stops the emergency boration by: <ul style="list-style-type: none"> <li>- Stopping the Boric Acid Transfer pump started above</li> <li>- Closing the 2CV175</li> <li>- Throttling open 21 and 22CV160 as required.</li> </ul> OR <ul style="list-style-type: none"> <li>- Place the running Boric Acid pump in Slow Speed.</li> <li>- Close the 2CV172 and 2CV185.</li> <li>- Return the CVCS Makeup system to AUTO.</li> <li>- Throttle open 2CV160 and 2CV161.</li> </ul>		
	CRS enters TSAS 3.2.1 Action a.2 for AFD.		
Proceed to next event on direction from Lead Evaluator.			
4. MS10 failure			
Simulator Operator: Insert <b>RT-5</b> at direction of Lead Evaluator.			
OVDI: CF12 21MS10 Pressure Setpoint Decrease PB ON.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Ensure <b>ET-11</b> is true when 21MS10 position is 20% open. This deletes the OVDI and results in 21MS10 remaining ~40% open.			
<p>Proceed to next event once 21MS10 is shut OR if crew trips the Rx.</p> <p><b>5. LBLOCA</b></p>	PO reports 21MS10 is opening with steam pressure setpoint lowering		
	PO either places 21MS10 in manual and shuts valve or raises steam pressure setpoint so that valve responds and shuts.		
	PO shuts 21MS10.		
	CRS enters S2.OP-AB.STM-0001, Excessive Steam Flow.		
<p><b>Simulator Operator:</b> Insert <b>RT-7</b> on direction from Lead Evaluator.</p> <p><b>MALF: RP0176A False Safety Injection Signal Train A.</b></p>			
	RO reports the Rx has tripped.		
<p><b>Simulator Operator:</b> Ensure <b>ET-7</b> is TRUE upon the Rx trip. This will:</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Initiate the LBLOCA after 5 min. delay.</p> <p>Swap 23 CCW pump to manual to prevent it from auto starting.</p> <p>Trip 21 CCW pump after 30 sec delay.</p> <p>Open both infeed bkrs to 2C 4KV vital bus and cause EDG to load.</p> <p>Trip 21 charging pump after a 15 minute delay.</p>			
	<p>RO performs TRIP-1 immediate actions from memory:</p> <ul style="list-style-type: none"> <li>- Verifies Rx tripped</li> <li>- Verifies Rx trip confirmed</li> <li>- Trips the Main Turbine</li> <li>- Verifies at least one 4KV vital bus energized.</li> <li>- Reports Safety Injection actuated and backs up SI.</li> </ul>		
	<p>CRS reads immediate action steps to RO and RO verifies performance.</p>		
	<p>RO/PO reports 2C 4KV vital bus is energized from 2C EDG.</p>		
	<p>RO reports 22 charging pump, 21 and 22 RHR pumps failed to start.</p>		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
6. Lo Head ECCS fails to actuate			
	Crew blocks ALL SECs on 2RP1.		
	Crew resets Emergency loading on ALL SECs.		
	RO starts 22 Charging pump, 21 RHR pump, and 22 RHR pump.		
CT #1 (E-0—H) Manually start at least one RHR pump prior to transition out of EOP-TRIP-1.			
SAT _____ UNSAT _____			
7. Containment Spray fails to actuate.	RO makes page announcement "Unit 2 Rx trip, Safety Injection."		
	PO reports all AFW pumps running, and requests permission to throttle AFW flow while maintaining 22E4 lbm/hr or 9% level in at least one SG NR level.		
	CRS directs PO to throttle AFW flow.		
	PO lowers 23 AFW pump speed to minimum, and throttles 21-24AF21's to maintain AFW flow ~ 22E4 lbm/hr.		
	RO/PO identifies that a LBLOCA has occurred by control board indications.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports control console indication of Containment Spray and Phase B actuation, but no Containment Spray system components have actuated.		
	CRS refers/returns to Step 11 and directs RO initiate Containment Spray by:		
	<ul style="list-style-type: none"> <li>- Initiate phase B and Spray actuation. <ul style="list-style-type: none"> <li>- RO inserts BOTH keys into CS actuation and turns at same time.</li> <li>- RO reports spray valve realignment.</li> </ul> </li> <li>- Start 21 and 22 CS pumps <ul style="list-style-type: none"> <li>- RO inserts key and turns for 21 and 22 CS pumps and reports both CS pumps are running.</li> </ul> </li> <li>- Initiate MSLI <ul style="list-style-type: none"> <li>- RO reports MSLI initiated.</li> </ul> </li> <li>- Stop 21-24 RCPs <ul style="list-style-type: none"> <li>- RO depresses stop PB for all RCPs.</li> </ul> </li> <li>- Ensure valve groups in Table D in safeguards position. <ul style="list-style-type: none"> <li>- PO reports all Table D valves in safeguards position.</li> </ul> </li> </ul>		
CT #2 (E-0--E) Initiate Containment Spray prior to exiting TRIP-1.			
SAT      UNSAT			
	RO reports MSLI has been initiated.		
	CRS directs SM implement the ECG.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> The PO should NOT attempt to start 23 CCW pump here, since 2C vital 4kv bus is powered from the EDG and there is no direction in TRIP-1 to start the second CCW pump. <b>IF</b> the PO attempts to start 23 CCW pump, it will neither start nor backflash due to scenario setup override.</p>	PO reports all 3 4KV vital busses are energized with 2C 4KV vital bus energized from 2C EDG.		
	RO reports control room ventilation is in Accident Pressurized mode.		
	RO reports 2 swgr supply and 1 swgr exhaust fans are running.		
	PO reports only 22 CCW pump is running.		
	CRS dispatches an operator to shut 2CC37 and 2CC48.		
	CREW performs ECCS flow evaluation and determines all ECCS pumps are injecting to RCS as expected for LBLOCA and cont press.		
	PO reports AFW status and is maintaining 22E4 lbm/hr or 15% (adverse cont numbers in effect) level in at least one SG NR level, then maintaining 15-33%.		
	RO reports all RCPs are stopped and MSLI		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> All SG pressures will be dropping due to the LBLOCA with 21 SG pressure lower than the remaining 3 SGs due to the RCS rupture being on that loop.</p> <p><b>Note:</b> STA will report to the control room 10 minutes after being paged and begin monitoring CFSTs.</p> <p><b>Note:</b> 21 charging pump will trip 15 minutes after the Rx trip.</p> <p><b>Note:</b> Upon the transition out of TRIP-1, CFST monitoring becomes</p>	actuated.		
	RO reports both RTBs open.		
	RO reports both PORVs shut with 2PR6 open and 2PR7 shut with power removed.		
	RO reports all RCPs are stopped.		
	RO ensures seal injection flow is maintained to all RCPs.		
	PO reports there are no faulted or ruptured SGs.		
	CRS transitions to LOCA-1 on containment radiation levels.		
	RO reports 21 charging pump has tripped.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
active.			
	STA identifies that a PURPLE path exists on both the Thermal Shock and Containment Environment Critical Function Status Trees.		
	CRS transitions to FRTS-1 based on RCS cool down rate and Table A conditions.		
	RO reports RCS pressure is less than 420 psig (adverse).		
	CRS transitions back to LOCA-1.		
	STA identifies a PURPLE path still exists for Containment Environment (if containment pressure remains above 15 psig).		
	CRS transitions to FRCE-1 based on PURPLE path for containment Environment.		
	RO verifies actions previously performed: <ul style="list-style-type: none"> <li>- CFCUs running in low speed with proper SW flow.</li> <li>- RCPs stopped</li> <li>- Both CS pumps running.</li> <li>- Containment isolations</li> <li>- MSLI</li> <li>- No faulted SGs.</li> </ul>		
	CRS transitions back to LOCA-1.		



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports no faulted SG's.		
	PO reports AFW status and is maintaining 22E4 lbm/hr or 15% (adverse cont numbers in effect) level in at least one SG NR level, then maintaining 15-33%.		
	PO reports no indications of SGTR.		
	RO resets SI, Phase A, and Phase B.		
	RO opens both CA330s.		
	PO resets all SECs.		
	RO resets SGBD Sample Isolation Bypass and opens 21-24SS94s.		
	CRS directs chemistry to sample SGs for boron and activity.		
	RO reports both PORVs shut with 2PR6 open and 2PR7 shut with power removed.		
	RO reports subcooling is less than zero.		
	RO reports both CS pumps are running.		
	RO reports subcooling is less than zero.		
	RO reports RHR is not aligned for CL recirc.		
	RO reports RHR flow is > 300 gpm on both		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>If the crew arrives at Step 18.2 prior to RWST level of 15.2', they will enter a "do loop" with return to step 16. When RWST lo level alarm actuates, continue below.</p>	SJ49s.		
	CRS requests assistance from TSC to restore off-site power to 2C 4KV vital bus.		
	RO reports both RHR pumps and both SJ44s are available.		
	RO/PO reports no rad monitors in Table C are in warning or alarm.		
	CRS directs chemistry to sample the RCS and analyze for failed fuel and boron.		
	CRS consults TSC about equipment availability to assist in long term recovery.		
	CRS verifies operators were dispatched in TRIP-1 to shut 2CC37 and 2CC48.		
	RO reports both RHR pumps are running.		
	RO reports RHR flow is > 300 gpm on both SJ49s.		
	RO reports RWST level.		
	RO reports RWST lo level alarm as expected alarm.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Log time of RWST LO-LO level alarm for CT#2 evaluation. ____:____:____			
	CRS transitions to LOCA-3.		
<b>Simulator Operator:</b> Upon entry into LOCA-3, <b>DELETE I/O A604 OVDI</b> for the <b>START PB for 23 CCW pump</b> and ENSURE it does <b>NOT</b> start. Be prepared to remotely STOP 23 CCW pump if required, as it affects scenario outcome and must <b>NOT</b> be running but capable of starting when crew arrives at step 28.2			
	RO reports both Cont Sump Level >62% are lit.		
	RO depresses Sump Auto Armed PBs for 21 and 22SJ44.		
	PO removes lockouts for 2SJ67, 2SJ68 and 2SJ69.		
	RO reports 21 and 22SJ44 are open.		
	RO reports both RHR pumps are running and shuts 2SJ69.		
	<b>LOG TIME 2SJ69 Close is initiated:</b> ____:____:____		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	LOG TIME Containment Spray pump stopped: : : :		
CT# 3: (ES-1.3—A) Transfer to Cold Leg Recirculation such that at least one train of ECCS is in operation in the recirculation mode within the following time frames. 1. From RWST lo level alarm to initiating closed on 2SJ69 - $\leq 3.7$ minutes 2. From RWST lo level alarm to one containment spray pump stop $\leq 5.5$ minutes 3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) - $\leq 11.2$ minutes.  SAT _____ UNSAT _____			
	RO reports SI is reset, and all SECs are reset.		
	PO reports 230V load centers are reset.		
	RO reports 2SJ69 is closed.		
	RO reports both CS pumps are operating and stops 22 CS pump.		
	RO shuts 21 and 22RH19s, and stops 23		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	charging pump if running.		
	CRS selects step 11 as the correct flowpath transition.		
	PO reports C bus is energized from its EDG.		
	RO reports 3 SW pumps are running.		
	RO reports both CCHXs are in service.		
	RO reports 23 CCW pump is NOT running.		
	RO reports 22 CS pump is NOT running.		
	RO starts 23 CCW pump.		
	RO reports 21 and 22CC16s are open.		
	RO shuts 2SJ67 and 2SJ68.		
	RO reports RH1 and RH2 are shut.		
	RO reports both RHR pumps are running and opens 21 and 22SJ45s.		
	RO reports 21 and 22SJ113s are open.		
	RO reports 22 charging pump and 21 and 22 SI pumps are running.		
LOG TIME ECCS Pumps verified running: ____:____:____			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
8. Charging pump caviatation	PO removes lockout from 2SJ30.		
	RO shuts 2SJ30, 2SJ1, and 2SJ2.		
<b>Simulator Operator:</b> Ensure <b>ET-5</b> is TRUE when the close PB for 2SJ2 is depressed. This inserts the closure of 22 charging pump suction isolation valve 22CV49 and will cause 22 charging pump to cavitate. During validation, oscillations between 48-90 Amps were observed, and the pump did NOT trip on OC.			
	RO/PO recognizes 22 charging pump is cavitating by amperage indication, discharge flow and BIT flow, and discharge pressure oscillations.		
	RO trips 22 charging pump.		
<b>CT#4 Trip the cavitating charging pump prior to pump/system piping damage.</b>  <b>SAT</b> <b>UNSAT</b>			
<b>Simulator Operator:</b> IF the crew does <b>NOT</b> trip 22 charging pump within 5 minutes of the initiation of cavitation, <b>THEN</b> insert <b>RT-9</b> . This			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>simulates a failure of the charging system piping in the Aux Building resulting in a LOCA outside containment, then trips 22 charging pump after an additional 2 minute delay.</p> <p><b>MALF: CV0043</b> Charging Line Leak in Aux Bldg Final Value: 550</p> <p><b>MALF: CV0208B</b> 22 Chg Pump trip Delay: 2 minutes Final Value: True</p> <p><b>MALF: RM0210B1</b> Area Rad Monitor 2R4 fails anywhere Delay: 30 sec Final Value: 15</p> <p><b>MALF: AN0737</b> SER 737 Fails -: A6 RMS Hi Rad or Trouble</p>			
<p><b>TERMINATE</b> the scenario when 22 charging pump has been secured, whether by operator action or when it trips 7 minutes after cavitating starts.</p> <p><b>Note:</b> Some of the following steps may be performed depending on when, or if, the crew recognizes the 22 charging pump cavitation, and should be evaluated accordingly.</p>			
	RO places 21 and 22RH29 controllers in Manual and ensures valves are shut.		
	CRS implements FRPs as necessary.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS dispatches operator to tag SJ44 breakers open.		
	RO verifies Phase A and Phase B are reset, and CA330s are open.		
	PO stops 2A and 2B EDGs.		



**VI. SCENARIO REFERENCES**

- A. Alarm Response Procedures (Various)
- B. Technical Specifications
- C. Emergency Plan (ECG)
- D. OP-AA-101-111-1003, Use of Procedures
- E. 2-EOP-TRIP-1, Rx Trip or Safety Injection
- F. 2-EOP-LOCA-1 Loss of Coolant Accident
- G. 2-EOP-LOCA-3 Transfer to Cold Leg Recirculation
- H. S2.OP-AB.LOAD-0001 Rapid Load Reduction
- I. S2.OP-AB.RC-0001 Reactor Coolant System Leak
- J. S2.OP-ST.SW-0014, IST Room Cooler Valves Modes 1-6
- K. S2.RA-ST.SW-0014, IST Room Cooler Valves Modes 1-6 Acceptance Criteria
- L. S2.OP-SO.SW-0005, Service Water System Operation

# **ATTACHMENT 1 UNIT TWO PLANT STATUS TODAY**

MODE: 1      POWER: 100      RCS BORON: 100      MWe 1200

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

## REACTIVITY PARAMETERS

Core Burnup: 12,600 EFPH

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.4.5 action b for PZR Pressure Channel II calibration. 70 hours left in action time.

## EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

S2.IC-CC-RCP-0018, 2PT-456 Pressurizer Pressure Protection Channel II.

S2.OP-ST.SW-0014, Inservice Testing Room Cooler Valves Modes 1-6. 21 RHR pump room cooler is to be tested upon assuming the watch. All other room coolers have been tested SAT. 2 NEOs are stationed at 21 RHR pump room to allow coordination of testing via the plant page system.

## ABNORMAL PLANT CONFIGURATIONS:

2PR7 shut and power removed to comply with TSAS 3.4.5.b for PZR Pressure Channel II being out of service for channel calibration.

PZR Pressure Channel IV selected for Alarm.

## CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.

No penalty minutes in the last 24 hrs.

## PRIMARY:

3.3.1.1 action 6 and 3.3.2.1 action 19 for PZR Pressure Channel II PT-456.

## SECONDARY:

OHA G-20 SEAL CVL HTG STM SYS TRBL is in alarm due to Gland Sealing Steam high pressure. NEO is investigating.  
Heating steam is aligned to Unit 1.

## RADWASTE:

No discharges in progress

## CIRCULATING WATER/SERVICE WATER:

None

**ATTACHMENT 2****SIMULATOR READY FOR TRAINING CHECKLIST**

- \_\_\_ 1. Verify simulator is in "TRAIN" Load
- \_\_\_ 2. Simulator is in RUN
- \_\_\_ 3. Overhead Annunciator Horns ON
- \_\_\_ 4. All required computer terminals in operation
- \_\_\_ 5. Simulator clocks synchronized
- \_\_\_ 6. All tagged equipment properly secured and documented
- \_\_\_ 7. TSAS Status Board up-to-date
- \_\_\_ 8. Shift manning sheet available
- \_\_\_ 9. Procedures in progress open and signed-off to proper step
- \_\_\_ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- \_\_\_ 11. Required chart recorders advanced and ON (proper paper installed)
- \_\_\_ 12. All printers have adequate paper AND functional ribbon
- \_\_\_ 13. Required procedures clean
- \_\_\_ 14. Multiple color procedure pens available
- \_\_\_ 15. Required keys available
- \_\_\_ 16. Simulator cleared of unauthorized material/personnel
- \_\_\_ 17. All charts advanced to clean traces and chart recorders are on.
- \_\_\_ 18. Rod step counters correct (channel check) and reset as necessary
- \_\_\_ 19. Exam security set for simulator
- \_\_\_ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter  
with Baseline Data filled out
- \_\_\_ 21. Shift logs available if required
- \_\_\_ 22. Recording Media available (if applicable)
- \_\_\_ 23. Ensure ECG classification is correct
- \_\_\_ 24. Reference verification performed with required documents available
- \_\_\_ 25. Verify phones disconnected from plant after drill.

## ATTACHMENT 3

## CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
  - degradation of any barrier to fission product release
  - degraded emergency core cooling system (ECCS) or emergency power capacity
  - a violation of a safety limit
  - a violation of the facility license condition
  - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
  - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
  - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
  - recognize a failure or an incorrect automatic actuation of an ESF system or component.
  - take one or more actions that would prevent a challenge to plant safety.
  - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

## ATTACHMENT 4

## SIMULATOR SCENARIO REVIEW CHECKLIST

**SCENARIO IDENTIFIER:** 11-01 NRC-ESG-1 **REVIEWER:** E Gallagher

Initials	Qualitative Attributes
EG	1. The scenario has clearly stated objectives in the scenario.
EG	2. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue crew into expected events.
EG	3. The scenario consists mostly of related events.
EG	4. Each event description consists of: <ul style="list-style-type: none"> <li>• the point in the scenario when it is to be initiated</li> <li>• the malfunction(s) that are entered to initiate the event</li> <li>• the symptoms/cues that will be visible to the crew</li> <li>• the expected operator actions (by shift position)</li> <li>• the event termination point</li> </ul>
EG	5. No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.
EG	6. The events are valid with regard to physics and thermodynamics.
EG	7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
EG	8. The simulator modeling is not altered.
EG	9. All crew competencies can be evaluated.
EG	10. The scenario has been validated.
EG	11. If the sampling plan indicates that the scenario was used for training during the requalification cycle, evaluate the need to modify or replace the scenario.
EG	12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

## ATTACHMENT 4

## SIMULATOR SCENARIO REVIEW CHECKLIST

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	8	Total malfunctions inserted: 5-8
GG	4	Malfunctions that occur after EOP entry: 1-2
GG	2	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	2	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	4	Crew Critical Tasks: 2-3

## COMMENTS:

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## ATTACHMENT 5

### ESG CRITICAL TASKS

#### 11-01 NRC ESG-1

**CT#1 (E-0—H) Manually start at least one RHR pump prior to transition out of EOP-TRIP-1.**

Basis- Failure to manually start at least one low-head ECCS pump under the postulated conditions constitutes "mis-operation or incorrect crew performance which leads to degraded...capacity." This is a critical task because of the LBLOCA which occurs, and lo head ECCS is required.

..

**CT#2 (E-0--E) Manually actuate at least the minimum required complement of containment cooling equipment before exiting TRIP-1.**

Basis- Failure to manually actuate the minimum required complement of containment cooling equipment under the postulated conditions constitutes a "demonstrated inability by the crew to recognize a failure/incorrect auto actuation of an ESF system or component." Failure to manually actuate containment spray represents a "demonstrated inability of the crew to effectively direct/manipulate ESF controls that would lead to a violation of the facility license condition."

**CT# 3: (ES-1.3—A) Transfer to Cold Leg Recirculation such that at least one train of ECCS is in operation in the recirculation mode within the following time frames:**

1. From RWST lo level alarm to initiating closed on 2SJ69 -  $\leq 3.7$  minutes.
2. From RWST lo level alarm to one containment spray pump stop-  $\leq 5.5$  minutes.
3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) -  $\leq 11.2$  minutes.

Basis: Failure to establish cold leg recirculation within the time frame specified in the FSAR is a "demonstrated inability of the crew to effectively direct/manipulate ESF controls that would lead to a violation of the facility license condition."

**CT#4: Trip the cavitating Charging Pump prior to pump/system piping damage.**

Basis: Failure to trip a cavitating charging pump during the transfer to cold leg recirculation when indications of cavitation are present, leads to the possibility of system damage and the advent of a loss of coolant outside the containment building. (As is the case in this scenario.)

## ATTACHMENT 6

## ESG-PSA RELATIONSHIP EVALUATION

## EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	<u>Event</u>	<u>Y/N</u>	<u>Event</u>
N	TRANSIENTS with PCS Unavailable	N	Loss of Service Water
N	Steam Generator Tube Rupture	N	Loss of CCW
N	Loss of Offsite Power	N	Loss of Control Air
N	Loss of Switchgear and Pen Area Ventilation	N	Station Black Out
Y	LOCA		

## COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>	<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
N	Containment Sump Strainers	N	Gas Turbine
N	SSWS Valves to Turbine Generator Area	N	Any Diesel Generator
N	RHR Suction Line valves from Hot Leg	N	Auxiliary Feed Pump
N	CVCS Letdown line Control and Isolation Valves	N	SBO Air Compressor

## OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
Y	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam Generator that has the tube rupture(s)
N	Early depressurize the RCS
N	Initiate feed and bleed

Complete this evaluation form for each ESG.



PSEG NUCLEAR L.L.C.  
SALEM/OPERATIONS

S2.OP-ST.SW-0014(Q) - REV. 10

## INSERVICE TESTING ROOM COOLER VALVES MODES 1-6

USE CATEGORY : **I**

- 
- ◆ Biennial Review Performed: Yes ☐ No ☒
  - ◆ Change Package(s) and Affected Document Number(s) incorporated into this revision: None
  - ◆ OTSC(s) incorporated into this revision: None
  - ◆ OPEX(s) incorporated into this revision: None
- 

## REVISION SUMMARY:

1. The following changes are related to the same orders. (70059857/10113190)
  - ◆ 5.1.2.A NOTE - Deleted NOTE as it directed personnel to a step to use installed plant equipment in a manner for which it was not designed.
  - ◆ 5.1.2.B.3.b - Deleted step as it directed personnel to use installed plant equipment in a manner for which it was not designed. Placing the RP2 Room cooler switch in the mid position is not a design feature of this switch.
2. The following changes are considered editorial in nature as described in AD-AA-101.  
Due to the number of editorial changes, no revision bars were used.
  - ◆ 5.1.2.B - Updated step to provide place keeping spaces to adhere to Operations Standards. (70095881)
  - ◆ Replaced all superseded procedure references with the current approved procedure references.
  - ◆ Deleted all references to the performance of an STA review of this procedure.
  - ◆ Updated to incorporate current administrative standards for format and personnel titles.

## IMPLEMENTATION REQUIREMENTS

Effective Date 01/27/2011

- ◆ None

**INSERVICE TESTING  
ROOM COOLER VALVES  
MODES 1-6**




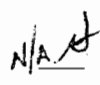

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1.0 **PURPOSE**

- 1.1 Provides instructions necessary to perform Inservice Inspection and Testing IAW the IST Program for valves associated with Auxiliary Building Room Coolers. This requirement is applicable in Modes 1-6. [C0265]
- 1.2 Provides instructions necessary to perform inspections of the Auxiliary Building Room Coolers. This requirement is applicable in Modes 1-6. [C0265]
- 1.3 Performance of this procedure is required at least once per 92 days in Modes 1-6, or as otherwise specified in the post-maintenance operational retest requirements.

2.0 **PREREQUISITES**

-  2.1 **REVIEW** Components "Off Normal and Off-Normal Tagged" List(s) for system(s) and support system(s) associated with the evolution to be performed in this procedure.
-  2.2 **RECORD** the applicable SAP Order number(s) and Reason for Test, on Attachment 1, Section 1.0.
-  2.3 **OBTAIN** Calibration Data for the instruments and test equipment listed in Attachment 1, Section 2.0. [C0289]
- N/A  2.4 IF this surveillance is being performed to verify post-maintenance operability OR to establish new baseline data, THEN the IST Program Engineer is notified. [C0583]
-  2.5 IF this surveillance is being performed as a regular scheduled surveillance OR to verify post-maintenance operability, THEN a copy of S2.RA-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6 Acceptance Criteria is attached.

3.0 **PRECAUTIONS AND LIMITATIONS**

-  3.1 Steps identified with a dollar sign (\$) are those items required to meet Technical Specification acceptance criteria. Such steps, if not satisfactorily completed, may have reportability requirements and should be brought to the immediate attention of the SM/CRS.

4.0 EQUIPMENT/MATERIAL REQUIRED

4.1 M&TE:

- ◆ Calibrated Stopwatch(es)

4.2 Additional Tools and Equipment:

- ◆ Communication Equipment

4.3 Procedure(s):

- ◆ Copy of S2.RA-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6 Acceptance Criteria, if applicable

5.0 PROCEDURE5.1 IST of Room Cooler Valves by Stroke Timing

- 1 5.1.1 **RECORD** the 2RP2 Room Cooler "As Found" Switch Positions of Room Coolers to be tested on Attachment 2.
- 1 5.1.2 **PERFORM** stroke time testing of the Room Cooler valve(s) given in Attachment 3, and visual inspection of Room Cooler(s) given in Attachment 4, with the following instructions:
- 1 A. **PLACE** 2RP2 Room Cooler Switch in AUTO.
- 1 B. IF the Room Cooler to be tested is in service,  
THEN:
- 1 1. **RECORD** the Room Cooler "As Found" Thermostat Setting on Attachment 2.
- 1 2. **INCREASE** the Room Cooler Thermostat setpoint(s) to maximum to STOP the Room Cooler.
- OR
- N/A C. IF the Thermostat is inoperable,  
OR the actual room temperature is too high,  
THEN INITIATE a NOTF(s) to address the specific problem,  
AND RECORD the number on Attachment 5 in the Comments Section.
- 1 C. **ESTABLISH** communication between the Control Room and the valve.
- 1 D. **TEST** only ONE valve at a time in the direction required to satisfy the surveillance.

(step continued on next page)

5.1.2 (continued)

- J E. Simultaneously **PERFORM** the following:
  - J ♦ **START** the Room Cooler from the Control Room.
  - AND
  - J ♦ **START** the Stopwatch at the valve.
- J F. When the valve is full open, **STOP** the Stopwatch.
- J G. **RECORD** the actual Stroke Time, Stopwatch Number, Date & Time and Initials in Attachment 3.
- J H. **ALLOW** the Room Cooler to run for a minimum of five minutes.
- J I. **RECORD** Room Cooler Filter Differential Pressure (DP) on Attachment 4.
- J J. Visually **INSPECT** the Room Cooler.
- J K. **RECORD** "Inspection Results" by initialing the SAT or UNSAT column using the Acceptance Criteria in Attachment 4.
- J L. **DOCUMENT** ANY Room Cooler Service Water leakage in the Comments Section of Attachment 5.
- J M. **RETURN** the Room Cooler to the "As Found" conditions recorded in Attachment 2.

J 5.1.3 S **IF** this surveillance is being performed as a regular scheduled surveillance **OR** to verify post-maintenance operability, **THEN RECORD** "Test Results" by initialing SAT or UNSAT column using the Acceptance Criteria in Attachment 3.

J 5.1.4 **DIRECT** a second Operator to perform Independent Verification of the components specified in Attachment 2.

N/A 5.1.5 **IF** this surveillance is being performed to establish new baseline data, **THEN** IST Program Engineer **PERFORM** the following:

- IST A. **EVALUATE** the data AND **DETERMINE** if the specified components meet minimum design requirements.
- J B. **RECORD** "Test Results" by initialing SAT or UNSAT column using the Acceptance Criteria in Attachment 3.

5.2 Acceptance Criteria

\_\_\_ 5.2.1 This surveillance is satisfactory when Attachments 3 and 4 (as applicable)  
 \$ are completed with components(s) listed meeting the Acceptance Criteria  
 stated in each Attachment.

OR

\_\_\_ 5.2.2 This surveillance procedure is unsatisfactory.

\_\_\_ A. **INITIATE** NOTF(s) to correct the unsatisfactory condition(s).

\_\_\_ B. **RECORD** NOTF number(s), AND reason for unsatisfactory completion  
 on Attachment 5 in the Comments Section.

5.3 Completion and Review

\_\_\_ 5.3.1 **COMPLETE** Attachment 5, Sections 1.0 and 2.0,  
AND FORWARD this procedure to the SM/CRS for review.

\_\_\_ 5.3.2 SM/CRS **PERFORM** the following:

\_\_\_ A. **REVIEW** this procedure with Attachments 1-5  
 for completeness and accuracy.

\_\_\_ B. IF valve stroke times are within the ACCEPTABLE RANGE,  
 \$ THEN DECLARE the applicable valve(s) OPERABLE.

\_\_\_ C. IF ANY valve's stroke time is within  
 the REQUIRED EVALUATION RANGE,  
THEN:

\_\_\_ 1. Immediately **RETEST** the respective valve(s),

OR

Immediately **DECLARE** the respective valve(s) inoperable.

(step continued on next page)

## 5.3.2 (continued)

- \_\_\_ 2. IF the respective valve(s) is retested and the second set of data is also in the REQUIRED EVALUATION RANGE, THEN Notify the IST Program Manager , to **ANALYZE** the data within 96 hours to ensure the new stroke time represents acceptable valve operation, **AND DOCUMENT** evaluation results on Attachment 5, in the Comments Section,
- OR
- Immediately **DECLARE** the respective valve(s) inoperable.
- \_\_\_ 3. IF the respective valve(s) is retested and the second set of data is within the ACCEPTABLE RANGE, THEN Notify the IST Program Manager, to **ANALYZE** the cause of initial deviation, AND DOCUMENT evaluation results on Attachment 5, in the Comments Section.
- \_\_\_ D. IF ANY valve's stroke time is in the REQUIRED ACTION RANGE, THEN:
- \_\_\_ 1. Immediately **DECLARE** the respective valve(s) inoperable.
- \_\_\_ 2. **EVALUATE** Technical Specification requirements for system operability.
- \_\_\_ E. IF ANY Room Cooler Inspection is **UNSAT** IAW Attachment 4, THEN:
- \_\_\_ 1. **INITIATE** a NOTF(s) **AND RECORD** the number on Attachment 5 in the Comments Section.
- \_\_\_ 2. **EVALUATE** Technical Specification requirements for system operability.

(step continued on next page)



5.3.2 (continued)

- \_\_\_ F. IF ANY Room Cooler(s) indicates evidence of Service Water leakage as documented in the Comments Section of Attachment 5,  
THEN:
  - \_\_\_ 1. **INITIATE** NOTF(s) to correct the unsatisfactory condition(s).
  - \_\_\_ 2. **RECORD** NOTF number(s) on Attachment 5, in the Comments Section.
  - \_\_\_ 3. **EVALUATE** operability of the respective Room Cooler(s).
  - \_\_\_ 4. IF the respective Room Cooler(s) is determined to be inoperable due to excessive Service Water leakage,  
THEN EVALUATE Technical Specification requirements for system operability.
- \_\_\_ G. **COMPLETE** Attachment 5, Section 3.0.
- \_\_\_ H. **PLACE** this procedure in the IST IMPLEMENTATION ENGINEER REVIEW REQUIRED mail slot.

**END OF PROCEDURE SECTION**

## 6.0 RECORDS

Retain the following IAW RM-AA-101, Records Management Program:

- ◆ Attachment 1-5
- ◆ Copy of S2.RA-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6 Acceptance Criteria (as applicable)

## 7.0 REFERENCES

### 7.1 Updated Final Safety Analysis Report:

- ◆ Section 9.2.1, Service Water Header
- ◆ Section 9.4.2, Auxiliary Building Ventilation System

### 7.2 Procedures:

- ◆ MA-AA-716-040, Control of Portable Measuring and Test Equipment Program
- ◆ MA-AA-716-021, Rigging and Lifting Program
- ◆ SA-AA-2100, Tool Safety
- ◆ ER-AA-321, Administrative Requirements for Inservice Testing
- ◆ MA-AA-716-012, Post Maintenance Testing

### 7.3 Drawings:

- ◆ 205342, No. 2 Unit Service Water Nuclear Area
- ◆ 218659, No. 1 & 2 Units - Aux Building Ventilation - RHR Pump Room Coolers - AC & DC Schematic
- ◆ 218660, No. 1 & 2 Units - Aux Building Ventilation - Charging Pump Room Coolers - AC Schematic
- ◆ 218661, No. 1 & 2 Units - Aux Building Ventilation - Containment Spray Pump Room Coolers - AC & DC Schematic
- ◆ 218662, No. 1 & 2 Units - Aux Building Ventilation - Safety Injection Pump Room Coolers - AC Schematic
- ◆ 218663, No. 1 & 2 Units - Aux Building Ventilation - Component Cooling Pump Room Coolers - AC Schematic
- ◆ 218664, No. 1 & 2 Units - Aux Building Ventilation - Aux Feedwater Pump Room Coolers - AC Schematic

### 7.4 Others:

- ◆ Section XI of ASME Boiler and Pressure Vessel Code (1989)
- ◆ OMa-10, Inservice Testing of Valves in Light-Water Reactor Power Plants (1987 Edition with 1988 Addenda)
- ◆ Salem Generating Station IST Manual
- ◆ NUREG-1482, Guidelines for Inservice Testing at Nuclear Plants
- ◆ DE-CB.ABV-0022(Q), Auxiliary Building Ventilation System Configuration Baseline Document
- ◆ DE-CB.SW-0047(Q), Service Water System Configuration Baseline Document
- ◆ PR #970225333, 21 CC Pp Room D/P Low IAW S2.OP-ST.SW-0014(Q)

7.5 Cross-References:

7.5.1 Procedures:

- ◆ RM-AA-101, Document Management Program
- ◆ S2.RA-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6 Acceptance Criteria

7.5.2 Technical Specifications - Unit 2:

6.8.4.j, Inservice Testing Program

7.6 Commitments:

- ◆ C0265 - NSO LER 311/89-015-00
- ◆ C0283 - NRC VIOL 311/87-18-01
- ◆ C0289 - INSTRUMENT CALIBRATION REQUIREMENTS
- ◆ C0583 - NRC VIOL 272/94-21-04



ATTACHMENT 1  
(Page 1 of 1)

INSTRUMENTATION AND TEST EQUIPMENT DATA

1.0 SAP ORDER DATA

SAP Order Number(s): <u>60217304</u> _____ _____	<table> <tr> <th colspan="2">Reason for Test</th> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Scheduled Surveillance</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Post-Maintenance Operability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Establish New Baseline Data</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Other (Explain in Comments)</td> </tr> </table>	Reason for Test		<input checked="" type="checkbox"/>	Scheduled Surveillance	<input type="checkbox"/>	Post-Maintenance Operability	<input type="checkbox"/>	Establish New Baseline Data	<input type="checkbox"/>	Other (Explain in Comments)
Reason for Test											
<input checked="" type="checkbox"/>	Scheduled Surveillance										
<input type="checkbox"/>	Post-Maintenance Operability										
<input type="checkbox"/>	Establish New Baseline Data										
<input type="checkbox"/>	Other (Explain in Comments)										

2.0 INSTRUMENT/TEST EQUIPMENT

Instrument/Test Equipment	Description	Calibration Overdue Date	Initials
Serial # <u>57987-2</u>	Calibrated Stopwatch used for Stroke Timing	3 months from now	<i>JS</i>
Serial # _____	Calibrated Stopwatch used for Stroke Timing		

**ATTACHMENT 2**  
(Page 1 of 1)

**ROOM COOLER AS FOUND DATA**

Thermostat Number	Room Cooler Description	"As Found" 2RP2 Switch Position	"As Found" Thermostat Setting	Returned to "As Found" (Initials)	Independent Verification	
					2RP2 (NCO)	Thermostat Setting (1)
2TD7552	21 CC Pump	Auto	90	M	L	90
2TD7545	22 CC Pump (2)	Auto	90	M	L	90
2TD7575		Auto	90	M	L	90
2TD7574	AF Pump (3)	Auto	N/A	M	L	N/A
2TD7551		Auto	N/A	M	L	N/A
2TD7553	21 CS Pump	Auto	N/A	M	L	N/A
2TD7549	22 CS Pump	Auto	N/A	M	L	N/A
2TD7555	21 RHR Pump					
2TD7546	22 RHR Pump	Auto	N/A	M	L	N/A
2TD7548	SI Pump	Auto	N/A	M	L	N/A
2TD7547	21 Chg Pump	Auto	N/A	M	L	N/A
2TD7554	22 Chg Pump	Auto	N/A	M	L	N/A
2TD7550	23 Chg Pump	Auto	90	M	L	<del>N/A</del> 90

- (1) IF thermostat was NOT adjusted,  
THEN **RECORD** N/A.
- (2) 2TD7545 and 2TD7575 are in parallel, therefore, either switch may be operated to actuate the room cooler solenoid valve. 2TD7575 is located on the wall behind 21 AF Pump.
- (3) 2TD7574 and 2TD7551 are in parallel, therefore, either switch may be operated to actuate the room cooler solenoid valve. 2TD7574 is located in 23 AF Pump Room.

ATTACHMENT 3  
(Page 1 of 1)

STROKE TIME DATA

Component Description	Stroke	Stroke Time (sec)	Stopwatch Number	Stroke Date/ Time	Initials	Test Results		
						Acceptable Range SAT	Required Evaluation Range SAT	Required Action Range UNSAT
21SW129 CC PMP RM CLR SW CONT V	0	2.1	5-7987-2	Today 1 hour ago	J	J		
22SW129 CC PMP RM CLR SW CONT V	0	2.4			J	J		
2SW137 AF PMP RM CLR SW CONT V	0	2.6			J	J		
21SW145 CS PMP RM CLR SW CONT V	0	1.7			J	J		
22SW145 CS PMP RM CLR SW CONT V	0	2.4	↓	↓	J	J		
21SW153 RHR PMP RM CLR SW CONT V	0							
22SW153 RHR PMP RM CLR SW CONT V	0	3.5	5-7987-2	Today 1 hour ago	J	J		
2SW175 SI PMP RM CLR SW CONT V	0	3.0			J	J		
2SW191 CHG PMP RM CLR SW CONT V	0	3.0			J	J		
2SW205 CHG PMP RM CLR SW CONT V	0	2.5			J	J		
2SW213 CHG PMP RM CLR SW CONT V	0	1.5	↓	↓	J	J		
<b>Acceptance Criteria:</b> Measured values are within bands specified in S2.RA-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6 Acceptance Criteria <u>OR</u> data represents new baseline data as determined by the IST Program Engineer.								

**ATTACHMENT 4**  
(Page 1 of 1)

**ROOM COOLER INSPECTION**

ROOM COOLER	Room Cooler DP Indicator	Actual Room Cooler DP	DP Normal Operating Range	Inspection Results		Date
				SAT	UNSAT	
21 RHR PUMP (2VHE31)	2PL4272	in.	> 0.0 - 0.85 in.			
22 RHR PUMP (2VHE32)	2PL4273	0.2 in.	> 0.0 - 0.85 in.	<i>S</i>		Today
21 CC PUMP (2VHE33)	2PL4275	0.1 in.	> 0.0 - 0.5 in.	<i>S</i>		Today
22 CC PUMP (2VHE34)	2PL4276	0.2 in.	> 0.0 - 0.9 in.	<i>S</i>		
SI PUMP (2VHE35)	2PL4274	0.1 in.	> 0.0 - 0.7 in.	<i>S</i>		
AUX FEED PUMP (2VHE36)	2PL4277	0.1 in.	> 0.0 - 0.7 in.	<i>S</i>		
21 CHG PUMP (2VHE37)	2PL4280	0.1 in.	> 0.0 - 0.9 in.	<i>S</i>		
22 CHG PUMP (2VHE38)	2PL4281	0.2 in.	> 0.0 - 0.8 in.	<i>S</i>		
23 CHG PUMP (2VHE39)	2PL4282	0.1 in.	> 0.0 - 0.6 in.	<i>S</i>		
21 CS PUMP (2VHE40)	2PL4278	0.3 in.	> 0.0 - 1.0 in.	<i>S</i>		
22 CS PUMP (2VHE41)	2PL4279	0.3 in.	> 0.0 - 1.0 in.	<i>S</i>		↓
<b>Acceptance Criteria:</b> 1) Room Cooler Started and Operated Satisfactorily. 2) Filter DP is within NORMAL OPERATING RANGE. 3) Visual inspection of filters indicate proper filter installation [e.g., no (minimal) gaps between filters, no holes in filters, etc.].						

**ATTACHMENT 5**  
**(Page 1 of 2)**

### COMPLETION SIGN-OFF SHEET

1.0 **COMMENTS:**

(Include test deficiencies and corrective actions.)

[illegible]



**ATTACHMENT 5**  
(Page 2 of 2)

**COMPLETION SIGN-OFF SHEET**

**2.0 SIGNATURES:**

Print	Initials	Signature	Date
G. Sanding	JS	JSanding	Today
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**INDEPENDENT VERIFICATION:**

A. Blotarski	AB	ABlotarski	Today
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**3.0 SM/CRS FINAL REVIEW AND APPROVAL:**

This procedure with Attachments 1-5 is reviewed for completeness and accuracy. All deficiencies, including corrective actions are clearly recorded in the COMMENTS Section of this attachment. Technical Specification compliance, procedure compliance, and Acceptance Criteria are evaluated.

[C0283]

Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
SM/CRS

**4.0 IST PROGRAM ENGINEER REVIEW:**

Test Results are reviewed for acceptability. If required, revision of Acceptance Criteria is initiated. Forward completed procedure to Operations Staff.

Signature: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
IST Program Engineer

**PSEG NUCLEAR L.L.C.  
SALEM/OPERATIONS**

**S2.RA-ST.SW-0014(Q) REV. 30**

**INSERVICE TESTING  
ROOM COOLER VALVES  
MODES 1-6 ACCEPTANCE CRITERIA**

USE CATEGORY: **II**

- 
- ◆ Biennial Review Performed: Yes ☐ No ☒
  - ◆ DCP Packages and Affected Document Numbers incorporated into this revision: None
  - ◆ OTSCs incorporated into this revision: None
  - ◆ OPEXs incorporated into this revision: None
- 

**REVISION SUMMARY:**

- ◆ Revised Reference Value and Acceptance Criteria for 2SW191 following maintenance LAW SAP Order 60099361. [70130603-0040]

**IMPLEMENTATION REQUIREMENTS**

none

Effective Date: 11/18/2011

**INSERVICE TESTING  
ROOM COOLER VALVES  
MODES 1-6 ACCEPTANCE CRITERIA**

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**1.0 PURPOSE**

**[C0265]**

To provide acceptance criteria necessary to evaluate the Inservice Testing data IAW the IST Program, relative to performance of S2.OP-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6, of the components listed in Attachment 1.

**2.0 PREREQUISITES**

None

**3.0 PRECAUTIONS AND LIMITATIONS**

None

**4.0 EQUIPMENT/MATERIAL REQUIRED**

None

**5.0 PROCEDURE**

None

**END OF PROCEDURE SECTION**

6.0 **RECORDS**

None

7.0 **REFERENCES**

7.1 Updated Final Safety Analysis Report:

- 7.1.1 Section 9.2.1, Service Water Header
- 7.1.2 Section 9.4.2, Auxiliary Building Ventilation System

7.2 Procedures:

- 7.2.1 ER-AA-321, Inservice Testing Program
- 7.2.2 MA-AA-716-012, Post Maintenance Testing

7.3 Drawings:

- 7.3.1 205342, Unit 2 Service Water Nuclear Area

7.4 Others:

- 7.4.1 ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, 2001 Edition with Addenda through OMB-2003
- 7.4.2 Salem Generating Station IST Manual
- 7.4.3 NUREG-1482 Rev. 1, Guidelines for Inservice Testing at Nuclear Power Plants

7.5 Cross-References:

- 7.5.1 Technical Specifications - Unit 2:
  - A. 6.8.4.j, Inservice Testing Program
- 7.5.2 S2.OP-ST.SW-0014(Q), Inservice Testing Room Cooler Valves Modes 1-6

7.6 Commitments:

- 7.6.1 C0265 - NSO/LER/89-015-00

**ATTACHMENT 1**  
**(Page 1 of 2)**

**STROKE TIME DATA ACCEPTANCE CRITERIA**

**1.0 VALVE PERFORMANCE DATA:**

Component	Stroke	Reference Value (seconds)	Date	Test Results					
				Acceptable Range	Required Evaluation Range (seconds)		Required Action Range (seconds)		TS/FSAR (seconds)
					Low	High	Low	High	
21SW129	O (1)	2.2 (8)	12/16/98	1.1 - 3.4	< 1.1	>3.4 - 4.5	N/A	> 4.5	N/A
22SW129	O (1)	2.4 (3)	03/11/2004	1.2 - 3.6	< 1.2	> 3.6 - 4.8	N/A	> 4.8	N/A
2SW137	O (1)	2.7 (11)	11/01/2009	1.3 - 4.0	< 1.3	> 4.0 - 5.3	N/A	>5.3	N/A
21SW145	O (1)	1.6 (5)	03/03/2004	0.8 - 2.4	< 0.8	> 2.4 - 3.2	N/A	> 3.2	N/A
22SW145	O (1)	2.2 (12)	12/19/2006	1.1 - 3.3	< 1.1	> 3.3 - 4.4	N/A	> 4.4	N/A

- (1) Credit is taken for satisfying the failsafe position.
- (3) Reference value collected under Order 60020125.
- (5) Reference value collected under Order 30068303.
- (8) Reference value collected under WO #971016004.
- (11) Reference value collected under Order 30109733.
- (12) Reference value collected under Order 60066287.

**ATTACHMENT 1**  
(Page 2 of 2)

**STROKE TIME DATA ACCEPTANCE CRITERIA**

**1.0 VALVE PERFORMANCE DATA:**

Component	Stroke	Reference Value (seconds)	Date	Test Results					
				Acceptable Range	Required Evaluation Range (seconds)		Required Action Range (seconds)		TS/FSAR (seconds)
					Low	High	Low	High	
21SW153	O (1)	2.8 (4)	11/13/2002	1.4 - 4.2	< 1.4	> 4.2 - 5.6	N/A	> 5.6	N/A
22SW153	O (1)	3.5 (10)	02/11/2011	1.8 - 5.3	< 1.8	> 5.3 - 7.0	N/A	> 7.0	N/A
2SW175	O (1)	2.9 (6)	1/22/2002	1.5 - 4.4	< 1.5	> 4.4 - 5.8	N/A	> 5.8	N/A
2SW191	O (1)	2.28 (9)	10/29/2011	1.14 - 3.42	< 1.14	> 3.42 - 4.56	N/A	> 4.56	N/A
2SW205	O (1)	2.5 (7)	4/25/2011	1.3 - 3.8	< 1.3	> 3.8 - 5.0	N/A	> 5.0	N/A
2SW213	O (1)	1.6 (2)	6/22/2006	> 0.8 - 2.4	< 0.8	> 2.4 - 3.2	N/A	> 3.2	N/A

- (2) Reference value collected under Order 60060876.
- (4) Reference value collected under Order 60020346.
- (6) Reference value collected under Order 60020524.
- (7) Reference value collected under Order 30118975.
- (9) Reference value collected under Order 60099361.
- (10) Reference value collected under Order 60092410.

Facility: SALEM 1 & 2 Scenario No.: ESG-2 Op-Test No.: 11-01 NRC

Examiners: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Operators: \_\_\_\_\_

Initial Conditions: 75% power, MOL. Power was reduced 30 minutes ago due to a short duration oscillation on 21SGFP speed. PZR PORV 2PR1 was declared inoperable 3 hours ago due to control circuit problems, and its motor operated block valve 2PR6 is shut and power is removed from its breaker to comply with TSAS 3.4.5 action b.

Turnover: Maintain current power.

Event No.	Malf. No.	Event Type*	Event Description
1	RC0014B	I CRS RO	22 RC Loop Tavg Channel failure (TS)
2	SG0078C	C ALL	500 gpd SGTL on 23 SG. (TS)
3		R ALL	Power reduction
4	SG0078C	M ALL	SGTR on 23 SG
5	EL0134	C ALL	Loss of Off Site power during SGTR RCS cooldown (RO/CRS restart safeguards loads, PO re-establish RCS cooldown via SG atmospheric reliefs)
6	VL0298	C CRS RO	Only available PZR PORV 2PR2 fails to open results in SGTR without RCS pressure control
			CTs: 1. Isolate feedwater into and steam flow out of 23 SG, 2. Cooldown and maintain CET Target temperature.

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



## SIMULATOR EXAMINATION SCENARIO GUIDE

**SCENARIO TITLE:** SGTL / SGTR w no pressure control

**SCENARIO NUMBER:** 11-01 NRC ESG-2

**EFFECTIVE DATE:** See Below

**EXPECTED DURATION:** 80 minutes

**REVISION NUMBER:** 02

**PROGRAM:**

<input type="checkbox"/>	L.O. REQUAL
<input checked="" type="checkbox"/>	INITIAL LICENSE
<input type="checkbox"/>	STA
<input type="checkbox"/>	OTHER _____

### Revision Summary

New Issue for 2010 LORT Annual Exam

Rev. 1- Added TAC pp trip to beginning of scenario concurrent with SGTL.

Rev. 2 – 6/2012 Modified SGTL size from 90 to 500 gpd. Modified format to ILOT exam.

Removed TAC pump trip. Added Tavq channel failure. Modified temp at which loss of off-site power occurs (from 535 to 510) Removed 21 SGFP at idle, both SGFP's are in service

**PREPARED BY:** G Gauding  
**Lead Regulatory Exam Author**

08-04-2012  
**Date**

**APPROVED BY:**   
**Operations Training Manager or designee**

9/14/12  
**Date**

**APPROVED BY:**   
**Facility Representative**

9/5/12  
**Date**

SCAN OF SIGNED SCENARIO COVER SHEET

**I. OBJECTIVES**

- A. Given a steam generator tube leak, take corrective action, IAW S2.OP-AB.SG-0001.
- B. Given the order or indications of a steam generator tube leak (SGTL), perform actions as the nuclear control operator to RESPOND to the tube leak in accordance with the approved station procedures.
- C. Given the order or indications of a steam generator tube leak (SGTL), DIRECT the response to the tube leak, in accordance with the approved station procedures.
- D. Given the order or indications of a reactor trip, perform actions as the nuclear control operator to RESPOND to the reactor trip in accordance with the approved station procedures.
- E. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- F. Given the order or indications of a safety injection, perform actions as the nuclear control operator to RESPOND to the safety injection in accordance with the approved station procedures.
- G. Given indication of a safety injection, DIRECT the response to the safety injection in accordance with the approved station procedures.
- H. Given the order or indications of a steam generator tube rupture (SGTR), perform actions as the nuclear control operator to RESPOND to the tube rupture in accordance with the approved station procedures.
- I. Given indication of a steam generator tube rupture (SGTR), DIRECT the response to the SGTR in accordance with the approved station procedures.
- J. Given the order or indications of a steam generator tube rupture (SGTR) without pressurizer pressure control, perform actions as the nuclear control operator to RESPOND to the SGTR in accordance with the approved station procedures.
- K. Given the indication of a steam generator tube rupture (SGTR) without pressurizer pressure control, DIRECT the response to the SGTR in accordance with the approved station procedures.
- L. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

**II. MAJOR EVENTS**

- A. 22 RCS Loop Th fails high
- B. 500 gpd SGTL
- C. SGTR
- D. Loss of Both SI pumps
- E. Loss of Off site power

### III. SCENARIO SUMMARY

- A. The crew will take the watch at 75% power, middle of life. Power was reduced 30 minutes ago as a precaution due to a short duration speed oscillation on 21 SGFP. Both SGFPs remain in service. PZR PORV 2PR1 was declared inoperable 3 hours ago due to intermittent control circuit anomalies, and the PORV Block valve 2PR6 was shut and deenergized to comply with TSAS 3.4.5 action b.
- B. Shortly after the crew takes the watch, 22 loop Tavg channel fails high. The RO will place rod control in manual after determining stable Main Turbine load. The CRS will enter S2.OP-AB.ROD-0003, Continuous Rod Motion, remove the failed channel from service, and identify appropriate Tech Specs.
- C. A small (500 gpd) SGTL will ramp in on 23 SG. The CRS will enter S2.OP-AB.SG-0001, Steam Generator Tube Leak, and take actions to quantify the leak and minimize the spread of contamination in the secondary plant.
- D. The Crew identifies that the SGTL meets the criteria for Action Level 3 in S2.OP-AB.SG-0001, requiring the unit to be <50% power within one hour, and that Tech Spec 3.4.7.2 applies once the leak is >150 gpd.
- E. The CRS will direct a power reduction to be initiated. The RO will use boration and manual rod control while the PO reduces Main Turbine load.
- F. After the power reduction is initiated, the affected tube on 23 SG will rupture. Operators will identify the rising leak rate, and initiate a Rx trip and Safety Injection IAW CAS when conditions warrant.
- G. The crew will perform diagnostics in 2-EOP-TRIP-1, Reactor Trip or Safety Injection. 22 AFW pump pressure override protection fails and cannot be defeated. Operators will isolate AFW to 23 SG.
- H. The crew will transition to 2-EOP-SGTR-1, Steam Generator Tube Rupture. With the 23MS45 steam supply from 23 SG to 23 AFW pump still open, the CRS will secure 23 AFW pump if not performed previously, leaving 24 SG as the only generator receiving AFW flow. Once secured and with 23MS45 shut, the crew will reset 23MS52 and start 23 AFW pump.
- I. During the RCS cooldown in SGTR-1, a loss of off-site power will occur when the hottest CET reaches 510 degrees. The crew will perform the actions of Table C to restart safeguards loads, and re-establish the cooldown using the MS10s. 21 SI pump will not start if the crew attempts to start it, and 22 SI pump will trip if started.
- J. Once the target temperature has been reached, the crew will attempt to perform the RCS depressurization with the only available PORV since RCPs lost off site power and 2PR1 is unavailable. 2PR2 will not open. With no SI pumps running, the CRS will transition to SGTR-5.
- K. The scenario will terminate after the transition to SGTR-5 has been made.

#### IV. INITIAL CONDITIONS

\_\_\_ IC- 242

#### PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

Initial	Description
___ 1	RH1 and RH2 C/T
___ 2	RH18s C/T
___ 3	VC1 and VC4 C/T
___ 4	RCPs (SELF CHECK)
___ 5	RTBs (SELF CHECK)
___ 6	MS167s (SELF CHECK)
___ 7	500 KV SWYD (SELF CHECK)
___ 8	SGFP Trip (SELF CHECK)
___ 9	23 CV PP (SELF CHECK)
___ 10	2PR6 C/T with power removed
___ 11	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

Note: Tables with blue headings may be populated by external program, do not change column name without consulting Simulator Support group

### EVENT TRIGGERS:

Initial	ET #	Description
	2	EVENT ACTION: MONP254<10 // CONT BANK C GROUP POS COMMAND: PURPOSE: <update as needed>
	3	EVENT ACTION: monp187<510 // HOTTEST INCORE T/C TEMP.0 COMMAND: PURPOSE: <update as needed>
	4	EVENT ACTION: kbm06tcy // 23BF19 FW CONTROL VALVE-CLOSE COMMAND: DMF VL0448 PURPOSE: <update as needed>
	6	EVENT ACTION: kbm12tcy // 23BF13 FW INLET STOP VALVE CLOSE COMMAND: DMF VL0025 PURPOSE: <update as needed>

### MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
___ 01	SG0078C 23 STEAM GENERATOR TUBE RUPTURE	N/A	0	00:15:00	RT-1	0.5
___ 02	EL0134 LOSS OF ALL 500KV OFF-SITE POWE	N/A	N/A	N/A	ET-3	
___ 03	VL0298 2PR2 Fails to Position ( 0-100% )	N/A	N/A	N/A	RT-3	0.01
___ 04	SJ0062B 22 SAFETY INJECTION PUMP TRIP	N/A	N/A	N/A	RT-5	
___ 05	AF0182B 22 AFP PRESS OVRD PROT FAILS	N/A	N/A	N/A	N/A	
___ 06	AN3735 AAS 735 FAILS - :21 TGA SUMP LEVEL HIGH	00:03:00	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
___ 07	AN3736 AAS 736 FAILS - :22 TGA SUMP LEVEL HIGH	00:03:10	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
___ 08	AN3737 AAS 737 FAILS - :23 TGA SUMP LEVEL HIGH	00:03:25	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
___ 09	AN3738 AAS 738 FAILS - :24 TGA SUMP LEVEL HIGH	00:03:37	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
___ 10	AN3739 AAS 739 FAILS - :25 TGA SUMP LEVEL HIGH	00:03:57	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
___ 11	VL0448 23BF19 Fails to Position ( 0-100% )	N/A	N/A	N/A	ET-2	56.62
___ 12	VL0025 23BF13 Fails to Position ( 0-100% )	N/A	N/A	N/A	ET-2	100
___ 13	RC0014B 22 Hot Leg RTD Avg Summator	N/A	N/A	N/A	RT-13	650

## REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	PR34D PORV STOP VALVE 2PR6 TAGGED	N/A	N/A	N/A	N/A	TAGGED
02	MS06A 23MS45 23 STM GEN STM SUP-23 AFP	N/A	N/A	N/A	RT-7	0
03	AF01D 23 AUX FP TRIP RESET	00:10:00	N/A	N/A	RT-8	RESET

## OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	AH01 F DI 21 SI PUMP STOP	00:00:05	N/A	N/A	ET-3	ON
02	B511 A DI 22 AUX FEED PUMP-PRESS OVERRIDE DEFEAT	N/A	N/A	N/A	N/A	OFF

## TAGGED EQUIPMENT:

SELF-CHECK	Description
1.	RH1 and RH2 (C/T)
2.	VC 1 and 4 (C/T)
3.	RH 18's (C/T)
4.	RCPs (SELF CHECK)
5.	RT (SELF CHECK)
6.	MS 167s (SELF CHECK)
7.	500 KV SWYD (SELF CHECK)
8.	<b>2PR6 shut with power removed.</b>
9.	SGFP TRIP (SELF CHECK)

## OTHER CONDITIONS:

Description
1. None

**V. SEQUENCE OF EVENTS**

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
-------------------------------	---------------------------------	------------	---------

1. 22 RCS Loop Th Fails High

**Simulator Operator:** Insert RT-1 on direction from Lead Evaluator.

**MALF:** RC0014B, 22 Hot Leg RTD Avg Sum Fail

**Final Value:** 650

RO reports control rods inserting at 72 spm, verifies no runback in progress, gains concurrence from CRS and places control rods in manual.

CRS enters S2.OP-AB-ROD-3, Continuous Rod Motion.

RO reports rod motion stopped.

RO adjusts Rods in manual to control Tavg within 1.5° of program using Att. 1.

RO reports rod motion was inward.

RO reports no NI failures.

RO reports 22 loop Tavg failed high and no dilution in progress.

RO places Master Flow Controller to manual and adjusts charging flow to return PZR level

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Proceed to next event after Tech Spec call is made at Lead Evaluators direction.</p>	to program using Att. 2.		
	RO selects Deviation Defeat for Loop 22 $\Delta T$ and Tave.		
	RO selects recorders to channel other than 22 loop.		
	RO returns Master Flow Controller to auto when PZR level is on program.		
	RO reports control rods are above the RIL.		
	RO withdraws control rods to ARO or to establish Tave within 1.5°F of program.		
	RO verifies Tave within 1.5° program and restores the Rods to Auto.		
	CRS initiates removing 22 loop RCS temperature channel from service IAW SO.RPS-0002.		
	CRS enters TSAS(s) 3.3.1.1 Action 6, and 3.3.2.1 Action 19*.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
-------------------------------	---------------------------------	------------	---------

## 2. SGT L

**Simulator Operator:** Insert RT-1 on direction from Lead Evaluator.

**MALF: SG0078C 23 Steam Generator  
Tube Rupture  
Final Value: 0.5  
Ramp: 15 minutes**

RO announces OHA A-6 RMS HI RAD OR TRBL as unexpected.

RO reports CRT shows 2R53C in alarm.

RO reports 2R53C reading and slowly rising.

CRS contacts Radiation Protection to perform SC.RP-TI.RM-0607(Q), Primary To Secondary Leak Rate Response IAW ARP.

CRS enters S2.OP-AB.SG-001 Steam Generator Tube Leak directly or enters S2.OP-AB.RAD-001, Abnormal Radiation.

**Note:** Go to downpower actions when Action Level 3 is identified.

CRS directs performance of S2.OP-AB.SG-001 CAS.

PO initiates trending of 2R19C and 2R53C.

Crew contacts Chemistry to:

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
-------------------------------	---------------------------------	------------	---------

- Initiate sampling of 23 SG to confirm and quantify actual leak rate.
- Provide algorithm correlation factor (if required)
- Provide a rate-of-change for 23 SG primary to secondary leakage.

**Role Play:** When contacted, respond as Chemistry that a technician will be dispatched to the Control Room, and that sampling of 23 SG will be performed.

CRS dispatches an operator to deenergize TGA sumps.

**Simulator Operator:** Insert **RT-2** when directed to deenergize TGA sumps. This RT includes a 3 minute delay before opening sump breakers. Report to control room when last of the 5 sump breakers has been deenergized.

**MALFS:**

AN3735 21 TGA Sump Level Hi

AN3736 22 TGA Sump Level Hi

AN3737 23 TGA Sump Level Hi

AN3738 24 TGA Sump Level Hi

AN3739 25 TGA Sump Level Hi

Delays: 3:00, 3:10, 3:25, 3:37, 3:57

Note: PZR level may be lowering if rods were not resored to ARO. (Programmed level lower due to lower Tavg.)

RO reports PZR level is stable. **IF** RO reports PZR level is lowering, RO will swap to a

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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centrifugal charging pump.

RO reports unit is in Mode 1.

Crew identifies 2R53C, 2R19C and 2R15 rising.

PO reports affected SG is 23.

PO raises 23MS10 setpoint to 1045 psig.

PO closes or checks closed 23GB4, 23MS7, and 23MS18.

CRS dispatches an operator to shut 23MS45, and enters TSAS 3.7.1.3 for 23 AFW pump.

**Simulator Operator:** Do **NOT** shut 23MS45 until directed later in scenario.

CRS dispatches an operator to re-align SGBD and MS sampling to Waste System.

**Simulator Operator: MODIFY**  
**SG0078C from 0.3 to 0.4** on direction from Lead Evaluator **if required** to ensure leak rate will be determined to be > 75 gpd and rate of change of >30 gpd per hour.

CAS Action Level 3 required actions start here.

CRS determines that the CAS indicates that Action Level 3 is present IAW Step 6.2.A

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	<p>based on:</p> <ul style="list-style-type: none"> <li>- Leak rate is <math>\geq 75</math> gpd AND</li> <li>- The rate of change of the leakrate is <math>\geq 30</math> gpd/hr.</li> </ul> <p>CRS determines a power reduction to <math>\leq 50\%</math> must be performed within 1 hour, and a shutdown to Mode 3 (Hot Standby) within the next 2 hours.</p> <p>CRS enters TSAS 3.4.7.2.c</p>		
<p><b>Note:</b> If time does not permit Tech Spec identification, post scenario follow up question will be required.</p>			
	<p>RO calculates boron addition required for power reduction to 50%.</p> <p>CRS orders a power reduction at a rate which will ensure power is <math>&lt; 50\%</math> within one hour.</p> <p>CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction to perform the power reduction.</p>		
<p><b>Simulator Operator: MODIFY MALF SG0078C to 350 with a RAMP of 5 minutes</b> after power reduction has commenced at direction of Lead evaluator.</p>			
	<p>RO reports reflash of OHA A-6, and CRT indicates 2R15 in alarm.</p>		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
OHA A-6 will reflash several more times as 2R15, 2R19C, and 2R41D alarm.	RO reports indications of worsening tube leak on 23 SG.		
	CRS determines CAS actions for rising SG NR level IAW CAS 1.0 are true.		
	CRS directs the RO to trip the Rx, confirm the trip, and initiate a Safety Injection.		
<div> <b>Simulator Operator:</b> Ensure <b>ET-2</b> is TRUE upon the Rx trip. This fails the 23BF19 to 56% open and 23BF13 full open. </div>			
Evaluators log time of Rx Trip here:  _____ : _____ : _____	RO trips the Rx, confirms the trip, and initiates a Safety Injection.		
	RO performs immediate actions of TRIP-1:  Verifies Rx tripped. Verifies Rx trip confirmation Trips the Main Turbine. Verifies off site power available to vital busses Verifies SI initiation.		
	CRS reads immediate action steps to RO who confirms their performance.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	<p>Crew commences monitoring TRIP-1 CAS.</p> <p>RO reports SEC loading is not complete for all vital busses, but all available equipment started.</p> <p>PO reports all AFW pumps are running, but 22 AFW pump is not supplying flow even though its discharge pressure is high enough.</p> <p>PO requests, and receives, permission to depress Pressure Override Defeat for 22 AFW pump, which has no effect on AFW flow.</p> <p>PO reports 23 AFW pump is running, and that an unmonitored release is occurring from the TDAFW pump steam discharge with 23MS45 not shut yet.</p>		

AFW flow control is complicated by the fact that a SGTR is present on 23 SG, but the 23MS45 has not been shut yet. Additionally, 22 AFW pump is not supplying flow to 21 and 22 SGs because its Pressure Override circuit has failed. Shortly after the Rx is tripped, SG level will recover in at least one SG so that AFW flow can be lowered < 22E4. TRIP-1 does not direct tripping 23 AFW pump unless 2 MDAFW pps are running, which in this case is not true, since a running pump would be supplying flow. Detailed observation of the crew during AFW flow decisions should be made by the evaluators.



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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CT# 1: (E-3-B) Isolate AFW to the ruptured SG within 10 minutes of entry into TRIP-1 and subsequently close 23MS167, 23MS18, 23MS7 and 23GB4 in SGTR-1.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

PO requests to throttle AFW flow, and isolates AFW flow to 23 SG by closing 23AF11 and 23AF21.

CRS directs PO to maintain total AFW flow >22E4 lbm/hr while throttling AFW flow.

RO reports 23BF19 and 23BF13 are NOT shut when performing Safeguards Valve Alignment.

CRS directs PO to shut 23BF19 and 23BF13 from the control console.

**Simulator Operator:** Ensure **ET-4** is TRUE when the 23BF19 Close PB is depressed. This will remove the malfunction keeping 23BF19 open.

**Simulator Operator:** Ensure **ET-6** is TRUE when the 23BF13 Close PB is depressed. This will delete the malfunction that is keeping the 23BF13 open.

PO shuts 23BF19 and 23BF13.

RO reports normal containment pressure.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS determines no MSLI is required.		
	CRS directs SM to refer to the ECG.		
	PO reports all 4KV vital busses energized from off site power.		
	RO reports control room ventilation in accident pressurized mode.		
	RO reports 2 CCW pumps are running.		
	RO reports ECCS is injecting as expected for current RCS pressure.		
	PO reports AFW flow and SG NR level status.		
	RO reports all RCPs are in operation.		
	RO reports MSLI is not required.		
	RO reports RTBs are open, PORVs shut, PORV block valve 2PR7 open, 2PR6 shut and C/T, and PZR spray valves operating as expected for current RCS pressure.		
	RO reports RCS pressure > 1350 psig.		
	RO maintains seal injection flow to all RCPs.		
	PO reports no faulted SGs.		
	PO reports 23 SG is ruptured based on NR level.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	<p>CRS transitions to SGTR-1.</p> <p>Crew commences monitoring of CFSTs.</p> <p>RO maintains seal injection flow to all RCPs.</p> <p>PO reports 23 SG is ruptured, and 23MS10 is set at 1045 psig.</p> <p>PO reports 23MS10 operating as expected for current pressure.</p> <p>PO shuts 23MS167 and ensures 23MS7, 23MS18, and 23GB4 are shut.</p> <p>PO reports 23 SG is ruptured.</p> <p>PO reports 23 AFW pump is NOT only source of AFW.</p> <p>PO lowers 23 AFW pump speed to minimum and trips 23 AFW pump.</p> <p>PO stops 23 AFW pump.</p>		
<p><b>Simulator Operator:</b> When 23 AFW pump is stopped, and an operator has previously been dispatched, insert <b>RT-7</b> to close 23MS45 and call control room to inform them it is shut.</p> <p><b>REMOTE: MS06A 23MS45 23 STM GEN STM SUP-23 AFP</b></p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<div> <b>Simulator Operator:</b> Insert <b>RT-8</b> to reset 2MS52. RT includes a 10 minute delay prior to resetting MS52. </div> <div> <b>REMOTE: AF01D 23 AUX FP TRIP RESET</b>  <b>Final Value: RESET</b> </div>	<p>CRS sends an operator to reset 23MS52 when all SG NR levels are &gt; 15%.</p> <p>CRS checks on status of MS sampling valves which were directed to be shut in AB.SG, or if not previously directed to be closed, directs closure of 2SS333.</p> <p>If previously dispatched to shut 2SS333, then when contacted by crew report 2SS333 is shut.</p> <p>PO reports 23 SG is isolated from intact SGs, 23 SG NR level is &gt;9%, and feed flow is isolated to 23 SG.</p> <p>RO reports power is C/T to 2PR6, and CRS orders power restored.</p> <p>Note: Do <b>NOT</b> restore power to 2PR6 during scenario. If asked later in scenario, state the breaker appears to be mechanically bound in the open position.</p> <p>RO reports 2PR2 is operating correctly in response to PZR pressure.</p>		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports no faulted SGs.		
	RO resets SI and Phase A isolations, and opens CA330's.		
	PO resets all SECs.		
	RO stops both RHR pumps.		
	PO reports 23 SG is isolated and >375 psig.		
	CRS dispatches an operator to shift Gland Sealing steam to Unit 1.		
	CRS determines target temperature for RCS cooldown is 503 degrees.		
	PO commences RCS cooldown by using Steam Dumps in MS Pressure Control-Manual at 25% demand.		
	PO Bypasses Tavg on steam dump control when Tavg reaches 543°F.		
<div> <p><b>Simulator Operator:</b> Ensure <b>ET-3</b> is TRUE when the hottest CET reaches 510 degrees. This inserts the loss of off-site power.</p> <p><b>MALF: EL0134 Loss of All Offsite 500KV Power</b></p> <p><b>I/O AH01 OVDI 21 SI Pump STOP</b></p> </div>			

CRS recognized loss of off-site power and

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	returns to Step 10 CAS to perform actions of Table C.		
	PO verifies all available equipment started for each SEC.		
	PO resets all SECs.		
	CRS directs starting of Safeguards loads.		
<p><b>Simulator Operator:</b> When CRS directs start of SI pumps, insert <b>RT-5</b> after 22 SI pump has been started.</p> <p><b>MALF: SJ0062B 22 Safety Injection Pump trip.</b></p> <p><b>Note:</b> 21 SI pump will not start.</p>			
	CRS directs the cooldown to be re-established using intact SGs 21, 22 and 24MS10's fully open.		
	RO shuts charging pump mini flows when RCS pressure lowers to 1500 psig.		
<p><b>CT #2 (E-3-B): Establish/ maintain RCS temperature to maintain minimum required subcooling.</b></p> <p><b>SAT</b> _____ <b>UNSAT</b> _____</p>			
	PO stabilizes hottest CET temperature less than 503 degrees.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Simulator Operator:</b> Insert <b>RT-3</b> when Step 18 PORV status is read PRIOR to crew attempting to open 2PR2.</p> <p><b>MALF: VL0298 2PR2 fails to position (0-100%)</b></p> <p><b>Final Value: 0.01</b></p>	<p>PO reports 23 SG pressure is stable or rising or at least 250 psig above intact SG pressure.</p> <p>RO reports adequate subcooling.</p> <p>RO reports RCPs are stopped and normal PZR spray is not available.</p>		
<p>Note: If asked about restoring power to 2PR6, report that there has been no progress in determining what is keeping the breaker from being closed.</p>	<p>RO reports 2PR2 PZR PORV is available.</p> <p>RO reports 2PR2 will not open.</p> <p>CRS returns to step 18 and answers NO to if a PORV is available.</p>		
<p><b>Simulator Operator:</b> IF CRS did not start SI pumps subsequent to the Blackout, and starts them here, THEN insert <b>RT-5</b> after 22 SI pump has been started.</p> <p><b>MALF: SJ0062B 22 Safety Injection Pump trip.</b></p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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**Note:** 21 SI pump will not start.

RO reports no SI pumps are running.

RO reports no SI pumps running if start attempt is made.

CRS transitions to SGTR-5.

PO reports 23 SG NR level.

RO reports no RCPs are running due to loss of off-site power.

RO reports no PZR PORV available since 2PR6 is shut and deenergized to comply with TS 3.4.5.b

RO reports neither SI pump will run.

PO maintains AFW flow 9-33% with any SG NR level >9%.

RO reports PZR level >11% and RCS subcooling >0°.

PO reports >22E4 lbm/hr AFW flow is available.

RO reports RVLIS level >57% Full Range.

PO reports 23 SG ruptured.

RO stops all but 21 OR 22 charging pumps.



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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Terminate scenario after reduction to  
single charging pump has been  
performed at Lead Evaluators direction.

## VI. SCENARIO REFERENCES

- A. Alarm Response Procedures (Various)
- B. Technical Specifications
- C. Emergency Plan (ECG)
- D. OP-AA-101-111-1003, Use of Procedures
- E. S2.OP-AB.RAD-0001, Abnormal Radiation
- F. S2.OP-AB.SG-0001, Steam Generator Tube Leak
- G. 2-EOP-TRIP-1, Rx Trip or Safety Injection
- H. 2-EOP-CFST-1, Critical Safety Function Status Trees
- I. 2-EOP-SGTR-1, Steam Generator Tube Rupture
- J. 2-EOP-SGTR-5, Steam Generator Tube Rupture w/o Pressure Control

## ATTACHMENT 1 UNIT TWO PLANT STATUS TODAY

MODE: 1      POWER: 75      RCS BORON: 915      MWe 890

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

### REACTIVITY PARAMETERS

**Core Burnup is 5000 EFPH**

**Control Bank D rods are in auto at 154 steps**

**Power was reduced 30 minutes ago as a precaution due to a short duration speed oscillation on 21 SGFP**

**Xenon building in at 80 pcm / hr**

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

**3.4.5. Action b- 2PR1 expires 69 hours from now**

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

None

ABNORMAL PLANT CONFIGURATIONS:

**2PR6 shut and power C/T.**

CONTROL ROOM:

**Unit 1 and Hope Creek at 100% power.**

**No penalty minutes in the last 24 hrs.**

PRIMARY:

**PZR PORV 2PR1 was declared inoperable 3 hours ago due to intermittent control circuit anomalies.**

SECONDARY:

**21 SGFP speed problem has not been investigated.**

RADWASTE:

**No discharges in progress**

CIRCULATING WATER/SERVICE WATER:

None

**ATTACHMENT 2****SIMULATOR READY FOR TRAINING CHECKLIST**

- \_\_\_ 1. Verify simulator is in "TRAIN" Load
- \_\_\_ 2. Simulator is in RUN
- \_\_\_ 3. Overhead Annunciator Horns ON
- \_\_\_ 4. All required computer terminals in operation
- \_\_\_ 5. Simulator clocks synchronized
- \_\_\_ 6. All tagged equipment properly secured and documented
- \_\_\_ 7. TSAS Status Board up-to-date
- \_\_\_ 8. Shift manning sheet available
- \_\_\_ 9. Procedures in progress open and signed-off to proper step
- \_\_\_ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- \_\_\_ 11. Required chart recorders advanced and ON (proper paper installed)
- \_\_\_ 12. All printers have adequate paper AND functional ribbon
- \_\_\_ 13. Required procedures clean
- \_\_\_ 14. Multiple color procedure pens available
- \_\_\_ 15. Required keys available
- \_\_\_ 16. Simulator cleared of unauthorized material/personnel
- \_\_\_ 17. All charts advanced to clean traces and chart recorders are on.
- \_\_\_ 18. Rod step counters correct (channel check) and reset as necessary
- \_\_\_ 19. Exam security set for simulator
- \_\_\_ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter  
with Baseline Data filled out
- \_\_\_ 21. Shift logs available if required
- \_\_\_ 22. Recording Media available (if applicable)
- \_\_\_ 23. Ensure ECG classification is correct
- \_\_\_ 24. Reference verification performed with required documents available
- \_\_\_ 25. Verify phones disconnected from plant after drill.

**ATTACHMENT 3****CRITICAL TASK METHODOLOGY**

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
  - degradation of any barrier to fission product release
  - degraded emergency core cooling system (ECCS) or emergency power capacity
  - a violation of a safety limit
  - a violation of the facility license condition
  - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
  - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
  - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
  - recognize a failure or an incorrect automatic actuation of an ESF system or component.
  - take one or more actions that would prevent a challenge to plant safety.
  - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation).

# **ATTACHMENT 4 SIMULATOR SCENARIO REVIEW CHECKLIST**

**Note:** Attach a separate copy of this form to each scenario reviewed. This form is used as guidance for the examination team as they conduct their review for the proposed scenarios.

**SCENARIO IDENTIFIER:** 11-01 NRC ESG-2 **REVIEWER:** E Gallagher

Initials      Qualitative Attributes

- |    |     |   |
|----|-----|---|
| EG | 1.  | The scenario has clearly stated objectives in the scenario.   |
| EG | 2.  | The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue crew into expected events.   |
| EG | 3.  | The scenario consists mostly of related events.   |
| EG | 4.  | Each event description consists of: <ul style="list-style-type: none"> <li>• the point in the scenario when it is to be initiated</li> <li>• the malfunction(s) that are entered to initiate the event</li> <li>• the symptoms/cues that will be visible to the crew</li> <li>• the expected operator actions (by shift position)</li> <li>• the event termination point</li> </ul> |
| EG | 5.  | No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.  |
| EG | 6.  | The events are valid with regard to physics and thermodynamics.   |
| EG | 7.  | Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.   |
| EG | 8.  | The simulator modeling is not altered.  |
| EG | 9.  | All crew competencies can be evaluated.   |
| EG | 10. | The scenario has been validated.  |
| EG | 11. | If the sampling plan indicates that the scenario was used for training during the requalification cycle, evaluate the need to modify or replace the scenario.   |
| EG | 12. | ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.   |

# **ATTACHMENT 4(cont) SIMULATOR SCENARIO REVIEW CHECKLIST**

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes
GG	7	Total malfunctions inserted: 5-8
GG	3	Malfunctions that occur after EOP entry: 1-2
GG	2	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	2	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3

Comments:

**Attachment 5****ESG Critical Tasks****11-01 NRC ESG-2**

**CT #1: (E-3-A)** Isolate AFW to the ruptured SG within 10 minutes of entry into TRIP-1 and subsequently close 23MS167, 23MS18, 23MS7 and 23GB4 in SGTR-1.

**BASIS:** Failure to isolate the ruptured SG causes a loss of differential pressure between the ruptured SG and the intact SGs. Upon a loss of differential pressure, the crew must transition to a contingency procedure that constitutes an incorrect performance that "...necessitates the crew taking compensating actions which complicates the event mitigation strategy..."

**CT #2: (E-3-B)** Establish/Maintain RCS temperature so a transition from SGTR-1 does not occur because Tave is too high to maintain minimum subcooling, OR below the RCS temperature that causes an extreme challenge (Red) or severe (Purple) challenge to the subcriticality and/or the integrity CSF.

**BASIS:** Failure to establish and maintain the correct RCS temperature during a SGTR leads to a transition from E-3 to a contingency procedure, which constitutes an incorrect performance that "...necessitates the crew taking compensating actions which complicates the event mitigation strategy..."



**ATTACHMENT 6****ESG – PSA RELATIONSHIP EVALUATION****11-01 NRC ESG-2****SALEM ESG - PRA RELATIONSHIPS EVALUATION FORM****EVENTS LEADING TO CORE DAMAGE**

<u>Y/N</u>	<u>Event</u>	<u>Y/N</u>	<u>Event</u>
N	TRANSIENTS with PCS Unavailable	N	Loss of Service Water
Y	Steam Generator Tube Rupture	N	Loss of CCW
Y	Loss of Offsite Power	N	Loss of Control Air
N	Loss of Switchgear and Pen Area Ventilation	N	Station Black Out
N	LOCA		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY**

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>	<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
N	Containment Sump Strainers	N	Gas Turbine
N	SSWS Valves to Turbine Generator Area	N	Any Diesel Generator
N	RHR Suction Line valves from Hot Leg	Y	Auxiliary Feed Pump
N	CVCS Letdown line Control and Isolation Valves	N	SBO Air Compressor

**OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE**

<u>Y/N</u>	<u>OPERATOR ACTION</u>
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
Y	Cooldown the RCS and depressurize the system
Y	Isolate the affected Steam Generator that has the tube rupture(s)
N	Early depressurize the RCS
N	Initiate feed and bleed

Facility: SALEM 1 & 2 Scenario No.: ESG-3 Op-Test No.: 11-01 NRC

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_

Initial Conditions: 47%, BOL, Rod control is in manual for insertion of new NI currents, currently performing SC.IC-DC.NIS-0021 for 2N41. 21 Charging pump is C/T due to bio-fouling. 22 charging pump is in service. 23 charging pump is inoperable but available. 21 SGFP O/S for speed control troubleshooting, HDPs O/S, calorimetric just performed SAT IAW requirement of S2.OP-IO.ZZ-0004, Power Operations. 21 and 22 condensate pumps in service. 23A Circulator C/T for corrective maintenance. Minor CW grassing has been occurring.

Turnover: Raise power to 51% @ 10% per hour, place all HDP I/S, continue power ascension to 60% at 10% per hour, all IAW IOP-4.

Event No.	Malf. No.	Event Type*	Event Description
1		N ALL	Raise power
2	AN3855 AN0023 DA003D	CRS	2A1 125VDC batter charger trip (TS)
3	PR0016A	I CRS RO	PZR Press Inst fails hi (during first 1% power up) (TS)
4	C325 CN0086B	C CRS PO	Loss of Circ Water Bus Section 23 causes loss of 2 more "A" circulators, degrading Condenser Vacuum
5		R ALL	Power reduction.
6	CN0117A	M ALL	21 Condensate pump trip causes loss of only operating SGFP → Manual Rx trip
7	AF0181B AF0181A B606	C CRS PO	Sequential loss of all AFW → FRHS Red Path
8	CV0208B	C ALL	FRHS Bleed and Feed initiation (no centrifugal charging pumps available) Cond pump recovery.
			CT#1 Establish AFW flow CT#2 Establish RCS Bleed and Feed

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

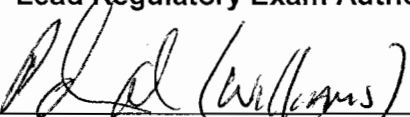
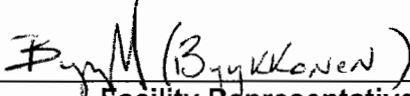
## SIMULATOR EXAMINATION SCENARIO GUIDE

**SCENARIO TITLE:** Loss of vacuum, loss of feed, FRHS Cond Pump recovery  
**SCENARIO NUMBER:** 11-01 NRC ESG-3  
**EFFECTIVE DATE:** See Approval Dates below  
**EXPECTED DURATION:** 80 minutes  
**REVISION NUMBER:** 01  
**PROGRAM:** ☐ L.O. REQUAL  
☒ INITIAL LICENSE  
☐ STA  
☐ OTHER \_\_\_\_\_

### Revision Summary

New Issue for 09-01 ILOT CERT Exam

Rev 01 6/2012 Replaced CFCU trip with 125VDC Battery charger trip. Added 22 charging pump I/S and subsequent trip to cause immediate Bleed and Feed requirement in FRHS-1.

<b>PREPARED BY:</b>	_____ G Gauding <b>Lead Regulatory Exam Author</b>	_____ 8-4-12 <b>Date</b>
<b>APPROVED BY:</b>	 _____ <b>Operations Training Manager</b>	_____ 9/2-12 <b>Date</b>
<b>APPROVED BY:</b>	 _____ <b>Facility Representative</b>	_____ 9/11/12 <b>Date</b>

## I. OBJECTIVES

- A. Given a situation with an OHA alarm, the crew will perform action(s) to investigate and correct the cause of the alarm, IAW approved station procedures.
- B. Given the unit at power with the generator synchronized to the grid, the crew will perform a power increase at 10%/hr, IAW S2.OP-IO.ZZ-0004.
- C. Given the unit at power with a failure of the pressurizer pressure channel, take corrective action IAW S2.OP-AB.PZR-0001.
- D. Given indication of a pressurizer control system malfunction, DIRECT the response to the malfunction in accordance with the approved station procedures.
- E. Given the order or indications of a pressurizer control system malfunction, perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with the approved station procedures
- F. Given the order or indications of a feedwater or condensate system malfunction, perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with the approved station procedures.
- G. Given indication of a feedwater or condensate system malfunction, DIRECT the response to the malfunction in accordance with the approved station procedures
- H. Given a loss of a heater drain pump or condensate pump, take corrective action IAW S2.OP-AB.CN-0001.
- I. Given the order or indications of a reactor trip, perform actions as the nuclear control operator to RESPOND to the reactor trip in accordance with the approved station procedures.
- J. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- K. Given the order or indications of a loss of secondary heat sink, perform actions as the nuclear control operator to RESPOND to the loss of heat sink in accordance with the approved station procedures.
- L. Given indication of a loss of secondary heat sink, DIRECT the response to the heat sink loss in accordance with the approved station procedures.
- M. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

## II. MAJOR EVENTS

- A. PZR Pressure controlling channel fails high
- B. Loss of 2 additional circulators/vacuum degradation.
- C. Loss of only operating SGFP >P-10.
- D. FRHS with no charging pumps.
- E. FRHS Cond pump recovery.

### III. SCENARIO SUMMARY

- A. The crew will take the watch with Rx power at 48%, BOL. Power was reduced yesterday during CW grassing. 21 SGFP developed speed oscillations during the downpower and was removed from service for troubleshooting. 23A Circulator is C/T for Traveling Screen corrective maintenance. Rod control is in manual for insertion of new NI currents, currently performing SC.IC-DC.NIS-0021 for 2N41, which is the last of the 4 channels to be updated. The adjustment is complete, and technicians are finishing the paperwork. All Heater Drain Pumps are O/S. 21 and 22 condensate pumps in service. Orders for the shift are to raise power to 51% at 10% per hour, place HDPs in service, then continue power ascension to 60%. The Rx fuel is conditioned to 90% power.
- B. Shortly after the crew assumes the watch, the 2A1 125VDC Battery Charger will trip. The CRS will enter the appropriate Tech Spec, and dispatch an operator to investigate.
- C. After initiating the power ascension to 51%, the controlling PZR pressure channel will fail high. Operators will enter S2.OP-AB.PZR-0001, Pressurizer Pressure Control Malfunction, stabilize the plant, place a redundant channel in control, and return the Master Pressure Controller to automatic. The CRS will enter the appropriate Tech Spec.
- D. After power has been raised, a loss of 2CW 4KV bus section 23 occurs, and the 2 remaining "A" circulators trip. The CRS will enter S2.OP-AB.CW-0001, Circulating Water System Malfunction. Condenser vacuum will begin to degrade, and the crew will commence a power reduction.
- E. During the power reduction as vacuum continues to degrade, 21 condensate pump will trip. The remaining condensate pump will be unable to supply sufficient flow, and as 22 SGFP speed rises, its suction pressure will lower rapidly to the SGFP trip setpoint. The crew will manually trip the Reactor upon the loss of the only operating SGFP.
- F. The CRS will transition to TRIP-2, Rx Trip Response, after the immediate actions of TRIP-1 are performed and SI is not required. No AFW flow will be present following the Rx trip. 22 AFW pump trips after starting, 21 AFW pump pressure override circuit fails, and 23 AFW pump does not auto start. The crew starts 23 AFW pump, and 21 AFW pump trips after its pressure override circuit is defeated.
- G. 5 minutes after the Rx trip, the operating centrifugal charging pump (22) will trip, and letdown will automatically isolate. After establishing AFW flow, the last remaining AFW pump (23) develops a speed control problem which causes its speed demand to lower speed to zero. With FRPs in effect, the CRS will transition to FRHS-1, Loss of Secondary Heat Sink with AFW flow < 22E4 lbm/hr and Steam Generator Narrow Range levels all <9%.
- H. The crew will establish RCS Bleed and Feed based on having no centrifugal charging pumps. The crew will depressurize a steam generator and establish Condensate flow to the depressurized steam generator.
- I. The scenario will terminate when feed flow has been established to at least one SG, and SG WR level(s) are rising.

**IV. INITIAL CONDITIONS**

\_\_\_\_ Pre-snapped IC-243

**PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)**

Initial	Description
____ 1	RH1 and RH2 C/T
____ 2	RH18s C/T
____ 3	VC1and VC4 C/T
____ 4	RCPs (SELF CHECK)
____ 5	RTBs (SELF CHECK)
____ 6	MS167s (SELF CHECK)
____ 7	500 KV SWYD (SELF CHECK)
____ 8	SGFP Trip (SELF CHECK)
____ 9	23 CV PP (SELF CHECK)
____ 10	<b>23A Circulator C/T</b>
____ 11	<b>21 SGFP O/S</b>
____ 12	<b>Place copy of SC.IC-DC.NIS-0021, Exhibit 1 on NCO desk.</b>
____ 13	<b>22 charging pump in service</b>
____ 14	<b>Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."</b>

Note: Tables with blue headings may be populated by external program, do not change column name without consulting Simulator Support group

**EVENT TRIGGERS:**

Initial	ET #	Description
	1	EVENT ACTION: MONP254 <10 // CONT ROD BANK C < 10 ( RX TRIP ) COMMAND: DMF CN0086B PURPOSE: <update as needed>
	5	EVENT ACTION: kb507azp // 21 AUX FEED PUMP-PRESSURE OVERRI COMMAND: PURPOSE: <update as needed>

**MALFUNCTIONS:**

<b>SELF-CHECK</b>	<b>Description</b>	<b>Delay Time</b>	<b>Initial Value</b>	<b>Ramp Time</b>	<b>Trigger</b>	<b>Severity</b>
01	PR0016A PZR PRESS CH I (PT455) FAILS H/L	N/A	N/A	N/A	RT-3	2500
02	CN0117A 21 CONDENSATE PUMP TRIP	N/A	N/A	N/A	RT-7	
03	AF0181B 22 AUX FEEDWATER PUMP TRIP	00:00:29	N/A	N/A	ET-1	
04	AN0304 SER 304 FAILS - :A4 REACTOR PROTECTION SYS CH I INSTRUMENT LOOP IN TEST	N/A	N/A	N/A	N/A	SER POINT FAILS/OVRD TO ON
05	CW0114F 23B CIRCULATING WATER PUMP TRIP	N/A	0.3	00:03:00	RT-5	0.9
06	CW0114D 22B CIRCULATING WATER PUMP TRIP	N/A	0.3	00:05:00	RT-5	0.6
07	CW0114C 22A CIRCULATING WATER PUMP TRIP	N/A	N/A	N/A	RT-5	0
08	CW0114A 21A CIRCULATING WATER PUMP TRIP	N/A	N/A	N/A	RT-5	0
09	AF0182A 21 AFP PRESS OVRD PROT FAILS	N/A	N/A	N/A	N/A	
10	RP0344 23 AFW PUMP FAILS TO AUTO START	N/A	N/A	N/A	N/A	
11	VL0031 23CN79 Fails to Position ( 0-100% )	N/A	N/A	N/A	N/A	100
12	CW0114E 23A CIRCULATING WATER PUMP TRIP	N/A	N/A	N/A	N/A	0
13	AN3855 AAS 855 FAILS - :2A1/2A2 125VDC BATTERY CHARGERS "TROUBLE"	N/A	N/A	N/A	RT-1	AAS POINT FAILS/OVRD TO ON
14	AN0023 SER 023 FAILS - :B2 2A 125VDC CONTROL BUS VOLTAGE LOW	00:00:03	N/A	N/A	RT-1	SER POINT FAILS/OVRD TO ON
15	CN0086B Loss of 22 main condenser vacuum (thor load)	00:01:00	17	00:07:00	RT-5	20
16	AF0181A 21 AUX FEEDWATER PUMP TRIP	00:00:05	N/A	N/A	ET-5	
17	CV0208B 22 CHARGING PUMP TRIP	00:05:00	N/A	N/A	ET-1	

**REMOTES:**

<b>SELF-CHECK</b>	<b>Description</b>	<b>Delay Time</b>	<b>Initial Value</b>	<b>Ramp Time</b>	<b>Trigger</b>	<b>Condition</b>
01	RC01D OT DELTA T TRIP CH I BS (411C)	N/A	N/A	N/A	N/A	TRIP
02	RC05D OT DELTA T R/BCK CH I BS (411D)	N/A	N/A	N/A	N/A	TRIP
03	CW03A 23A CIRC WATER PUMP CONTROL PWR BKR 2CW4AD	N/A	N/A	N/A	N/A	OFF
04	DA003D BATTERY CHARGER A1 STATUS	N/A	N/A	N/A	RT-1	OFFLINE
05	RC05A RCS SYSTEM , BORON CONC RESET	N/A	N/A	N/A	N/A	1365.1
06	CV44D 21 CHG PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF

## OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	B526 L AO 21 STM GEN FEED PUMP SPEED	N/A	N/A	N/A	N/A	55.5
02	B524 A1 LO 21 SGFP TURNING GEAR ENGAGE	N/A	N/A	N/A	N/A	ON
03	B524 A2 LO 21 SGFP TURNING GEAR DISENGAGE	N/A	N/A	N/A	N/A	OFF
04	C325 F DI 23CW1AD OPEN	N/A	N/A	N/A	RT-5	ON
05	B606 F DI 23 AUX FEED PUMP-SPEED DECREASE	N/A	N/A	N/A	RT-9	ON
06	5811 A LO 23A CIRC FORWARD LOW SPEED	N/A	N/A	N/A	N/A	OFF
07	5811 D LO 23A CIRC LOSS OF POWER	N/A	N/A	N/A	N/A	ON
08	CH04 E DI 23 CONDENSATE PUMP-START	N/A	N/A	N/A	N/A	OFF
09	C328 E DI 2CW2BD CLOSE	N/A	N/A	N/A	N/A	OFF

## OTHER CONDITIONS:

Description
1.



**V. SEQUENCE OF EVENTS**

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<b>1. Power Ascension</b>  <b>Note:</b> Digital EHC is set up initially for 1% per minute. PO must set it correctly for 10% per hour.  Proceed to next event after a noticeable change in turbine and Rx power has occurred.			
	CRS direct RO to maintain Tave/Tref in a designated band using control rods in manual.		
	CRS directs RO and PO to coordinate actions while raising power.		
	PO initiates turbine load increase to 51% power at 10% per hour.		
	RO withdraws control rods to maintain Tavg/Tref within designated band.		
<b>2. 2A1 125 VDC Battery Charger Trip</b>			
<b>Simulator Operator:</b> Insert <b>RT-1</b> on direction from Lead Evaluator. After power ascension is started.  <b>MALFS: AN3855 2A1/2A2 Battery Charger Trouble</b> <b>AN0023 SER 023 FAILS - :B2 2A 125VDC CONTROL BUS</b> <b>VOLTAGE LOW</b>			



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> If CRS takes no action to perform the power ascension, then call as Rob DeNight (SOS) and direct the CRS to perform the power ascension.</p> <p><b>3. Controlling PZR Pressure Channel I (PT-455) fails high</b></p> <p><b>Simulator Operator:</b> Insert <b>RT-3</b> on direction from Lead Evaluator.</p> <p><b>MALF: PR0016A PZR PRESS CH I (PT455) FAILS H/L</b></p>			
	RO announces RC PRESS DEVIATION HI console alarm, OHA D-8 RC PRESS HI and OHA E-42 2PR1/2 TRIP as unexpected.		
	RO diagnoses PZR Pressure channel I failed high, and requests permission to place MPC in manual.		
	CRS directs RO to place MPC in manual and raise PZR pressure.		
	RO places MPC in manual and lowers demand to minimum, and announces that control has been established over MPC output.		
	RO reports RC PRESS DEVIATION HI and OHA E-28 cleared as expected when reducing MPC demand, and 22 BU PZR heaters energized as expected.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS enters S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction.		
	CRS directs the power ascension put on hold.		
	PO places the Main Turbine on hold.		
	Crew maintains positive control over reactivity.		
	CRS directs initiation of Attachment 1 CAS of S2.OP-AB.PZR-0001.		
	PO reports POPS is not in service.		
	PO reports controlling PZR Pressure channel I is failed high.		
	PO reports PZR Master Pressure Controller is in manual with demand signal consistent with Attachment 2 and is restoring PZR pressure to program value.		
	PO selects PZR pressure channel III for control.		
	PO returns Master Pressure Controller to auto.		
	CRS direct removal of failed channel from service IAW S2.OP-SO.RPS-0003, Placing Pressurizer Channel in Tripped Condition.		
	CRS enters TSAS 3.3.1.1 Act 6, 3.3.2.1 Act. 19, 3.2.5 (DNB when applicable) and 3.4.5.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> Do <b>NOT</b> remove power from 2PR6 during scenario. <b>If asked</b> later in scenario why the power has not been removed, reply that the breaker would not open and electrical has been dispatched to investigate.</p> <p>Proceed to next event after power ascension has re-started or on direction from Lead Evaluator. If CRS takes no action to perform the power ascension, then call as Rob DeNight (SOS) and direct the CRS to perform the power ascension.</p> <p><b>4. Loss of 2A 4KV Circ Water Bus</b></p>	RO shuts 2PR6.		
	CRS dispatches an operator to remove power from 2PR6.		
	CRS directs RO and PO to proceed with power ascension.		
	PO initiates turbine load increase to 51% power at 10% per hour.		
	RO withdraws control rods to maintain Tavg/Tref within designated band.		
	RO/PO announces when Below P-9 light extinguishes.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<b>Simulator Operator: Insert RT-5</b> on direction from Lead Evaluator.  <b>OVDI: C325 23CW1AD Open</b> Final Value: ON  <b>MALFS:</b>  <b>CN00086B Loss of Main</b> <b>Condenser Vacuum</b> Ramp: 7 min Final Value: 20 Delay: 1 min  <b>CW0114F 23B Circulator Trip</b> Ramp: 3 min Final Value: 0.9  <b>CW0114D 22B Circulator Trip</b> Ramp: 5 min Final Value: 0.6  <b>CW0114C 22A Circulator Trip</b> Final Value: 0.0  <b>CW0114A 21A Circulator Trip</b> Final Value: 0.0			
	PO announces OHAs K-27 23 STA XFMR TRBL and K-34 4KV CW BUS UNDRVOLT as unexpected.		
	PO diagnoses loss of 2CW 4KV bus section 23.		
	CRS enters S2.OP-AB.CW-0001, Circulating Water System Malfunction based on 2 or more circulators out of service.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> Main Condenser back pressure is limited to 5.0" with Main Generator load &lt;560 MWe.</p>	PO refers to ARPs for the K overhead windows.		
	CRS directs initiation of Attachment 1 CAS of S2.OP-AB.CW-0001.		
	PO reports there is no indication of a pipe rupture.		
	PO reports 3 circulators are out of service.		
	PO reports at least one circulator is operating on each condenser.		
	CRS dispatches operators to open hood spray bypass valves and monitor condensate pump suction piping.		
	PO reports condenser backpressure is rising slowly.		
<p><b>Simulator Operator:</b> Adjust <b>MALF CN0086B</b> as necessary to ensure condenser vacuum rises enough to make crew initiate a power reduction.</p>			
	CRS determines power reduction is necessary with backpressure rising and Main Generator output ~500 MWe.		



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<b>5. Power Reduction</b>			
	CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction, to perform power reduction.		
	CRS initiates Attachment 1 CAS of S2.OP-AB.LOAD-0001.		
	CRS direct PO to initiate load reduction between 1-4% per minute.		
	RO uses control rods in manual and boration as necessary to maintain Tav <sub>g</sub> on program IAW Attachment 3.		
	RO energizes PZR heaters.		
Proceed to next event when the load reduction is underway.			
	RO initiates boration as required to maintain control rods above the RIL.		
<b>6. Loss of 21 condensate pump</b>	PO reports when Below P-9 light illuminated if power initially >49%.		
<b>Simulator Operator:</b> Insert <b>RT-7</b> on direction from Lead Evaluator <b>MALF: CN0117A 21</b> <b>CONDENSATE PUMP TRIP</b>			
	PO announces trip of 21 condensate pump.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> If crew attempts to start the idle condensate pump it will not start.</p>	CRS enters S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality.		
	PO reports lowering SGFP suction pressure.		
<p><b>Note:</b> SGFP Condensate Suction Pressure Lo Console alarms at 275 psig.</p>	PO reports SGFP Condensate Suction Pressure Lo Console alarms.		
	PO reports 22 SGFP speed is increasing and SGFP suction pressure continues to lower.		
<p><b>Note:</b> SGFP trip on low suction pressure will occur at: &lt;215 psig sustained for 10 seconds <u>or</u> 190 psig with no time delay and will auto start both MDAFW pumps.</p>	PO reports when 22 SGFP trips.		
<p>Manual Rx trip is based on action of AB.CN with no SGFPs running and Rx power &gt;10%.</p>	CRS directs the RO to trip the Rx.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<b>Simulator Instructor:</b> Ensure <b>ET-1</b> is TRUE when the Rx is tripped. This deletes the lowering cond vacuum, trips 22 AFW pump and trips 22 charging pump after 5 minute delay.	RO initiates a manual Rx trip.		
	RO performs Immediate Actions for TRIP-1, Reactor Trip or Safety Injection: <ul style="list-style-type: none"> <li>- Trip reactor</li> <li>- Confirms reactor trip</li> <li>- Trips turbine</li> <li>- Verifies 4KV vital buses energized</li> <li>- Reports SI not demanded or required</li> </ul>		
	CRS and RO verify performance of immediate actions.		
	CRS transitions to TRIP-2, Reactor Trip Response, based on no SI actuated or required.		
	Crew begins monitoring CFSTs.		
	PO reports no AFW flow, and the status of AFW: <ul style="list-style-type: none"> <li>- 21 AFW pump running with no flow and adequate discharge pressure</li> <li>- 22 AFW pump is tripped</li> <li>- 23 AFW pump has not started</li> </ul>		
	CRS directs PO to start 23 AFW pump, and defeat Pressure Override for 21 AFW pump.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO starts 23 AFW pump and reports it is starting. Depresses 21 AFW pump pressure override defeat and reports 21 AFW pump tripped shortly after AFW flow initiated.		
<b>Simulator Operator:</b> Ensure <b>ET-5</b> is TRUE when Pressure Override Defeat is depressed for 21 AFW pump. This trips 21 AFW pump after 5 second delay.			
<b>CT#1 (TRIP-2 Basis)</b> Establish the minimum required AFW flow (22E4 lbm/hr) prior to a transition to FRHS-1 being required.			
<b>SAT</b> <b>UNSAT</b>			
	RO makes page announcement.		
	PO adjusts 23 AFW pump speed or 21-24 AF11s to lower total AFW flow to no less than 22E4 lbm/hr.		
	PO reports AFW flow is > 22E4 lbm/hr.		
	PO reports both SGFPs are tripped.		
<b>Simulator Operator:</b> Insert <b>RT-9</b> after PO reports both SGFPs are not running. <b>OVERRIDE: B606 F DI 23 Aux Feed Pump-Speed Decrease Condition: ON</b>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>7. Loss of all AFW flow</b></p> <p><b>Note:</b> The STA will not arrive in the control room until 10 minutes after being paged. The crew is responsible for identifying the Heat Sink RED path.</p> <p>Depending on scenario flow, SGNR levels may not be &lt;9% when the last AFW pump is lost. The crew should continue actions in TRIP-2 until entry conditions for FRHS-1 are met. (AFW flow &lt;22E4 lbm/hr and all SG NR levels &lt;9%.)</p>			
	PO reports 23 AFW pump speed lowering and no AFW flow.		
	RO reports 22 charging pump trip.		
	The crew identifies when a Heat Sink RED path exists when all SG NR levels are <9% and no feed flow exists.		
	CRS transitions to FRHS-1, Loss of Secondary Heat Sink.		
	PO reports it was not operator action which caused total AFW flow to lower < 22E4 lbm/hr.		
	RO reports RCS pressure is > all SGs, and RCS Thots are > 350°F.		
	RO reports no centrifugal charging pumps are available.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
8. RCS Bleed and Feed	CRS goes to Step 23 Bleed and Feed initiation.		
	RO stops all RCPs.		
	RO initiates Safety Injection.		
	PO reports SI valves in safeguards position per Table B.		
	RO reports 21 and 22 charging pumps are not running.		
	RO reports both SI pumps are running.		
	RO reports valves in Table C are in correct position.		
	RO reports 2PR6 is shut with power available, and 2PR7 is open.		
CT#2B (FR-H.1 --B) Establish RCS Bleed and Feed before PZR PORVs open automatically due to loss of heat	RO opens 2PR6.		
	RO opens both PZR PORVs.		
	RO reports both PZR PORV Stop Valves and both PZR PORVs are open.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
sink. SAT _____ UNSAT _____			
	PO verifies SI valve alignment per APPX-3.		
	RO reports safeguards have not been reset.		
	RO resets SI and Phase A isolation, and reports Phase B is reset.		
	RO opens 21 and 22CA330s		
	PO resets all SECs and reports all SECs and 230V control centers are reset.		
	Crew maintains bleed and feed.		
	RO reports containment pressure remains <15 psig.		
	RO reports no containment spray pumps running.		
	CRS continues attempts to restore heat sink.		
	CRS determines no AFW is available, and Main Feed is unavailable.		
	PO reports condensate system is in operation.		
	Crew selects only one SG for depressurization.		
	CRS reviews depressurization termination		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p><b>Note:</b> Steam dump availability is based on having condenser vacuum, at least one circulator in service on a waterbox and no MSLI initiated.</p> <p><b>Note:</b> IF CRS determines steam dumps are not available due to previous vacuum problem, then the PO will initiate MSLI on ALL loops and fully open the selected SG MS10 to depressurize selected SG.</p>	criteria.		
	PO reports Steam Dumps are available.		
	RO initiates MSLI for all loops EXCEPT for selected SG.		
	PO places steam dumps in manual, adjust steam pressure valve demand to zero, then places steam dumps in MS Pressure Control.		
	PO adjusts valve demand to 25%, and bypasses Tavg when Tavg lowers to 543°F.		
	CRS dispatches operator to open selected SG BF40.		
<p><b>Simulator Operator:</b> 2 minutes after being directed, use following remote to open the selected 22BF40 or 24BF40.</p> <p><b>REMOTE:</b> BF06A, 22BF40 fails to</p>			



Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
position (0-100%) Final Value: 100 Ramp: 00:00:45 <b>REMOTE: BF08A</b> , 24BF40 fails to position (0-100%) Final Value: 100 Ramp: 00:00:45			
Depressurization of selected SG should not be stopped until WR level is rising in selected SG.  The Scenario can be terminated at the Lead Evaluator's discretion, after SG WR level is observed to be rising.			
	PO opens selected BF13.		
	PO releases or verifies released selected BF22.		
	PO opens 21 and 22 CN48s and closes 21 and 22 CN32s.		
	PO reports indication of feed flow to selected SG and WR level rising.		

**VI. SCENARIO REFERENCES**

- A. Alarm Response Procedures (Various)
- B. Technical Specifications
- C. Emergency Plan (ECG)
- D. OP-AA-101-111-1003, Use of Procedures
- E. S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction
- F. S2.OP-AB.CW-0001, Circulating Water System Abnormality
- G. S2.OP-AB.COND-0001, Loss of Condenser Vacuum
- H. S2.OP-AB.LOAD-0001, Rapid Load Reduction
- I. S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality
- J. S2-EOP-TRIP-1, Rx Trip or Safety Injection
- K. 2-EOP-TRIP-2, Rx Trip Response
- L. 2-EOP-FRHS-1, Loss of Secondary Heat Sink

# **ATTACHMENT 1 UNIT TWO PLANT STATUS TODAY**

MODE: 1      POWER: 47%      RCS BORON: 1365      MWe 500

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

## **REACTIVITY PARAMETERS**

Xenon building in at 2 pcm per hour.

Reactivity plan for power ascension is control rods only for ascension to 60%.

## **MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:**

21 charging pump C/T for biofouling. TSAS 3.5.2.a and 3.1.2.4 (23 charging pump also inoperable) both 70 hours remaining.

## **EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:**

Raise power to 51% at 10% per hour, place HDPs in service, then continue power ascension to 60% IAW S2.OP-IO.ZZ-0004, Power Operation.

Currently performing SC.IC-DC.NIS-0021 for 2N41, which is last NI channel to be updated. New data is installed, and procedure should be finished within next 15 minutes.

## **ABNORMAL PLANT CONFIGURATIONS:**

Power was reduced yesterday during CW grassing. Rod control is in manual for insertion of new NI currents. 22 charging pump is in service to allow troubleshooting of 23 charging pump speed changer problem.

## **CONTROL ROOM:**

Unit 1 and Hope Creek at 100% power.

No penalty minutes in the last 24 hrs.

## **PRIMARY:**

23 charging pump is O/S and available.

Power Range channel 2N41, 3.3.1.1 Action 2.

## **SECONDARY:**

21 SGFP developed speed oscillations during the down power and was removed from service for troubleshooting. Currently on turning gear.

## **RADWASTE:**

No discharges in progress

## **CIRCULATING WATER/SERVICE WATER:**

23A Circulator is C/T for emergent Traveling Screen repair

**ATTACHMENT 2****SIMULATOR READY FOR TRAINING CHECKLIST**

- \_\_\_ 1. Verify simulator is in "TRAIN" Load
- \_\_\_ 2. Simulator is in RUN
- \_\_\_ 3. Overhead Annunciator Horns ON
- \_\_\_ 4. All required computer terminals in operation
- \_\_\_ 5. Simulator clocks synchronized
- \_\_\_ 6. All tagged equipment properly secured and documented
- \_\_\_ 7. TSAS Status Board up-to-date
- \_\_\_ 8. Shift manning sheet available
- \_\_\_ 9. Procedures in progress open and signed-off to proper step
- \_\_\_ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- \_\_\_ 11. Required chart recorders advanced and ON (proper paper installed)
- \_\_\_ 12. All printers have adequate paper AND functional ribbon
- \_\_\_ 13. Required procedures clean
- \_\_\_ 14. Multiple color procedure pens available
- \_\_\_ 15. Required keys available
- \_\_\_ 16. Simulator cleared of unauthorized material/personnel
- \_\_\_ 17. All charts advanced to clean traces and chart recorders are on.
- \_\_\_ 18. Rod step counters correct (channel check) and reset as necessary
- \_\_\_ 19. Exam security set for simulator
- \_\_\_ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter  
with Baseline Data filled out
- \_\_\_ 21. Shift logs available if required
- \_\_\_ 22. Recording Media available (if applicable)
- \_\_\_ 23. Ensure ECG classification is correct
- \_\_\_ 24. Reference verification performed with required documents available
- \_\_\_ 25. Verify phones disconnected from plant after drill.

**ATTACHMENT 3****CRITICAL TASK METHODOLOGY**

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant. The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
  - degradation of any barrier to fission product release
  - degraded emergency core cooling system (ECCS) or emergency power capacity
  - a violation of a safety limit
  - a violation of the facility license condition
  - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
  - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
  - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
  - recognize a failure or an incorrect automatic actuation of an ESF system or component.
  - take one or more actions that would prevent a challenge to plant safety.
  - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

## ATTACHMENT 4

## SIMULATOR SCENARIO REVIEW CHECKLIST

**SCENARIO IDENTIFIER:** 11-01 NRC ESG-3 **REVIEWER:** E Gallagher

Initials	Qualitative Attributes
EG	1. The scenario has clearly stated objectives in the scenario.
EG	2. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue crew into expected events.
EG	3. The scenario consists mostly of related events.
EG	4. Each event description consists of: <ul style="list-style-type: none"> <li>• the point in the scenario when it is to be initiated</li> <li>• the malfunction(s) that are entered to initiate the event</li> <li>• the symptoms/cues that will be visible to the crew</li> <li>• the expected operator actions (by shift position)</li> <li>• the event termination point</li> </ul>
EG	5. No more than one non-mechanistic failure (e.g., pipe break) is incorporated into the scenario without a credible preceding incident such as a seismic event.
EG	6. The events are valid with regard to physics and thermodynamics.
EG	7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
EG	8. The simulator modeling is not altered.
EG	9. All crew competencies can be evaluated.
EG	10. The scenario has been validated.
EG	11. If the sampling plan indicates that the scenario was used for training during the requalification cycle, evaluate the need to modify or replace the scenario.
EG	12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

## ATTACHMENT 4

### SIMULATOR SCENARIO REVIEW CHECKLIST

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	8	Total malfunctions inserted: 5-8
GG	2	Malfunctions that occur after EOP entry: 1-2
GG	3	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	1	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3

#### COMMENTS:

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**ATTACHMENT 5****CRITICAL TASKS****11-01 NRC ESG-3**

**CT #1 (TRIP-2 Basis)** Establish the minimum required AFW flow (22E4 lbm/hr) prior to a transition to FRHS-1 being required.

Bases: Failure to establish the minimum required AFW flow for the secondary heat sink degrades the heat removal capability of the plant. Because the secondary heat sink is required but not satisfactorily provided, the RCS will heat up. Eventually, the core cooling CSF will be challenged. Ultimately, the fuel matrix/clad (a fission product barrier) will be challenged. (See PWROG Critical Task Book E-0-F)

**CT#2 (FR-H.1-B)** Establish RCS Bleed and Feed before PZR PORVs open automatically.

**BASIS:** Failure to establish RCS bleed and feed before automatic opening of the PORVs reduces the probability of success to establish a heat sink for the core. This constitutes a "significant reduction of the safety margin beyond that irreparably introduced by the scenario"



## ATTACHMENT 6

## ESG-PSA RELATIONSHIP EVALUATION

## EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	<u>Event</u>	<u>Y/N</u>	<u>Event</u>
N	TRANSIENTS with PCS Unavailable	N	Loss of Service Water
N	Steam Generator Tube Rupture	N	Loss of CCW
N	Loss of Offsite Power	N	Loss of Control Air
N	Loss of Switchgear and Pen Area Ventilation	N	Station Black Out
N	LOCA		

## COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>	<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
N	Containment Sump Strainers	N	Gas Turbine
N	SSWS Valves to Turbine Generator Area	N	Any Diesel Generator
N	RHR Suction Line valves from Hot Leg	Y	Auxiliary Feed Pump
N	CVCS Letdown line Control and Isolation Valves	N	SBO Air Compressor

## OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam Generator that has the tube rupture(s)
N	Early depressurize the RCS
Y	Initiate feed and bleed