OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Conduct of Operations

TASK: Calculate Shutdown Margin

TASK NUMBER: N1200030301

JPM NUMBER: 11-01 NRC RO Admin A1-1

ALTERNATE PATH: [ ]

K/A NUMBER: 2.1.25

IMPORTANCE FACTOR: 3.9 (RO) / (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [ ]

EVALUATION SETTING/METHOD: Classroom

REFERENCES: SC.RE-ST.ZZ-0002(Q), Rev. 20 SHUTDOWN MARGIN CALCULATION
S1.RE-RA.ZZ-0016(Q), Rev. 4 CURVE BOOK

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 30 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 40 minutes

Developed By: **G Gauding** **Instructor** **Date: 8-14-12**

Validated By: **Mulford/Brennan** **SME or Instructor** **Date: 8-24-12**

Approved By: **Training Department** **Date:**

Approved By: **Operations Department** **Date:**

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: _____

{PRIVATE }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.

{PRIVATE }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 **Rev. 20** of surveillance. Provide **Rev. 4** of Curve Book. **Evaluator**: 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	**SELECT** 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	IF SDM is to be verified (per T/S 4.1.1.1.1.a) with reactor critical (Mode 1 or 2) and one or more control rods are inoperable, THEN **COMPLETE** 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.	Operator determines the following data and calculations: Allowable ranges are shown, exact numbers using Tables and adjusting for 75% power is in parentheses. 4.1.1 75% 4.1.2 100 ppm 4.1.3 D @ 170 steps 4.1.4 11,890 EFPH 4.1.5 1 4.2.1 -3450- -3460 pcm (-3454) 4.2.2 -3908- -3918 pcm (-3913) 4.2.3 830-835 pcm (832) 4.2.4 830-835 pcm (832) 4.2.5 300-340 pcm (325.7) 4.2.6 -5368- -5398 pcm (-5377.3) 4.3.1 -5368 - -5398 pcm (5377.3) 4.3.2 652.8-654.3 pcm (653.5) 4.3.3 2100-2200 pcm (2126) 4.3.4 -2513.7- -2645.2 pcm (-2597.8)		

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.		
*			**Evaluator:** 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.

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: _____

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: Perform a Manual AFD Calculation

TASK NUMBER: N0150010201

JPM NUMBER: 11-01 NRC RO Admin A1-2

ALTERNATE PATH: ☐

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: 3.6 (**RO**) ____ (**SRO**)

APPLICABILITY:
EO ☐ **RO** ☒ **STA** ☐ **SRO** ☐

EVALUATION SETTING/METHOD: Classroom

REFERENCES:
S1.OP-ST.NIS-0001, Rev. 9, Power Distribution – Axial Flux Difference
Salem Unit 1 Core Operating Limits Report Cycle 22, Rev. 4
S1.RE-RA.ZZ-0011(Q) Tables, Rev. 343

TOOLS AND EQUIPMENT: Calculator

VALIDATED JPM COMPLETION TIME: 15 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: **G Gauding**, **Instructor** **Date: 11-05-12**

Validated By: **D Norgaard**, **SME or Instructor** **Date: 11-8-12**

Approved By: (signature) (Bloss E) **Training Department** **Date:** 11/9/12

Approved By: (signature) (Bjorklund) **Operations Department** **Date:** 11/9/12

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: Administrative

TASK: Perform a Manual AFD Calculation

TASK NUMBER: N0150010201

INITIAL CONDITIONS: Salem Unit 1 completed a down power to 73% power 15 minutes ago IAW TSAS 3.1.3.1.c.3.d due to a single control rod being declared inoperable. The AFD Monitor Alarm for the Auxiliary Annunciator was determined to be inoperable 10 minutes ago.

INITIATING CUE: You are directed to perform S1.OP-ST.NIS-0001(Q), Power Distribution – Axial Flux Difference in response to the AFD Monitor Alarm being inoperable.

Current AFD Channel Readings are:

Channel 1: - 8.9

Channel II: -8.6

Channel III: -10.2

Channel IV: - 9.3

The component Off Normal and Off Normal Tagged lists have been reviewed and no systems or support systems are affected for this procedure.

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. **Completes applicable portion of Attachment 3 of S1.OP-ST.NIS-0001, and determines Channel III is outside the AFD Target Band.**

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **DATE:**_____

System: ADMINISTRATIVE

Task: Perform a Manual AFD Calculation

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide blank copies of S1.OP-ST.NIS-0001, Power Distribution – Axial Flux Difference, a copy of Salem Unit 1 Core Operating Limits Report, and S1.RE-RA.ZZ-0011 Tables Rev. 343			
	2.1	IDENTIFY sections of this procedure that are NOT to be performed with "N/A".	Identifies Sections 5.1 and 5.2 will not be performed.		
	2.2	REVIEW components "Off Normal and Off Normal Tagged" List(s) for the system and support system(s) associated with the evolution to be performed in this procedure.	Determines from initial conditions that the component Off Normal and Off Normal Tagged lists have been reviewed and no systems or support systems are affected for this procedure.		
	2.3	Unit is in Mode 1 AND >15% RTP.	Determines from initial conditions that the Unit is in Mode 1 >15% power.		
	3.0	Precautions and Limitations	Reviews and initials Precautions and Limitations.		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **DATE:**_____

System: ADMINISTRATIVE

Task: Perform a Manual AFD Calculation

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.3.1	IF AFD Monitor (XA-8740, OR Monitor Alarm (Auxiliary Annunciator)) is inoperable, THEN COMPLETE Attachment 3, AFD Data Log Sheet as follows:			
	5.3.1.A	ENTER present Reactor Power	Enters 73% power		
	5.3.1.B	ENTER AFD Target from S1.RE-RA.ZZ-0011(Q) Tables, Table 3.	Enters -1.5 for AFD Target (100% Value)		
*	5.3.1.C	CALCULATE the AFD Target Value IAW the following: A x B / 100% = AFD Target Value (present power)=C Where:(A)= Present Reactor Power (B)= AFD Target (100% Value) (C)= AFD Target (present power)	Calculates AFD Target for present power level as: $\frac{73 \times -1.5}{100}$ = **1.1**		
*	5.3.1.D	DETERMINE AFD Target Band Upper and Lower Limits as follows:	Determines Upper Limit is:		
*		___ +(C)= Upper Limit	+6 +(-1.1)= **+4.9**		
*		___ +(C)= Lower Limit	Determines Lower Limit is:		
			-9 + (-1.1)= **-10.1**		
	5.3.1.E	ENTER AFD Channel Readings.	Enters AFD values from initial conditions		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **DATE:**_____

System: ADMINISTRATIVE

Task: Perform a Manual AFD Calculation

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.3.1.F	DETERMINE if any Channel is operating outside of the Target Band Upper or Lower Limits (inclusive)	Determines Channel III (-10.2) is operating outside the Lower Target Band.		
	5.3.1.G	REQUEST a second operator to perform an independent verification of the calculations performed on Attachment 3.	**Cue:** IV of calculations performed on Attachment 3 is complete SAT.		
	5.3.1.H	IF all AFD Channels are within the AFD Target Band, THEN CONTINUE to record data once per hour for the first 24 hours of inoperability, and every 30 minutes thereafter, until restored to OPERABLE status.	Determines that one AFD Channel is NOT within the Target Band.		
	5.3.1.I	IF one or more AFD Channels indicate outside the AFD Target Band, THEN CONTINUE to record data on Attachment 3 IAW Section 5.4, AFD Alarm Condition.	Determines continued readings are required IAW Section 5.4		
			When determination of continued data recording requirement by using Section 5.4 is made, terminate 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.

Y 1. Task description and number, JPM description and number are identified.

Y 2. Knowledge and Abilities (K/A) references are included.

Y 3. Performance location specified. (in-plant, control room, or simulator)

Y 4. Initial setup conditions are identified.

Y 5. Initiating and terminating Cues are properly identified.

Y 6. Task standards identified and verified by SME review.

Y 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

Y 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev 25 Date 11-9-12

Y 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: JGarding for D. Norgaard Date: 11-9-12

SME/Instructor: _____ Date: _____

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

Salem Unit 1 completed a down power to 73% power 15 minutes ago IAW TSAS 3.1.3.1.c.3.d due to a single control rod being declared inoperable. The AFD Monitor Alarm for the Auxiliary Annunciator was determined to be inoperable 10 minutes ago.

INITIATING CUE:

You are directed to perform S1.OP-ST.NIS-0001(Q), Power Distribution – Axial Flux Difference in response to the AFD Monitor Alarm being inoperable.

Current AFD Channel Readings are:

Channel 1: - 8.9

Channel II: -8.6

Channel III: -10.2

Channel IV: - 9.3

The component Off Normal and Off Normal Tagged lists have been reviewed and no systems or support systems are affected for this procedure.

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: [ ]

K/A NUMBER: 2.2.37

IMPORTANCE FACTOR: 3.6 (RO) 4.6 (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

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** **Date: 8-4-12**
Instructor

Validated By: **Brennan** **Date: 8-24-12**
SME or Instructor

Approved By: **Date:**
Training Department

Approved By: **Date:**
Operations Department

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: 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 NAME: _____

JOB PERFORMANCE MEASURE 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	**IDENTIFY** sections of this procedure that are NOT required to be performed.	Marks Section 5.2 N/A. Marks Attachment 3 (Modes 5-6) N/A or removes from procedure.		
	2.2	**REVIEW** 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	**ENSURE** 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	**ENSURE** current RWST and BAST concentrations are obtained by Chemistry.	Determines current RWST and BAST concentrations from initial conditions.		

OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE 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	**COMPLETE** Attachment 2 per the following: • **RECORD** Data. • **RECORD** Test Results by initialing SAT or UNSAT column using the stated Acceptance Criteria.	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 NAME: _____

JOB PERFORMANCE MEASURE 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 AND/OR 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 AND/OR 22 BAST Vol is SAT. Initials SAT for BAST volume and inserts date.		

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 AND/OR 22 BAST Temp	Records 21 and 22 BAST temp indicated on control console from 2TI107 and 2TI103 respectively as: 2TI107 - 98.2 2TI103 - 97.1 Initials SAT for 21 BAST Temp AND/OR 22 BAST Temp and inserts date.		
*	Att. 2	21 BAST Conc AND/OR 22 BAST Conc	Refers to initial conditions for BAST boron concentrations and enters 6610 ppm for 21 BAST and 6610 ppm for 22 BAST. 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.		

OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE 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	This surveillance is considered satisfactory when Attachments 2 and 3 (as applicable) are complete with components listed meeting Acceptance Criteria stated in each Attachment. OR	Initials step 5.3.1		
	5.3.2	This surveillance is unsatisfactory. A. **INITIATE** Notification(s) to correct the unsatisfactory condition. B. **RECORD** Notification number(s) and reason for unsatisfactory completion on Attachment 4 in the Comments Section.	N/A's step 5.3.2		
	5.4.1	**COMPLETE** Attachment 4, Sections 1.0 and 2.0, AND **FORWARD** 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.

_____ 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: _____

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: [ ]

K/A NUMBER: 2.3.4

IMPORTANCE FACTOR: 3.2 (RO) ____ (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [ ]

EVALUATION SETTING/METHOD: Classroom

REFERENCES: Radiological Survey Maps, RP-AA-203, NC.EP-EP.ZZ-0304

TOOLS AND EQUIPMENT: Calculator

VALIDATED JPM COMPLETION TIME: 10 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

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:**
Approved By:	**Operations Department**	**Date:**

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: 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 NAME: _____

JOB PERFORMANCE MEASURE 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.

_____ 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: _____

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. _____

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: [X]

K/A NUMBER: 2.1.25

IMPORTANCE FACTOR: RO ____ SRO 4.2

APPLICABILITY:
EO [ ] RO [ ] STA [ ] SRO [X]

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:	**Training Department**	**Date:**
Approved By:	**Operations Department**	**Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

{PRIVATE }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.

{PRIVATE }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 **NAME:**_____

JOB PERFORMANCE MEASURE **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.		
*			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&L 3.4.)		
*			Identifies correct value for Minimum Flow Required as 1683.		
*			**Cue**: **IF** candidate only determines flow is wrong, **THEN** ask candidate to determine correct flow.		
			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.		
			When candidate turns in JPM, ensure they have provided correct flow as per Cue above, then state JPM is complete.		

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.

_____ 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: _____

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: [ ]

K/A NUMBER: 2.1.42

IMPORTANCE FACTOR: RO ____ SRO 3.4

APPLICABILITY:
EO [ ] RO [ ] STA [ ] SRO [X]

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:**
Approved By:	**Operations Department**	**Date:**

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: _____

{PRIVATE }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)

{PRIVATE }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 movment.**
2. **Determination that New Fuel delivery DOES required suspension of fuel movement.**

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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.		
			Notes: TSAS 3.8.1.2 applies during Modes 5 and 6 and during movement of irradiated fuel, and only requires one EDG. Only one FHB exhaust fan is required to be backed by an operable EDG (IOP-10 page 15) Operable SFP pumps only need one of them backed by operable EDG. (IOP-10 page 15)		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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)
			Notes: 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. 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.		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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)
			Determines that:		
*			**22 SW pump** does **NOT** require suspension of fuel movement.		
*			**2A EDG** surveillance does **NOT** require suspension of fuel movement.		
*			**21 Chiller** oil replacement does **NOT** require suspension of fuel movement.		
*			**New Fuel** delivery **DOES** 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)		
			Evaluator ensure tear off sheet has candidates name and status for each of the four work activities.		

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{PRIVATE }
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: _____

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: [X]

K/A NUMBER: 2.2.6

IMPORTANCE FACTOR: RO ____ SRO 3.6

APPLICABILITY:
EO [ ] RO [ ] STA [ ] SRO [X]

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: **Training Department** **Date:**

Approved By: **Operations Department** **Date:**

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: _____

{PRIVATE }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.

{PRIVATE }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.**

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)
			NOTE TO EVALUATOR: **IF** the candidate asks for drawings or other procedures with the intent of technically verifying the Component ID's, **THEN** cue candidate that the technical verification of the component IDs has been performed and verified by 2 other SROs.		
		Candidate reviews OTSC for applicability, completeness, and accuracy.	Provide OTSC Form F1, and pages 6,10,15-16, 18-20 of S1.OP-PT.SW-0101. When asked, provide a copy of AD-AA-101-101, PSEG Implementing Procedure On The Spot Change (OTSC) Process.		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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)
*			Candidate reviews Form-1 and OTSC process procedure. The following should be noted: - The OTSC process is appropriate for this situation. The procedure steps cannot be performed as written because the pressure test connection is incorrect. - 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.		
		Candidate identifies and records discrepancies.	When candidate records discrepancies, terminate 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.

_____ 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: _____

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

STATION:	SALEM
SYSTEM:	ADMINISTRATIVE
TASK:	Determine required actions upon Radioactive Effluent Monitor failure
TASK NUMBER:	N1200010301
JPM NUMBER:	11-01 NRC SRO Admin A3

ALTERNATE PATH: ☐ **K/A NUMBER:** 2.3.11

IMPORTANCE FACTOR: 4.3

RO	SRO
	4.3

APPLICABILITY:
EO ☐ **RO** ☐ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom

REFERENCES: 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

TOOLS AND EQUIPMENT:

VALIDATED JPM COMPLETION TIME: 25 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By:	**G Gauding** **Instructor**	**Date: 8-15-12**
Validated By:	**A Crampton** **SME or Instructor**	**Date: 9-10-12**
Approved By:	[signature] **Training Department**	**Date:** 9/12/12
Approved By:	[signature] **Operations Department**	**Date:** 9/11/12

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: 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 **NAME:**_____

JOB PERFORMANCE MEASURE **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)
		Note: There is no controlled copy of the Salem ODCM in the classroom. Ensure the Simulator copy is placed in classroom prior to starting JPM, or provide a copy to each candidate.			
		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.		

OPERATOR TRAINING PROGRAM NAME:_____

JOB PERFORMANCE MEASURE 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)
*			**Action 31** states that with less than the minimum required Operable channels, the contents of the tank may be released provided that prior to the initiating the release: a. **At least two independent samples of the tanks contents are analyzed, and** b. **At least two technically qualified memebers of the facility Staff independently verify the release rate calculations and discharge valving lineup; otherwise suspend release of radioactive effluents via this pathway.** **Additionally, S1.OP-SO.WG-0011, Discharge of 14 Gas Decay tank to Plant Vent, Section 3.0, Dose Estimates and Approval, Step 3.4.C (on page 18) states…" Grab samples are being obtained at least once per 8 hours AND analyzed for gaseous principal gamma emitters within 24 hours**		
*			**Determines that there is no restriction on performing Liquid Releases.**		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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, **Action 37** applies.		
*			**Action 37** states that with less than the minimum required Operable channels, Containment Pressure Reliefs may be performed provided that prior to initiating the release: **a. At least two independent samples of the tanks contents are analyzed, and**		
*			**b. At least two technically qualified members of the facility Staff independently verify the release rate calculations, otherwise suspend release of radioactive effluents via this pathway.**		

OPERATOR TRAINING PROGRAM **NAME:**_____

JOB PERFORMANCE MEASURE **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.

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 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: [signature] Date: 9/11/12

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: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO: ____ SRO: 4.6

APPLICABILITY:

EO [ ] RO [ ] STA [ ] SRO [X]

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:**
Approved By:	**Operations Department**	**Date:**

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-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.

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)
			Note: 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	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** 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 **Cue:** I am the Primary Communicator		

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 **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, **Attachment 10**, prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	As time allows, **OBTAIN** 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.	**Cue:** No independent review will be performed.		
	Att 2 A.4	While classification verification is in progress and if time allows, **COMMENCE** 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, **DECLARE** and **ALERT (or SAE if appropriate based on ESG performance)** at Salem Unit(s)_____	Before 15 minute assessment clock expires, declares **ALERT (or SAE if appropriate based on ESG performance)** at Salem Unit(s)_____		

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	**ACTIVATE** "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment **EP96-003)**	**Cue**: Activation of ERO Emergency Callout is not required for this JPM.		
*	Att 2 B.2	**COMPLETE/APPROVE** the (ICMF) (last page of this attachment).	Fills out Section II of ICMF: EAL#(s): **RB2.L (or RB2.L AND CB5.L)** Description of Event: **Loss of the Reactor Coolant System Barrier** **OR** **Loss of the Reactor Coolant System Barrier, Loss of the Containment Barrier.** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks for a Radiological Release is in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		

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-1)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 B.3	IF time allows, **OBTAIN** an accuracy peer check of the completed ICMF.	**Cue:** Peer check is not provided.		
*	Att 2 B.4	**PROVIDE** the ICMF to the Primary Communicator and **DIRECT** 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 RADIOLGICAL RELEASE IS IN PROGRESS.

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS

see NOTE 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)

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 RADIOLGICAL 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. 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.

_____ 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: _____

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: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO: ____ SRO: 4.6

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

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:**
Approved By:	**Operations Department**	**Date:**

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.

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)
			Note: 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	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** 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 **Cue:** I am the Primary Communicator		

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 **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, **Attachment 10**, prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	As time allows, **OBTAIN** 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.	**Cue:** No independent review will be performed.		
	Att 2 A.4	While classification verification is in progress and if time allows, **COMMENCE** 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, **DECLARE** and **ALERT** at Salem Unit(s)_____	Before 15 minute assessment clock expires, declares **ALERT** at Salem Unit(s)_____		
	Att 2 B.1	**ACTIVATE** "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment **EP96-003)**	**Cue**: Activation of ERO Emergency Callout is not required for this JPM.		

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-2)**

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 2 B.2	**COMPLETE/APPROVE** the (ICMF) (last page of this attachment).	Fills out Section II of ICMF: EAL#(s): **RB3.L** Description of Event: **Loss of the Reactor Coolant System Barrier** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks for a Radiological Release is in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		
	Att 2 B.3	IF time allows, **OBTAIN** an accuracy peer check of the completed ICMF.	**Cue:** Peer check is not provided.		
*	7	**PROVIDE** the ICMF to the Primary Communicator and **DIRECT** 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 RADIOLGICAL RELEASE IS IN PROGRESS.

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS

see NOTE 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

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: _____

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: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO ____ SRO 4.6

APPLICABILITY:
EO [ ] RO [ ] STA [ ] SRO [X]

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:**
Approved By:	**Operations Department**	**Date:**

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-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	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** 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 **Cue:** I am the Primary Communicator		
	Att 3 A.2	IF a security Event is in progress, THEN **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, **Attachment 10**, prior to the classification.	Determines Security Event is not in progress.		

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, **OBTAIN** 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.	**Cue:** No independent review will be performed.		
	Att 3 A.4	While classification verification is in progress and if time allows, **COMMENCE** 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, **DECLARE SITE AREA EMERGENCY** at Salem Unit(s)_____	Before 15 minute assessment clock expires, declares **SITE AREA EMERGENCY** at Salem Unit(s)_____		
	Att 3 B.1	**ACTIVATE** "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (Commitment **EP96-003)**	**Cue**: Activation of ERO Emergency Callout is not required for this JPM.		

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	**COMPLETE/APPROVE** the (ICMF) (last page of this attachment).	Fills out Section II of ICMF: 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** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks for a Radiological Release is in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		
	Att 3 B.3	IF time allows, **OBTAIN** an accuracy peer check of the completed ICMF.	**Cue:** Peer check is not provided.		
*	Att 3 B.4	**PROVIDE** the ICMF to the Primary Communicator and **DIRECT** 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 RADIOLGICAL 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. 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.

_____ 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: _____

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: Rod Control

TASK: Perform a Control Rod Operability Verification

TASK NUMBER: N0010070101

JPM NUMBER: 11-01 NRC Sim a

ALTERNATE PATH: [X]

K/A NUMBER: 001 A4.03

IMPORTANCE FACTOR: 4.0 (RO) 3.7 (SRO)

APPLICABILITY:
EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator

REFERENCES: S2.OP-ST.RCS-0001, Rev. 20 (checked 08-06-12)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 10 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor **Date:** 08-04-2012

Validated By: Mulford, SME or Instructor **Date:** 08-24-2012

Approved By: (Williams), Training Department **Date:** 9/4/12

Approved By: (Bykowen), Operations Department **Date:** 9/4/12

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
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.
- The CRS directs that 15 steps of rod insertion are to be performed for each bank to ensure that each rod moves at least 10 steps.
- Initial Control Rod Positions are:

SDA	SDB	SDC	SDD
F-04 230	G-03 230	E-03 230	C-05 230
D-10 230	C-09 230	C-11 226	E-13 226
K-12 230	J-13 230	L-13 227	N-11 227
M-06 230	N-07 230	N-05 227	L-03 230
B-04 230	J-02 225		
D-14 227	C-06 226		
P-12 230	G-13 230		
M-02 230	N-09 230		

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. **Cue:** 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	PERFORM Shutdown Bank A testing as follows:			
		A. IF the Rx is critical, THEN ENSURE Tavg is within 1 degree of Tref.	Checks Tave/Tref recorder on 2RP4 and notes Tavg is within 1° of Tref..		
*		B. PLACE Bank Selector Switch in the SBA position.	Rotates Bank Selector Switch fully counter clockwise to the SBA position.		
		C. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21AC and 22AC.	Contacts NEO and directs him to verify lights. **Cue:** GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21AC and 22AC.		
*		D. Maneuver Shutdown Bank A at least 10 steps in any one direction.	Inserts SBA at least 10 steps.		
		E. ENSURE each rod in Shutdown Bank A indicated rod movement of at least 10 steps.	Verifies rod movement by viewing rod position on P-250 computer.		
		F. RECORD Shutdown Bank A "Test Results" by initialing in attachment 1.	Initials SAT for Groups 1 and 2 for SBA on Att 1.		
		G. RESTORE Shutdown Bank A to pre-test condition.	Withdraws SBA to ARO position. Continuous rod withdrawal is acceptable.		
		H. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21AC and 22AC.	**Cue:** GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21AC and 22AC.		

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	PERFORM Shutdown Bank B testing as follows:			
		A. IF the Rx is critical, THEN ENSURE Tavg is within 1 degree of Tref.	Checks Tave/Tref recorder on 2RP4 and notes Tavg is within 1° of Tref..		
*		B. PLACE Bank Selector Switch in the SBB position.	Rotates Bank Selector Switch clockwise to the SBB position.		
		C. ENSURE GRP. SELECT "C" lights are illuminated on Rod Control System Power Cabinets 21BD and 22BD.	Contacts NEO and directs him to verify lights. **Cue:** GRP SELECT "C" lights are illuminated at Rod Control System Power Cabinets 21BD and 22BD.		
*		D. Maneuver Shutdown Bank B at least 10 steps in any one direction.	Inserts SBB at least 10 steps.		
		E. ENSURE each rod in Shutdown Bank B indicated rod movement of at least 10 steps.	**SIMULATOR OPERATOR:** **INSERT RT-1 when the operator is checking rod position after insertion. This will trip 21 SGFP.**		
*			Responds to 21 SGFP trip by tripping the Rx IAW P&L 3.13. Movement of the Rod Bank Selector Switch to MAN or AUTO under these conditions is incorrect.		
			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.

NM 1. Task description and number, JPM description and number are identified.

NM 2. Knowledge and Abilities (K/A) references are included.

NM 3. Performance location specified. (in-plant, control room, or simulator)

NM 4. Initial setup conditions are identified.

NM 5. Initiating and terminating Cues are properly identified.

NM 6. Task standards identified and verified by SME review.

NM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

NM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 20 Date 8/24/12

NM 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. Milford Date: 8/24/12

SME/Instructor: _____ Date: _____

SME/Instructor: _____ Date: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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.
- The CRS directs that 15 steps of rod insertion are to be performed for each bank to ensure that each rod moves at least 10 steps.
- Initial Control Rod Positions are:

SDA	SDB	SDC	SDD
F-04 230	G-03 230	E-03 230	C-05 230
D-10 230	C-09 230	C-11 226	E-13 226
K-12 230	J-13 230	L-13 227	N-11 227
M-06 230	N-07 230	N-05 227	L-03 230
B-04 230	J-02 225		
D-14 227	C-06 226		
P-12 230	G-13 230		
M-02 230	N-09 230		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

STATION: SALEM

SYSTEM: ECCS

TASK: Perform forward Flow IST of ECCS Accumulator Check Valves

TASK NUMBER: N0060160201

JPM NUMBER: 11-01 ILOT Sim b

ALTERNATE PATH: [X] **K/A NUMBER:** 006 A4.02

IMPORTANCE FACTOR: 4.0 (RO) 3.8 (SRO)

APPLICABILITY:
EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-ST.SJ-0006, Inservice Testing Safety Injection Valves Mode 6, Rev. 13

TOOLS AND EQUIPMENT: Stopwatch

VALIDATED JPM COMPLETION TIME: 15 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By:	**G Gauding** **Instructor**	**Date:** **06-04-12**
Validated By:	**Mulford** **SME or Instructor**	**Date:** **08-23-12**
Approved By:	**Training Department**	**Date:** 9/13/12
Approved By:	(Byyrlonen) **Operations Department**	**Date:** 9/12/12

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: 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. This is the normally scheduled surveillance.

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 **NAME:** _____

JOB PERFORMANCE MEASURE **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.	**Cue if required**: 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	**RECORD** 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	**CLOSE** 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to shut 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE. **Simulator Operator: Modify Remote SJ01D from tagged to untagged to shut 2AY2EP2D** and report back to control room.		
	5.1.3	At Panel 2RP4, **ENSURE** 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 **PERFORM** the following: • **OPEN** 21SJ54, 21 ACCUM OUT • **START** the Stopwatch	Simultaneously depresses the open PB for 21SJ54 and starts stopwatch.		

OPERATOR TRAINING PROGRAM **NAME:** _____

JOB PERFORMANCE MEASURE **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 **PERFORM** the following: • **STOP** the Stopwatch • **CLOSE** 21SJ54	Simultaneously depresses the 21SJ54 close PB and stops the stopwatch when 21 Accumulator pressure indicates 35 psig.		
*	5.1.4.C	**PERFORM** the following IAW Attachment 2, Section 2.0: • **RECORD** Stopwatch Number and Reading (A) in Attachment 2, Section 2.0. • **CALCULATE** Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B) from Stopwatch Reading (A) AND **RECORD** in Attachment 2, Section 2.0. • **DIRECT** a second Operator to perform Independent Verification of the calculation performed IAW Attachment 2, Section 2.0.	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. **Cue: IV is complete SAT.**		
*	5.1.4.D	**RECORD** 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 **NAME:** _____

JOB PERFORMANCE MEASURE **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. **OPEN** 21SJ54, 21 ACCUM OUT. B. When 21 Accumulator level has decreased by at least 20%, **CLOSE** 21SJ54, 21 ACCUM OUT. C. **RECORD** 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	**OPEN** 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to open 2AY2EP2D, 21SJ54 ACCUMULATOR OUTLET VALVE. **Simulator Operator: Modify REMOTE SJ01D to tagged to open 2AY2EP2D.**		
	5.1.7	**DIRECT** a second Operator to perform Restoration Independent Verification of the components identified in Attachment 6, Section 1.0.	**Cue: Restoration Independent Verification of the components identified in Attachment 6, Section 1.0. is complete SAT.**		
	5.2.1	**RECORD** 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 **NAME:** _____

JOB PERFORMANCE MEASURE **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	**CLOSE** 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to shut 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE. **Simulator Operator: Modify Remote SJ02D from tagged to untagged to shut 2BY2EP2D.**		
	5.2.3	At Panel 2RP4, **ENSURE** 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 **PERFORM** the following: • **OPEN** 22SJ54, 22 ACCUM OUT • **START** the Stopwatch	Simultaneously depresses the open PB for 22SJ54 and starts stopwatch. **Simulator Operator: Ensure ET-1 is TRUE when 22SJ54 Open PB is depressed.**		

OPERATOR TRAINING PROGRAM **NAME:** _____

JOB PERFORMANCE MEASURE **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 **PERFORM** the following: • **STOP** the Stopwatch • **CLOSE** 22SJ54	Simultaneously depresses the 22SJ54 close PB and stops the stopwatch when 22 Accumulator pressure indicates 35 psig. **Simulator Operator**: If 22SJ54 close PB is **not** depressed, DELETE overrides A105 and 106 when they reach their full ramp in time.		
* *	5.2.4.C	**PERFORM** the following IAW Attachment 3, Section 2.0: • **RECORD** Stopwatch Number and Reading (A) in Attachment 3, Section 2.0. • **CALCULATE** Accumulator Blowdown Time (C) by subtracting Disk Movement Time (B) from Stopwatch Reading (A) AND **RECORD** in Attachment 3, Section 2.0. • **DIRECT** a second Operator to perform Independent Verification of the calculation performed IAW Attachment 3, Section 2.0.	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. **Cue: IV is complete SAT.**		

OPERATOR TRAINING PROGRAM **NAME:** _____

JOB PERFORMANCE MEASURE **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	**RECORD** 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. **OPEN** 22SJ54, 21 ACCUM OUT. B. When 22 Accumulator level has decreased by at least 20%, **CLOSE** 22SJ54, 22 ACCUM OUT. C. **RECORD** 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	**OPEN** 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE.	Contacts NEO and directs them to open 2BY2EP2D, 22SJ54 ACCUMULATOR OUTLET VALVE. **Simulator Operator: Modify REMOTE SJ02D to tagged to open 2BY2EP2D.**		

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.

NM 1. Task description and number, JPM description and number are identified.

NM 2. Knowledge and Abilities (K/A) references are included.

NM 3. Performance location specified. (in-plant, control room, or simulator)

NM 4. Initial setup conditions are identified.

NM 5. Initiating and terminating Cues are properly identified.

NM 6. Task standards identified and verified by SME review.

NM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

NM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 13 Date 8/23/12

NM 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: M. M N. Mulford Date: 8/23/12

SME/Instructor: _____ Date: _____

SME/Instructor: _____ Date: _____

OPERATOR TRAINING PROGRAM **NAME:** _____

JOB PERFORMANCE MEASURE **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	**DIRECT** a second Operator to perform Restoration Independent Verification of the components identified in Attachment 6, Section 2.0.	**Cue: Restoration Independent Verification of the components identified in Attachment 6, Section 2.0. is complete SAT.**		
			Cue: JPM is complete.		

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.
This is the normally scheduled surveillance.

OPERATIONS TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Pressurizer Pressure and Level

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

TASK NUMBER: 1140240401

JPM NUMBER: 11-01 ILOT NRC Sim c

ALTERNATE PATH: [X]

K/A NUMBER: 010 A4.01

IMPORTANCE FACTOR: 3.7 (RO) 3.5 (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Simulator

REFERENCES: S2.OP-AB.PZR-0001, Rev. 18 (Rev. checked 08-21-12-12)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 4 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: **G Gauding** **Instructor** **Date:** **04-12-12**

Validated By: **Mulford** **SME or Instructor** **Date:** **08-24-12**

Approved By: **Training Department** **Date:**

Approved By: **Operations Department** **Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY: _____

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

OPERATIONS TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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)
		Simulator Operator: Insert **RT-1** on direction of evaluator. MALF: **PR0019A** , 2PS1 fails open	**Note**: 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. **Note:** 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	**INITIATE** Attachment 1 Continuous Action Summary.	Initiates Attachment 1 Continuous Action Summary. **Note:** There is a CAS action to trip the Rx if RCS pressure lowers to 2,000 psig and continues to drop. **IF** 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, **THEN AFTER** 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: **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.**		
	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 **GOES TO** 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 **GOES TO** 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	**PLACE** the Spray Valve(s) in MANUAL	Depresses MANUAL PB for 2PS1 and verifies AUTO light extinguished and MANUAL light illuminates.		
	3.19	**OPERATE** the Spray Valves to control pressure consistent with Attachment 2.	Depresses the CLOSE PB for 2PS1 and recognizes that 2PS1 remains open.		
	3.20	**PLACE** 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	**PERFORM** the following: A. **TRIP** 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	**STOP** 21 AND 23 RCPs:	Depresses STOP PBs for 21 and 23 RCP and verifies start lights extinguish and stop lights illuminates. **Simulator Operator**: Ensure **ET-1** 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	IF Pressurizer Pressure continues to drop, THEN **STOP** all but one RCP.	Determines Pressurizer Pressure continues to drop, and depresses STOP PB on 22 OR 24 RCP and verifies start light extinguishes and stop light illuminates.		
	3.24 E	**GO TO** 2-EOP-TRIP-1, Reactor Trip or Safety Injection, AND **CONTINUE** with this procedure.	Begins performing Immediate Actions of 2-EOP-TRIP-1, Reactor Trip or Safety Injection. **Cue**: When operator begins performing Immediate Actions of 2-EOP-TRIP-1, Reactor Trip or Safety Injection, state JPM is complete.		

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: _____

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

STATION:	SALEM
SYSTEM:	Residual Heat Removal
TASK:	TCAF a Loss of RHR
TASK NUMBER:	N1140300401
JPM NUMBER:	11-01 NRC Sim d
ALTERNATE PATH:	[ ]
K/A NUMBER:	APE 025 AA1.09
IMPORTANCE FACTOR:	3.2 (RO) / 3.1 (SRO)

APPLICABILITY:
EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator

REFERENCES: S2.OP-AB.RHR-0001, Rev. 17 (Rev checked 8-6-12)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 25 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By:	**G Gauding** **Instructor**	**Date: 08-18-12**
Validated By:	**Brennan** **SME or Instructor**	**Date: 08-24-12**
Approved By:	(Williams) **Training Department**	**Date:** 9/12/12
Approved By:	(By KKowen) **Operations Department**	**Date:** 9/4/12

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: 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)**

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 **RT-1** on Evaluators direction. MALF: **RH0026A** 21 RHR Pump Trip			
			Responds to trip of 21 RHR pump by depressing the STOP PB.		
			Note to Evaluator: The PZR Hi lvl alarm on 2CC2 will annunciate shortly after the RHR pump is tripped. **IF** the candidate begins actions to respond to this alarm, **THEN CUE** that a second operator will refer to the Alarm Response Procedure for the PZR Hi level alarm.		
			Recognizes there is no RHR cooling, and enters S2.OP-AB.RHR-0001, Loss of RHR.		
	3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	3.2	IF the RCS is vented to the Containment...	Recognizes the RCS is not vented to the containment and N/A's step.		

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)
	3.3	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.		
	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. **Note:** If operator answers NO here, then they will perform steps which are designed for system, rather than pump, problems, and is incorrect.		
	3.6	**GO TO** Step 3.50	Goes to Step 3.50		
	3.50	Is a heat sink available for Residual Heat Removal? • Component Cooling to RHR System • Service Water to Component Cooling System	Determines a heat sink available for Residual Heat Removal since SW and CCW are unaffected.		

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)
	3.51	Is an RHR Loop available?	Determines a RHR Loop is available since 22 RHR loop is available (lined up in ECCS Mode).		
	3.52	**PLACE** the alternate RHR Loop in service: • IF alternate loop is aligned for ECCS, THEN **PERFORM** Attachment 2, Aligning RHR Loop From ECCS To Shutdown Cooling. OR • IF alternate RHR Loop is aligned for Shutdown Cooling, THEN **PERFORM** Attachment 3, Aligning RHR Loop For Shutdown Cooling.	Performance steps on next page		

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	IF placing RHR Loop 22 in service, THEN: A. **ENSURE** RHR Loop 22 is aligned for ECCS injection. B. **PLACE** 22RH29 RHR PUMP MINIMUM FLOW VALVE in AUTO.	Determines 22 RHR loop is aligned for ECCS injection from initial conditions. Determines 22RH29, RHR PUMP MINIMUM FLOW VALVE is in AUTO.		
*		C. Locally: • **OPEN** 22RH12 RHR HX BYPASS ISOLATION VALVE • **OPEN** 22RH17 RHR LETDOWN ISOLATION VALVE • **OPEN** 22RH18-A/S RHR LETDOWN ISOLATION VALVE AIR SUPPLY (**Note**: Time compression will be utilized for operators performing actions in the field.)	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 **CUE: Time compression will be used to perform field actions.** **Simulator Operator:** When directed to open 22RH18-A/S, delete **MALF VL0626 22RH18 fails to position (0-100)** (This allows valve to move when control console PBs are depressed.) **Then** insert **RT-3** to open the 22RH12 and 22RH17. 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		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 control)

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 Cue: 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: • **CLOSE** 22RH18, RHR PUMP FLOW CONTROL VALVE • **CLOSE** 21RH18, RHR PUMP FLOW CONTROL VALVE • **CLOSE** 2RH20, RHR HX BYPASS • **CLOSE** 21CC16, RHR HX COMPONENT COOL OUT VALVE • **OPEN** 22CC16, RHR HX COMPONENT COOL OUT VALVE	Depresses CLOSE PB's for: • 22RH18 RHR PUMP FLOW CONTROL VALVE • 21RH18 RHR PUMP FLOW CONTROL VALVE • 2RH20 RHR HX BYPASS • 21CC16 RHR HX COMPONENT COOL OUT VALVE And verifies valves stroke closed. Depresses OPEN PB for 22CC16 and verifies it strokes open.		
*		E. **START** 22 RHR PUMP	Depresses the START PB for 22 RHR pump and verifies the pump started.		

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. **OPERATE** 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.		
		RETURN 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? • Component Cooling to RHR System • Service Water to Component Cooling System	Determines a heat sink available for Residual Heat Removal since SW and CCW are unaffected.		

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?	Checks RHR flow and determines flow is stable, and goes to Step 3.68 **Note**: 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. If this is the case, RHR system verification is performed at step 3.59. (It is the same as step 3.68).		

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 ALL of the following?			
		• RHR Pumps – at least one running	Verifies 22 RHR pump I/S		
		• RCS level- >97.5 ft. elevation AND stable OR rising consistent with current RCS makeup AND no excessive indication of RCS Leakage.	Determines RCS is full (PZR level)		
*		• RHR flow – stable between 1800 and 3000 gpm	Adds 21SJ49 RHR DISCH TO COLD LEGS flow and 22SJ49 RHR DISCH TO COLD LEGS flow to get 1800-3000 gpm.		
*		• RCS temperature – stable or lowering	Uses P-250 computer to verify RCS temperature is stable or lowering. IF 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. **Note:** 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: "**JPM is complete.**"		

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: _____

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Main Turbine

TASK: TCAF Main Turbine Trip < P-9 (Main Turb ASO trip)

TASK NUMBER: N1140420401

JPM NUMBER: 11-01 NRC Sim e

ALTERNATE PATH: [X]

K/A NUMBER: 2.4.31

IMPORTANCE FACTOR: RO 4.2 SRO 4.1

APPLICABILITY:
EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator - Perform

REFERENCES: 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)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 5 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding
Instructor
Date: 8-6-12

Validated By: Mulford
SME or Instructor
Date: 8-23-12

Approved By: (signature)
Training Department
Date: 9/12/12

Approved By: (signature)
Operations Department
Date: 9/5/12

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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-2
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.

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)
		SIMULATOR OPERATOR: Insert **RT-2** after candidate assumes the watch.	Announces unexpected **OHA G-4** TURB AUTO STOP OIL PRESS LO		
			Refers to S2.OP-AR.ZZ-0007, Overhead Window G.		
	ARP 1.0/2.0		Reviews causes and determines one of three Auto Stop Oil Pressure channels reading ≤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.		
	ARP 3.2	**CONFIRM** alarm by verifying 2RP4 AST Oil Press Low status light indications.	Checks 2RP4 AST Oil Press Low status light is illuminated for Channel I.		

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)
	ARP 3.3	IF a Turbine Trip occurs, THEN: A. IF ≥P-9 (49% power), THEN **GO TO** 2-EOP-TRIP-1, Reactor Trip or Safety Injection. B. IF <P-9 (49% power), THEN **GO TO** S2.OP-AB.TRB-0001(Q), Turbine Trip Below P-9.			
	ARP 3.4	IF instrument failure is suspected, THEN: A. **REFER TO** Technical Specifications. B. **REMOVE** affected channel from service IAW S2.OP-SO.RPS-0006(Q), Main Turbine Channel Trip/Restoration. C. **INITIATE** a NOTF to determine and correct the cause of the alarm.	There is no justification for suspecting instrument failure without having technician investigate. May dispatch operator to check turbine or call for assistance from WCC or maintenance. **Note**: Allow sufficient time for candidate to try and initiate action to investigate.		
			Simulator Operator: Insert **RT-3** on direction from Evaluator. 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.		

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)
*			Candidate recognizes a demand for a turbine trip has occurred, but the turbine has not tripped. Initiates a turbine trip from trip handle and verifies turbine is tripped. Recognizes step 3.3 states… "IF <P-9 (49% power), THEN **GO TO** S2.OP-AB.TRB-0001(Q), Turbine Trip Below P-9." And goes to S2.OP-AB.TRB-0001.		
	AB.TRB 3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		

OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE 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)
	AB.TRB 3.2	**VERIFY** the Turbine is tripped.	**Note:** IF the candidate observes the 21MS28 remaining open at this point, THEN 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 incorrect action 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 >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 next page for required actions in EOP-TRIP-1 **IF** a Rx trip is performed here.		
	AB.TRB 3.3	Are all Turbine Stop Valves closed?	Determines all Turbine Stop Valves are NOT closed from 2RP4. Goes to Step 3.7.		
	AB.TRB 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.		

OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE 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-11	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: Trips the Rx using either Trip handle.		
	EOP-TRIP-12	IS REACTOR TRIP CONFIRMED	Confirms Rx trip		
*	EOP-TRIP-13	TRIP TURBINE	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-13	TRIP TURBINE (MSLI step)	Initiates a MSLI. Terminate JPM after MSLI has been performed.		

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.

NM 1. Task description and number, JPM description and number are identified.

NM 2. Knowledge and Abilities (K/A) references are included.

NM 3. Performance location specified. (in-plant, control room, or simulator)

NM 4. Initial setup conditions are identified.

NM 5. Initiating and terminating Cues are properly identified.

NM 6. Task standards identified and verified by SME review.

NM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

NM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 48/14 Date 8/23/12

NM 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. N. Mulford 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

STATION:	SALEM
SYSTEM:	Pressurizer and PRT
TASK:	Adjust PRT level and pressure
TASK NUMBER:	N0100110101
JPM NUMBER:	11-01 NRC Sim f
ALTERNATE PATH:	[ ]
K/A NUMBER:	007 A4.04
IMPORTANCE FACTOR:	RO: 2.6 / SRO: 2.6
APPLICABILITY:	EO [ ] RO [X] STA [ ] SRO [X]
EVALUATION SETTING/METHOD:	Simulator / Perform
REFERENCES:	S2.OP-SO.PZR-0003, Rev. 15 (checked 08-22-12)
TOOLS AND EQUIPMENT:	None
VALIDATED JPM COMPLETION TIME:	8 min
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A

Developed By:	G Gauding Instructor	**Date:** 08-22-12
Validated By:	Brennan SME or Instructor	**Date:** 08-24-12
Approved By:	(Williams) Training Department	**Date:** 9/14/12
Approved By:	(Bynkowski) Operations Department	**Date:** 9/5/12

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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, Section 5.1.

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 marked up paper copy of S2.OP-SO.PZR-0003.	Reviews Precautions and Limitations.		
	5.1.1	IF PRT level is low, THEN **PERFORM** the following:	**Note:** 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) **IF** PRT pressure reduction is performed first, **THEN Cue** if PRT pressure is lowered past 7 psig…" CRS states that the pressure reduction is sufficient to allow filling of the PRT now."		
*	5.1.1.A	IF required, THEN **START** 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. **IF** operator does not start a Primary Water Pump and will gravity feed to makeup to the PRT, **THEN Cue:** The CRS directs you to use a Primary Water pump to makeup to the PRT.		

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.B	**OPEN** 2WR80, CONT PRI WATER STOP.	Depresses open pushbutton for 2WR80 CONT PRI WATER STOP and verifies open light lit.		
*	5.1.1.C	**OPEN** 2WR82, PRT WATER SUPPLY.	Depresses open pushbutton for 2WR82, PRT WATER SUPPLY and verifies open light lit.		
*	5.1.1.D	IF PRT pressure approaches 10 psig, THEN **OPEN** 2PR15, VENT, as necessary, to maintain PRT pressure at >3 psig and ≤10 psig.	Depresses open pushbutton for 2PR15, VENT **prior to PRT pressure rising above 10.0 psig,** and depresses close pushbutton prior to PRT pressure lowering below 3.1 psig. **Note:** IF PRT Hi Pressure alarm is received, it prevents the 2PR15 from opening, and pressure cannot be reduced. **When** candidate has demonstrated that they can raise level without exceeding 10 psig, **then Cue: PRT level is now 60%**		

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.E	When PRT level increases to between 59% and 86%: 1. **CLOSE** 2WR80, CONT PRI WATER STOP. 2. **CLOSE** 2WR82, PRT WATER SUPPLY 3. **ENSURE** 2PR15, VENT is closed. 4. IF Primary Water Pump is in service IAW Step 5.1.1.A, AND is NOT required to be in service for any other reason, THEN **STOP** 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. IF 21 Primary Water pump was used to fill PRT, THEN places 21 or 22 Primary Water pump in auto.		
	5.1.1.F	**DIRECT** 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

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. 15 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: _____

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, Section 5.1.

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: [X] **K/A NUMBER:** APE 065 AA2.06

IMPORTANCE FACTOR: 3.6 (RO) 4.2 (SRO)

APPLICABILITY:
EO [ ] RO [X] STA [ ] SRO [X]

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: (Williams), Training Department **Date:** 9/12/12

Approved By: (Bykkonen), Operations Department **Date:** 9/5/12

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: 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.**

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)
			Note: The #1 and #3 Compressor Trouble alarms on 2CC1 do NOT have audible or flash capabilities (S2.OP-AR.ZZ-0011 page 120).		
		Simulator Operator: Insert **RT-1** after operator assumes watch.			
			Determines #2 Station Air Compressor (SAC) has tripped, and the Unit 2 Emergency Control Air Compressor (ECAC) has automatically started. **Note**: 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.		
			Note: 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.		

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	IF SAC 2 trips, THEN: A. **COORDINATE** (as necessary) with Unit 1 B. **ENSURE** operating OR **START** 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. **Cue when contacted as Unit 1:** Unit 1 will ensure #1 SAC is placed in service.		
	ARP 3.2	IF AT ANY TIME Station Air pressure cannot be maintained ≥100 psig, THEN **GO TO** 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.		
			Simulator Operator: Ensure #1 SAC locks out 1:30 after insertion of **RT-1, then announce twice on plant page: "#1 Station Air Compressor Trip."**		
			Recognizes that no SAC's are running, and enters S2.OP-AB.CA-0001 if not entered previously.		

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)
			Note: Approximate event times are listed below **from insertion of RT-1**. 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.		
	AB.CA 3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary. **Cue IF Required:** 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: **Cue: The CRS will refer to Attachment 2**		

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? • All Station Air Compressors stopped OR • Either Station Air Header <100 psig	Determines all SAC's are stopped or determines Station Air Header pressure is <100 psig.		
	3.3	IF a loss of **1**F Group Bus has occurred, AND **1**H Group Bus is available, THEN **SEND** 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. **Cue if required**: Unit 1 reports 1F Group Bus is energized.		
	3.4	IF a loss of **2**F Group Bus has occurred, AND **2**H Group Bus is available, THEN **SEND** 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 NAME: _____

JOB PERFORMANCE MEASURE 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 **1**H Group Bus has occurred, AND **1**F Group Bus is available, THEN **SEND** 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. **Cue if required**: Unit 1 reports 1H Group Bus is energized.		
	3.6	**START** or have Unit One Control Room **START** the Next to Load Station Air Compressor.	Determines no SAC's are available. **Cue if required:** 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 **START**, or have Unit One Control Room **START**, the remaining Station Air Compressor.	Determines no SAC's can be started.		
	3.9	**NOTIFY** the SM/CRS to evaluate use of temporary air compressors.	**Cue:** 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 ≤88 psig?	Determines 2A control air header pressure is: ≤88 psig and determines #2 ECAC is in service OR >88 psig.		
	3.12 3.13	Is 2B Control Air Header ≤88 psig?	Determines 2B control air header pressure is: ≤88 psig and contacts Unit 1 to place #1 ECAC in service OR >88 psig. **Cue:** When Unit 1 is contacted to start #1 ECAC, state: **" # 1 ECAC has tripped. "**		
	3.14	**SEND** operators as necessary to: • **LOCATE** AND **ISOLATE** any air system leaks. • **INVESTIGATE** cause of air compressor trip/trouble.	Dispatches operators to: • **LOCATE** AND **ISOLATE** any air system leaks. • **INVESTIGATE** cause of air compressor trip/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)
	3.15	IF Station Air is lost, AND either of the following are in service: • Spent Fuel Pool Transfer Pool Weir Gate Seals • SG Nozzle Dams THEN: A. **EVACUATE** personnel from the areas subject to leakage/flooding. B. **INITIATE** monitoring of Fuel Pool and/or Reactor Vessel levels for the need to makeup due to leakage.	Determines Station Air is lost, and neither of the following are in service: • Spent Fuel Pool Transfer Pool Weir Gate Seals • SG Nozzle Dams		
	3.16	IF cooling water to the Station or Emergency Air Compressors is lost, THEN **INITIATE** the applicable portion of Attachment 6, Abnormal Cooling Water Lineups.	Determines cooling water to the Station or Emergency Air Compressors is not lost.		
	3.17	Are both 2A and 2B Control Air Headers <80 psig?	Determines both 2A and 2B Control Air Headers are not <80 psig.		
	3.18	Is 2B Control Air Header <80 psig?	Determines 2B Control Air Header is <80 psig.		
	3.55	**CONTINUE**			

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	**ISOLATE** 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	**VERIFY** 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	**IF AT ANY TIME** Station Air is lost, THEN: • **INITIATE** monitoring of 21-24BF19 operation. • IF any BF19 goes CLOSED, AND the applicable SG water level cannot be maintained, THEN **TRIP** the Reactor, **CONTINUE** with this procedure AND **GO TO** 2-EOP-TRIP-1, Reactor Trip Or Safety Injection.	Identifies all BF19 valves closing. Trips the Reactor. **CUE IF REQUIRED: IF** reactor is tripped prior to completion of steps 3.56 AND 3.57, then allow immediate actions for the Rx trip to be performed. **THEN** CUE: The CRS and another RO will continue performing TRIP-1. You are to continue performing AB.CA.		

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)
			Terminate JPM once Rx has been tripped, Letdown isolated, and the WG release terminated.		

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: K K 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.

STATION:	Salem Generating Station
SYSTEM:	Radioactive Waste Liquid
TASK:	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.)
TASK NUMBER:	N0685140104
JPM NUMBER:	11-01 NRC Sim h
ALTERNATE PATH:	[X]
K/A NUMBER:	068 A4.03
IMPORTANCE FACTOR:	3.9 (RO) / 3.8 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: 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

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: 08-06-12**
Validated By:	**Mulford** **SME or Instructor**	**Date: 08-23-12**
Approved By:	(Williams) **Training Department**	**Date:** 9/12/12
Approved By:	(Byrd-Lowe) **Operations Department**	**Date:** 9/5/12

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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: RM0235C Process Rad Mon 2R18 fails anywhere (1E5) 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.

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)
			Note to Evaluator: The RWO has the official copy of the procedure in the field.		
			Evaluator: Initiate JPM by giving the following CUE: **Cue:** 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 **OPEN** 2WL51, LIQUID RELEASE STOP VALVE.			
*			Depresses open pushbutton for 2WL51 LIQUID RELEASE STOP VALVE and verifies red open light illuminates. **Simulator Operator:** Ensure **ET-3** 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. **OR** 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.		

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)
			Evaluator Note: 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.		
			IF 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, **THEN** cue as follows as required: **Cue:** The RWO reports 2R18 reading $1x10^5$ cps. **Cue:** The 2R18 in the rack area reads $1x10^5$ cps.		
			Evaluator Note: IF the operator shuts the 2WL51 based on the Hi Radiation signal, without reporting which procedure directs the action, THEN 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.		
			Evaluator Note: Steps for AB.RAD continue on next page.		

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, THEN **GO TO** S2.OP-AB.RAD-0001, Abnormal Radiation.	Enters S2.OP-AB.RAD-0001, Abnormal Radiation.		
	AB.RAD 3.1	**DETERMINE** affected Radiation Monitor.	Verifies 2R18 is the affected rad monitor.		
	AB.RAD 3.2	Is the alarm, warning, or rising indication valid? (**EVALUATE** the following): • Chemistry Sampling • Rising activity on related monitors • Maintenance activities in vicinity of radiation detector • Transfer of radioactive resins or other materials in affected area • No indication of failure or fault on affected Radiation Monitor • Radioactive release from Salem or Hope Creek	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.		

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: • Affected Radiation Monitor number and name • Location of Radiation Monitor area with elevated indication	Announces "Radiation Monitor 2R18 Liquid Waste Disposal is in alarm, Auxiliary Building 84 elevation" **Note:** Operator may also include 64' elevation.		
	AB.RAD 3.7	IF a release to the environment is in progress, THEN **DIRECT** 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. **Cue if required:** IF required, state the CRS will contact the SRPT to complete page 2 of SSCL. **Note:** 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	**NOTIFY** 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	**INITIATE** the applicable attachment for affected Radiation Monitor:	Initiates Attachment 1 of S2.OP-AB.RAD-0001, Abnormal Radiation.		

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	IF 2R18, Liquid Waste Disposal, is the affected monitor, THEN: 5.1 **ENSURE** 2WL51, TO CIRC WTR DISCHARGE, is CLOSED to stop all Liquid Waste releases. 5.2 **TERMINATE** Liquid Waste Release procedure in effect.	Shuts (or checks shut) 2WL51, TO CIRC WTR DISCHARGE Contacts RWO and directs them to terminate release procedure in effect.		
			Once the 2WL51 is shut, its status communicated to the RWO, and procedure direction for shutting the 2WL51 identified, terminate the JPM.		

Terminating Cue: None

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.

NM 1. Task description and number, JPM description and number are identified.

NM 2. Knowledge and Abilities (K/A) references are included.

NM 3. Performance location specified. (in-plant, control room, or simulator)

NM 4. Initial setup conditions are identified.

NM 5. Initiating and terminating Cues are properly identified.

NM 6. Task standards identified and verified by SME review.

NM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

NM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 8/23/12

NM 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. N. M. Ilford Date: 8/23/12

SME/Instructor: _____ Date: _____

SME/Instructor: _____ Date: _____

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: [ ]

K/A NUMBER: APE 068 AA1.08

IMPORTANCE FACTOR: 4.2 (RO) 4.2 (SRO)

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

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:	**Training Department**	**Date:**
Approved By:	**Operations Department**	**Date:**

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: CVCS

TASK: Locally Borate the RCS

TASK NUMBER: N1130140504

INITIAL CONDITIONS:

- Unit 1control 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.

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	**PROCEED** to Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1A, El 122', near the Boric Acid Storage Tanks.	Locates Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1A		
	10.2	**CLOSE** 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	**OPEN** draincock for control air regulator for 11CV160.	Simulates opening draincock for control air regulator for 11CV160.		
	10.4	**PROCEED** to Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1B, El 122", near the Boric Acid Storage Tanks.	Locates Unit 1 Cont Air Redundant Air Supply Wall Mntd Pnl 701-1B		
	10.5	**CLOSE** 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	**OPEN** draincock for control air regulator for 12CV160.	Locates and simulates closing the Air Supply Isolation Valve, 12CV160 A/S		

OPERATOR TRAINING PROGRAM **NAME:** _____

JOB PERFORMANCE MEASURE **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	**OPEN** 1CV175, Rapid Borate Stop Valve.	Locates and discusses opening 1CV175, Rapid Borate Stop Valve by disengaging clutch and rorating handwheel.		
*	10.8	**PROCEED** to 1CV55 and ADJUST 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	**REQUEST** NEO#1 to adjust 1CV73 to maintain flow to RCP seals between 6 and 10 gpm.			
	12.0	**NOTIFY** the CRS that rapid Boration has commenced.	**Cue if Required:** 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 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: _____

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: [ ]

K/A NUMBER: 064 A2.09

IMPORTANCE FACTOR:	3.1	3.3
	RO	**SRO**

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

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:	**Training Department**	**Date:**
Approved By:	**Operations Department**	**Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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.

SYSTEM: Emergency Diesel Generator **NAME:** _____
TASK: Locally start and load an Emergency Diesel Generator **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. **Cue:** 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. **Cue:** 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. **Cue:** 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. **Cue:** 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. **Cue:** Alarm B-9, Generator Loading in Droop Mode has silenced.		

SYSTEM: Emergency Diesel Generator **NAME:** _____
TASK: Locally start and load an Emergency Diesel Generator **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. **Cue:** 2A Diesel is accelerating.		
*	5.2.7	IF Diesel Generator Speed is NOT 900 rpm, THEN SET speed to 900 rpm using the SPEED CONTROL SWITCH (GS).	**Cue when Speed indicator is checked:** Speed is 880 rpm. Points out SPEED CONTROL SWITCH (GS) and simulates turning in RAISE direction. **Cue:** 2A Diesel Speed is 900 rpm.		
	5.2.8	IF 2AD1AX6D*, 2A Diesel Generator 125VDC breaker is closed, THEN: • CHECK voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE, on Generator Control Panel is ON. • CHECK speed permissive indicator light 2DAE4-LT3, EDG SPEED, on Generator Control Panel is ON.	Points out voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE. **Cue:** Voltage permissive indicator light 2DAE4-LT2, EDG VOLTAGE Light is on Points out speed permissive indicator light 2DAE4-LT3, EDG SPEED **Cue:** Speed permissive indicator light 2DAE4-LT3, EDG SPEED light is on		

SYSTEM: Emergency Diesel Generator **NAME:** _____
TASK: Locally start and load an Emergency Diesel Generator **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, AND C-6, GENERATOR FIELD GROUND, is clear, THEN: A. RESET 64/G relay B. ENSURE 64/G white indicating light is illuminated.	Points out Field Ground Relay 64/G white indicating light. **Cue:** 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 **Cue:** 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. **Cue when proper gauge is pointed out :** **2VM189** Gen. Volts - **4160 Volts on all 3 phases** **2FM186** Gen. Frequency - **60 Hz** **2PL6429** LO Hdr. Press - **80 psig** **2PL6449** JW Hdr. Press - **45 psig** **2PL7209** Air Manifold Press **- 0 psig** **2TA16524** Gen. Stator Temp - **187°**		

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), THEN INITIATE Section 5.7, Diesel Generator Running Checks.	**Cue:** Diesel will be parallel loaded.		
	5.2.13	IF Diesel Generator is to be parallel loaded, THEN INITIATE Section 5.4, Diesel Generator Parallel Loading.			
	5.4.1	IF Section 5.1 Diesel Generator Startup Checks, was NOT performed, THEN at 2A DG 4KV cabinet cubicle breaker 2AD1AX6D, **PLACE** 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.	**Cue:** 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)		

SYSTEM: Emergency Diesel Generator **NAME:** _____
TASK: Locally start and load an Emergency Diesel Generator **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).	**When operator points out 2VM189 and 2VM190, then Cue:** 2VM189 reads 4150, and 2VM190 reads 4150. Points out VOLTAGE CONTROL SWITCH (VCS) and simulates going to RAISE. **Cue:** 2VM189 reads 4210, and 2VM190 reads 4150.		
	5.4.5	ENSURE generator terminal voltage is present on all 3 phases by rotating VOLTMETER SWITCH - GEN (VS-G) through each position AND OBSERVING voltmeter 2VM189.	Points out VOLTMETER SWITCH - GEN (VS-G), simulates rotating through each position, while observing 2VM189 **Cue:** Voltage is present on all three phases.		
	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 AND OBSERVING voltmeter 2VM190.	Points out VOLTMETER SWITCH - BUS (VS-B), simulates rotating through each position, while observing 2VM190 **Cue:** Voltage is present on all three phases.		

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": • VOLTMETER SWITCH - GEN (VS-G) • VOLTMETER SWITCH - BUS (VS-B)	Points out VOLTMETER SWITCH - GEN (VS-G) and VOLTMETER SWITCH - BUS (VS-B) **Cue:** 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. **Cue:** 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. **Cue:** 2DAE4-LT2, EDG Voltage indication light is on.		
	5.4.10	**SYNCHRONIZE** 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.		

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	COORDINATE the following when the synchroscope is at "12 o'clock" (+zero, -2 minutes): 1. CLOSE 2A-DF-GCP-3 GENERATOR CIRCUIT BREAKER SWITCH (BCS) 2. RAISE 2A Diesel Generator load to ≥ 500KW using SPEED CONTROL SWITCH (GS) to prevent tripping the Diesel Generator Breaker on reverse power.	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. **Cue** 2A Diesel Generator Breaker has closed. Points out SPEED CONTROL SWITCH (GS) simulates going to RAISE while observing KW meter. **Cue** Load is 500 KW.		
	G	**PLACE** 2A-DF-SYNCH, 2A DG SYNCH SWITCH (SS) to OFF.	Points out 2A-DF-SYNCH, 2A DG SYNCH SWITCH (SS), and simulates placing it in OFF position. **Cue:** JPM is complete.		

SYSTEM: Emergency Diesel Generator **NAME:** _____
TASK: Locally start and load an Emergency Diesel Generator **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.	**When operator points out synchroscope, then Cue:** Scope is going in the slow direction. Points out SPEED CONTROL SWITCH (GS)and simulates going to RAISE. **Cue** Synchroscope pointer rotating slowly in the FAST direction.		
	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"	Points out four SYNC CHECK RELAY 25 UPPER AND LOWER VOLTAGE LIMIT LEDS. **Cue as each LED is located:** Light is on.		
	D.	IF the SYNC CHK RELAY 25 ΔF OK LED is OFF, THEN ADJUST 2A Diesel Generator speed using the SPEED CONTROL SWITCH (GS) until the ΔF OK LED is ON.	Points out SYNC CHK RELAY 25 ΔF OK LED. **Cue** Light is on.		
	E.	ENSURE DG SYNC PERMISSIVE green indicating light is ON each time the synchroscope indicator is near 12 o'clock position (+/- approximately 3 minutes), AND is OFF in any other position of the synchroscope.	**Cue** DG SYNC PERMISSIVE green indicating light is ON each time the synchroscope indicator is near 12 o'clock position (+/- approximately 3 minutes), AND is OFF in any other position of the synchroscope.		

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: _____

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

STATION: SALEM

SYSTEM: Control Air

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

TASK NUMBER: N1150140501

JPM NUMBER: 11-01 NRC IP-j

ALTERNATE PATH: [ ]

K/A NUMBER: 2.1.23

IMPORTANCE FACTOR: 4.3 (RO) 4.4 (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: In Plant

REFERENCES:
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)

TOOLS AND EQUIPMENT: SBO Compressor Building is normally unlocked (L-3 key if locked)

VALIDATED JPM COMPLETION TIME: 12 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: **G Gauding** **Instructor** **Date:** **08-13-12**

Validated By: **SME or Instructor** **Date:**

Approved By: **Training Department** **Date:**

Approved By: **Operations Department** **Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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 must 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	**OPEN** both Engine intake louvers (located outside building on west wall.)	**Cue:** After operator **locates** and describes how to open Engine intake louvers, state that the Engine intake louvers are open.		
	5.1.4	**OPEN** 1CA1920, BLACKOUT AIR COMPRESSOR DRAIN VALVE, to drain any water accumulation, then CLOSE 1CA1920.	**Cue:** 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. **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.**		

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	**OPEN** 2FZSBO10, BATTERY CHARGER, breaker.	Operator locates 2FZSBO10, BATTERY CHARGER, breaker in Panel 2FZSBO, SBO Compressor Bldg Distribution Panel, and simulates opening. **Cue:** 2FZSBO10, BATTERY CHARGER, breaker, is open.		
	5.1.6	**PLACE** SBO Control Air Dryer switch in ON position.	Operator locates SBO Control Air Dryer switch and simulates turning switch to ON position. **Cue:** SBO Control Air Dryer switch is ON, and Control Air On light is illuminated.		
	5.1.7	**RECORD** 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.		

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)
	5.1.8	**PLACE** UNLOADER VALVE selector switch in START position.	Operator locates UNLOADER VALVE selector switch, and ensures switch in START position. **Note:** UNLOADER VALVE selector switch is normally in Start when engine is shutdown.		
*	5.1.9	**PRESS** AND **HOLD** BY-PASS VALVE pushbutton.	Operators locates BY-PASS VALVE pushbutton in control panel, and simulates depressing AND holding depressed.		

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)
*	5.1.10	**PLACE** SBO-IGN-SWT, ENGINE IGNITION SWITCH in START position until engine starts, then RELEASE to RUN position.	While keeping the Bypass Valve pushbutton depressed, operator simulates placing the SBO-IGN-SWT SBO Air Comp Inst Pnl Engine Ignition Switch in START. **Cue:** Engine has started. After cue is given, operator releases SBO-IGN-SWT SBO Air Comp Inst Pnl Engine Ignition Switch to RUN. **Note*: If operator also releases the BYPASS VALVE pushbutton at this point, without checking oil pressure >15 psig, then CUE that the engine has stopped.***		
*	5.1.11	When engine oil pressure is >15 psig, RELEASE BY-PASS VALVE pushbutton.	Operator identifies oil pressure reading on gauge labeled oil pressure gauge inside control panel. **Cue:** Oil pressure is 40 psig. Operator releases BY-PASS VALVE pushbutton.		

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)
	5.1.12	**ALLOW** engine to run for 5 minutes to warm up.	**Cue:** 5 minutes has elapsed.		
*	5.1.13	**OPEN** 1CA1913 SBO COMPRESSOR DISCHARGE VALVE, to pressurize Control Air header.	Operator locates and describes opening 1CA1913 SBO COMPRESSOR DISCHARGE VALVE **Cue:** 1CA1913 SBO COMPRESSOR DISCHARGE VALVE, is open.		
*	5.1.14	**OPEN** 1CA1886, BLACKOUT AIR COMPRESSOR ISOLATION.	Operator locates and describes opening 1CA1886, BLACKOUT AIR COMPRESSOR ISOLATION. **Note**: 1CA1886 is located near the entrance to Service Building on right side past the U2 mixing bottle **Cue:** 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	**OPEN** 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. **Cue:** 2CA584, YARD CONTROL AIR SUPPLY VALVE is open.		
*	5.1.16	**PLACE** 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. **Cue:** JPM is complete.		

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: _____

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, C 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**

[X] **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:	G Gauding **Lead Regulatory Exam Author**	08-4-12 **Date**
APPROVED BY:	(Williams) **Operations Training Manager**	9/12/12 **Date**
APPROVED BY:	(Bryn Kowen) **Facility Representative**	9/6/12 **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 approve 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: COMMAND: PURPOSE:	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP) <update as needed>
	3	EVENT ACTION: COMMAND: PURPOSE:	gbc18axd < 0.851 // (2D5) CONTROL ROD POSITION DMF TA0314 <update as needed>
	5	EVENT ACTION: COMMAND: PURPOSE:	kb117lck // 2SJ2 RWST TO CHG PUMP CLOSE <update as needed>
	7	EVENT ACTION: COMMAND: PURPOSE:	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP) <update as needed>
	11	EVENT ACTION: COMMAND: PURPOSE:	gcf11bx1 > 0.2 // 21MS10 VALVE DEM DOR KCF12LW1 <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 CHRG 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
_____ 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
1. Valve surveillance with Unsat result			
	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.		
Role Play: Report after the room cooler is started that the 21SW153 stroke time was 5.2 seconds.			
	PO reports stroke time is in the Required Evaluation Range.		
	CRS either directs valve to be retested, or declares valve inoperable.		
Role Play: If PO retests 21SW153, report stroke time is 5.7 seconds			
	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
Note: 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. Proceed to next event on direction from Lead Evaluator.			
2. 21 SG NR level Channel II fails high			
Simulator Operator: Insert **RT-1** on direction from Lead Evaluator **MALF: SG0095A** 21 SG lvl xmtr (519) CH II fails Final Value: 120			
	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
	CRS enters TSAS 3.3.1.1 Action 6, and 3.3.2.1 action b 19.		
Proceed to next event after Tech Spec call at direction of Lead Evaluator.			
3. Stator Water Runback			
Simulator Operator: Insert **RT-3** on direction from Lead Evaluator. **MALF: TA0314** Stator Water Flow Signal Fail Final Value: True			
	PO announces OHA's H-38 GEN STAT RUNBACK, and H-45 GEN STAT CLG SYS TRBL as unexpected.		
Simulator Operator: Ensure **ET-3** 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.			
	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.		
Note: The runback was initiated at			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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.			
	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.		
Role Play: 5 minutes after being dispatched, insert **RT-11** 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			

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.		
	IF OHA E-16 ROD INSERT LMT LO-LO annunciates, THEN RO/PO initiates Emergency Boration IAW S2.OP-SO.CVC-0008 as directed by ARP by: - Determining that there is no set time duration for the boration per step 5.1.1. - Starts at least one Boric Acid Transfer pump in FAST speed. - Ensures charging flow is > 75 gpm. - Opens 2CV175 Rapid Borate Stop Valve - Closes 21 and 22CV160, Recirc Vlvs - Ensures boric acid flow is >36 gpm on 2FI-113A. OR - Ensures charging flow is >75 gpm on 2FI-128B - Starts at least one Boric Acid Transfer pump in FAST speed. - Ensures the 2CV179 and 2CV181 shut. - Manually open 2CV172. - Open 2CV185. - Close 2CV160 and 2CV161. - Ensure Boric Acid flow >36gpm on 2FI-110A.		
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: - Stopping the Boric Acid Transfer pump started above - Closing the 2CV175 - Throttling open 21 and 22CV160 as required. OR - Place the running Boric Acid pump in Slow Speed. - Close the 2CV172 and 2CV185. - Return the CVCS Makeup system to AUTO. - Throttle open 2CV160 and 2CV161.		
	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 **RT-5** at direction of Lead Evaluator. **OVDI: CF12 21MS10 Pressure Setpoint Decrease PB ON.**			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Ensure **ET-11** is true when 21MS10 position is 20% open. This deletes the OVDI and results in 21MS10 remaining ~40% open.			
	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.		
Proceed to next event once 21MS10 is shut OR if crew trips the Rx.			
5. LBLOCA			
Simulator Operator: Insert **RT-7** on direction from Lead Evaluator. **MALF: RP0176A False Safety Injection Signal Train A.**			
	RO reports the Rx has tripped.		
Simulator Operator: Ensure **ET-7** is TRUE upon the Rx trip. This will:			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Initiate the LBLOCA after 5 min. delay. Swap 23 CCW pump to manual to prevent it from auto starting. Trip 21 CCW pump after 30 sec delay. Open both infeed bkrs to 2C 4KV vital bus and cause EDG to load. Trip 21 charging pump after a 15 minute delay.			
	RO performs TRIP-1 immediate actions from memory: - Verifies Rx tripped - Verifies Rx trip confirmed - Trips the Main Turbine - Verifies at least one 4KV vital bus energized. - Reports Safety Injection actuated and backs up SI.		
	CRS reads immediate action steps to RO and RO verifies performance.		
	RO/PO reports 2C 4KV vital bus is energized from 2C EDG.		
	RO reports 22 charging pump, 21 and 22 RHR pumps failed to start.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Crew blocks ALL SECs on 2RP1.		
	Crew resets Emergency loading on ALL SECs.		
6. Lo Head ECCS fails to actuate			
	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_____**			
	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.		
7. Containment Spray fails to actuate.			

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: - Initiate phase B and Spray actuation. - RO inserts BOTH keys into CS actuation and turns at same time. - RO reports spray valve realignment. - Start 21 and 22 CS pumps - RO inserts key and turns for 21 and 22 CS pumps and reports both CS pumps are running. - Initiate MSLI - RO reports MSLI initiated. - Stop 21-24 RCPs - RO depresses stop PB for all RCPs. - Ensure valve groups in Table D in safeguards position. - PO reports all Table D valves in safeguards position.		
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
	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.		
Note: 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. **IF** the PO attempts to start 23 CCW pump, it will neither start nor backflash due to scenario setup override.			
	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
	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.		
Note: 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.			
	CRS transitions to LOCA-1 on containment radiation levels.		
Note: STA will report to the control room 10 minutes after being paged and begin monitoring CFSTs.			
Note: 21 charging pump will trip 15 minutes after the Rx trip.			
	RO reports 21 charging pump has tripped.		
Note: Upon the transition out of TRIP-1, CFST monitoring becomes			

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).		
Note: Depending on scenario timing, the FRCE Purple path may have cleared, and will clear within ~15 minutes of LBLOCA initiation.			
	CRS transitions to FRCE-1 based on PURPLE path for containment Environment.		
	RO verifies actions previously performed: - CFCUs running in low speed with proper SW flow. - RCPs stopped - Both CS pumps running. - Containment isolations - MSLI - No faulted SGs.		
	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
	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.		
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.			
	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.		
Simulator Operator: Upon entry into LOCA-3, **DELETE I/O A604 OVDI** for the **START PB for 23 CCW pump** and ENSURE it does **NOT** start. Be prepared to remotely STOP 23 CCW pump if required, as it affects scenario outcome and must **NOT** 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.		
	LOG TIME 2SJ69 Close is initiated: ____:____:____		

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 - ≤3.7 minutes** **2. From RWST lo level alarm to one containment spray pump stop ≤5.5 minutes** **3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) - ≤ 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
	PO removes lockout from 2SJ30.		
	RO shuts 2SJ30, 2SJ1, and 2SJ2.		
8. Charging pump caviatation			
Simulator Operator: Ensure **ET-5** 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.		
CT#4 Trip the cavitating charging pump prior to pump/system piping damage. **SAT _____ UNSAT _____**			
Simulator Operator: **IF** the crew does **NOT** trip 22 charging pump within 5 minutes of the initiation of cavitation, **THEN** insert **RT-9.** This			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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. **MALF: CV0043** Charging Line Leak in Aux Bldg Final Value: 550 **MALF: CV0208B** 22 Chg Pump trip Delay: 2 minutes Final Value: True **MALF: RM0210B1** Area Rad Monitor 2R4 fails anywhere Delay: 30 sec Final Value:15 **MALF: AN0737** SER 737 Fails - A6 RMS Hi Rad or Trouble			
TERMINATE the scenario when 22 charging pump has been secured, whether by operator action or when it trips 7 minutes after cavitating starts.			
	RO places 21 and 22RH29 controllers in Manual and ensures valves are shut.		
Note: 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.			
	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: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
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:

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 - ≤3.7 minutes.
2. From RWST lo level alarm to one containment spray pump stop- ≤5.5 minutes.
3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) - ≤ 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

Y/N	Event	Y/N	Event
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

Y/N	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
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

Y/N	OPERATOR ACTION
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.

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:	[ ] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **STA**
	[ ] **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 Tavg 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:	(Williams) **Operations Training Manager or designee**	9/4/12 **Date**
APPROVED BY:	(By KKonen) **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: COMMAND: PURPOSE:	MONP254<10 // CONT BANK C GROUP POS <update as needed>
	3	EVENT ACTION: COMMAND: PURPOSE:	monp187<510 // HOTTEST INCORE T/C TEMP.0 <update as needed>
	4	EVENT ACTION: COMMAND: PURPOSE:	kbm06tcy // 23BF19 FW CONTROL VALVE-CLOSE DMF VL0448 <update as needed>
	6	EVENT ACTION: COMMAND: PURPOSE:	kbm12tcy // 23BF13 FW INLET STOP VALVE CLOSE DMF VL0025 <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. **2PR6 shut with power removed.**
_____ 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-13** 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
	to program using Att. 2. RO selects Deviation Defeat for Loop 22 ΔT 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*.		
Proceed to next event after Tech Spec call is made at Lead Evaluators direction.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment

2. SGTL

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
	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.		
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 based on: - Leak rate is $\geq$ 75 gpd AND - The rate of change of the leakrate is $\geq$ 30 gpd/hr. CRS determines a power reduction to $\leq$50 % must be performed within 1 hour, and a		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	shutdown to Mode 3 (Hot Standby) within the next 2 hours. CRS enters TSAS 3.4.7.2.c		
Note: If time does not permit Tech Spec identification, post scenario follow up question will be required.			
	RO calculates boron addition required for power reduction to 50%. CRS orders a power reduction at a rate which will ensure power is <50% within one hour. CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction to perform the power reduction.		
Simulator Operator: MODIFY MALF SG0078C to 350 with a RAMP of 5 minutes after power reduction has commenced at direction of Lead evaluator.			
	RO reports reflash of OHA A-6, and CRT indicates 2R15 in alarm. RO reports indications of worsening tube leak on 23 SG.		
OHA A-6 will reflash several more times as 2R15, 2R19C, and 2R41D alarm.			
	CRS determines CAS actions for rising SG NR		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	level IAW CAS 1.0 are true. CRS directs the RO to trip the Rx, confirm the trip, and initiate a Safety Injection.		
Simulator Operator: Ensure **ET-2** is TRUE upon the Rx trip. This fails the 23BF19 to 56% open and 23BF13 full open.			
	RO trips the Rx, confirms the trip, and initiates a Safety Injection.		
Evaluators log time of Rx Trip here: _____:_____:_____			
	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. Crew commences monitoring TRIP-1 CAS. RO reports SEC loading is not complete for all vital busses, but all available equipment started. PO reports all AFW pumps are running, but 22		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	AFW pump is not supplying flow even though its discharge pressure is high enough. PO requests, and receives, permission to depress Pressure Override Defeat for 22 AFW pump, which has no effect on AFW flow. 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.		
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.			
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.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
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.		
	CRS determines no MSLI is required.		
	CRS directs SM to refer to the ECG.		
	PO reports all 4KV vital busses energized from		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	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. CRS transitions to SGTR-1. Crew commences monitoring of CFSTs. RO maintains seal injection flow to all RCPs.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports 23 SG is ruptured, and 23MS10 is set at 1045 psig. PO reports 23MS10 operating as expected for current pressure. PO shuts 23MS167 and ensures 23MS7, 23MS18, and 23GB4 are shut. PO reports 23 SG is ruptured. PO reports 23 AFW pump is NOT only source of AFW. PO lowers 23 AFW pump speed to minimum and trips 23 AFW pump. PO stops 23 AFW pump.		
Simulator Operator: When 23 AFW pump is stopped, and an operator has previously been dispatched, insert **RT-7** to close 23MS45 and call control room to inform them it is shut. **REMOTE: MS06A 23MS45 23 STM GEN STM SUP-23 AFP**			
	CRS sends an operator to reset 23MS52 when all SG NR levels are > 15%.		
Simulator Operator: Insert **RT-8** to reset 2MS52. RT includes a 10 minute delay prior to resetting MS52.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
REMOTE: AF01D 23 AUX FP TRIP RESET **Final Value: RESET**			
	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.		
If previously dispatched to shut 2SS333, then when contacted by crew report 2SS333 is shut.			
	PO reports 23 SG is isolated from intact SGs, 23 SG NR level is >9%, and feed flow is isolated to 23 SG. RO reports power is C/T to 2PR6, and CRS orders power restored.		
Note: Do **NOT** restore power to 2PR6 during scenario. If asked later in scenario, state the breaker appears to be mechanically bound in the open position.			
	RO reports 2PR2 is operating correctly in response to PZR pressure. PO reports no faulted SGs. RO resets SI and Phase A isolations, and opens CA330's. PO resets all SECs.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	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.		
Simulator Operator: Ensure **ET-3** is TRUE when the hottest CET reaches 510 degrees. This inserts the loss of off-site power. **MALF: EL0134 Loss of All Offsite 500KV Power** **I/O AH01 OVDI 21 SI Pump STOP**	CRS recognized loss of off-site power and returns to Step 10 CAS to perform actions of Table C. PO verifies all available equipment started for each SEC. PO resets all SECs.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS directs starting of Safeguards loads.		
Simulator Operator: When CRS directs start of SI pumps, insert **RT-5** after 22 SI pump has been started. **MALF: SJ0062B 22 Safety Injection Pump trip.** **Note:** 21 SI pump will not start.			
	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.		
CT #2 (E-3-B): Establish/ maintain RCS temperature to maintain minimum required subcooling. **SAT____ UNSAT____**			
	PO stabilizes hottest CET temperature less than 503 degrees. PO reports 23 SG pressure is stable or rising or at least 250 psig above intact SG pressure. RO reports adequate subcooling. RO reports RCPs are stopped and normal		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PZR spray is not available.		
Simulator Operator: Insert **RT-3** when Step 18 PORV status is read PRIOR to crew attempting to open 2PR2. **MALF: VL0298 2PR2 fails to position (0-100%)** **Final Value: 0.01**			
	RO reports 2PR2 PZR PORV is available.		
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.			
	RO reports 2PR2 will not open. CRS returns to step 18 and answers NO to if a PORV is available.		
Simulator Operator: IF CRS did not start SI pumps subsequent to the Blackout, and starts them here, THEN insert **RT-5** after 22 SI pump has been started. **MALF: SJ0062B 22 Safety Injection Pump trip.** **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.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	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.		
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: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
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

Y/N	Event	Y/N	Event
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

Y/N	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
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

Y/N	OPERATOR ACTION
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**
	[X] **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.

PREPARED BY:	G Gauding **Lead Regulatory Exam Author**	8-4-12 **Date**
APPROVED BY:	(Williams) **Operations Training Manager**	9/2-12 **Date**
APPROVED BY:	(Bykkonen) **Facility Representative**	9/11/12 **Date**

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	**23A Circulator C/T**
___ 11	**21 SGFP O/S**
___ 12	**Place copy of SC.IC-DC.NIS-0021, Exhibit 1 on NCO desk.**
___ 13	**22 charging pump in service**
___ 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:	DMF CN0086B
		PURPOSE:	<update as needed>
	5	EVENT ACTION:	kb507azp // 21 AUX FEED PUMP-PRESSURE OVERRI
		COMMAND:	
		PURPOSE:	<update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
_____ 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:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
_____ 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
1. Power Ascension			
	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.		
Note: Digital EHC is set up initially for 1% per minute. PO must set it correctly for 10% per hour.			
	PO initiates turbine load increase to 51% power at 10% per hour.		
	RO withdraws control rods to maintain Tavg/Tref within designated band.		
Proceed to next event after a noticeable change in turbine and Rx power has occurred.			
2. 2A1 125 VDC Battery Charger Trip			
Simulator Operator: Insert **RT-1** on direction from Lead Evaluator, After power ascension is started. **MALFS: AN3855 2A1/2A2 Battery Charger Trouble** **AN0023 SER 023 FAILS - :B2 2A**			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
125VDC CONTROL BUS VOLTAGE LOW **Remote: DA003D BATTERY CHARGER A1 STATUS OFFLINE**			
	RO reports OHA A-41 AUX ALM SYS PRINTER and OHA B-2 2A 125VDC CNTRL BUS VOLT LO as unexpected.		
	PO reports point in alarm is for 2A1/2A2 125 VDC Battery Charger Trouble.		
	PO refers to ARP for OHA B-2 and reports low bus voltage alarm setpoint is <128 VDC, and current reading is 127 VDC.		
	CRS dispatches an operator to investigate.		
Role Play: 2 minutes after being dispatched, report as NEO that the supply breaker on the 2A1 125 VDC Battery Charger is tripped. Report there is no apparent reason for the breaker trip.			
	CRS contacts WCC / Maintenance to investigate.		
	CRS enters TSAS 3.8.2.3 action b.		
	CRS determines that the 2A2 125 VDC Battery Charger must be placed in service within the next 2 hours if 2A1 Battery Charger cannot be restored to operable status.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Continue to next event after Tech Spec determination is made or at direction of Lead Evaluator.			
3. Controlling PZR Pressure Channel I (PT-455) fails high			
Simulator Operator: Insert **RT-3** on direction from Lead Evaluator. **MALF: PR0016A** PZR PRESS CH I (PT455) FAILS H/L			
	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		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	energized as expected.		
	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. b		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	19, 3.2.5 (DNB when applicable) and 3.4.5.b		
	RO shuts 2PR6.		
	CRS dispatches an operator to remove power from 2PR6.		
Note: Do **NOT** remove power from 2PR6 during scenario. **If asked** later in scenario why the power has not been removed, reply that the breaker would not open and electrical has been dispatched to investigate.			
	CRS directs RO and PO to proceed with power ascension.		
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.			
	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
4. Loss of 2A 4KV Circ Water Bus			
Simulator Operator: Insert **RT-5** on direction from Lead Evaluator. **OVDI: C325 23CW1AD Open** **Final Value: ON** **MALFS:** **CN00086B Loss of Main Condenser Vacuum** Ramp: 7 min Final Value: 20 Delay: 1 min **CW0114F 23B Circulator Trip** Ramp: 3 min Final Value: 0.9 **CW0114D 22B Circulator Trip** Ramp: 5 min Final Value: 0.6 **CW0114C 22A Circulator Trip** Final Value: 0.0 **CW0114A 21A Circulator Trip** 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.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS enters S2.OP-AB.CW-0001, Circulating Water System Malfunction based on 2 or more circulators out of service.		
	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.		
Note: Main Condenser back pressure is limited to 5.0" with Main Generator load <560 MWe.			
	PO reports condenser backpressure is rising slowly.		
Simulator Operator: Adjust **MALF CN0086B** as necessary to ensure condenser vacuum rises enough to make crew initiate a power			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
reduction.			
	CRS determines power reduction is necessary with backpressure rising and Main Generator output ~500 MWe.		
5. Power Reduction			
	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 Tavg on program IAW Attachment 3.		
	RO energizes PZR heaters.		
	RO initiates boration as required to maintain control rods above the RIL.		
	PO reports when Below P-9 light illuminated if power initially >49%.		
Proceed to next event when the load reduction is underway.			
6. Loss of 21 condensate pump			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Simulator Operator: Insert **RT-7** on direction from Lead Evaluator **MALF: CN0117A 21** **CONDENSATE PUMP TRIP**			
	PO announces trip of 21 condensate pump.		
	CRS enters S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality.		
Note: If crew attempts to start the idle condensate pump it will not start.			
	PO reports lowering SGFP suction pressure.		
	PO reports SGFP Condensate Suction Pressure Lo Console alarms.		
Note: SGFP Condensate Suction Pressure Lo Console alarms at 275 psig.			
	PO reports 22 SGFP speed is increasing and SGFP suction pressure continues to lower.		
	PO reports when 22 SGFP trips.		
Note: SGFP trip on low suction pressure will occur at: <215 psig sustained for 10 seconds or 190 psig with no time delay and will auto start both MDAFW			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
pumps.			
	CRS directs the RO to trip the Rx.		
Manual Rx trip is based on action of AB.CN with no SGFPs running and Rx power >10%.			
	RO initiates a manual Rx trip.		
Simulator Instructor: Ensure **ET-1** 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 performs Immediate Actions for TRIP-1, Reactor Trip or Safety Injection: - Trip reactor - Confirms reactor trip - Trips turbine - Verifies 4KV vital buses energized - Reports SI not demanded or required		
	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.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports no AFW flow, and the status of AFW: - 21 AFW pump running with no flow and adequate discharge pressure - 22 AFW pump is tripped - 23 AFW pump has not started		
	CRS directs PO to start 23 AFW pump, and defeat Pressure Override for 21 AFW pump.		
	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.		
Simulator Operator: Ensure **ET-5** is TRUE when Pressure Override Defeat is depressed for 21 AFW pump. This trips 21 AFW pump after 5 second delay.			
CT#1 (TRIP-2 Basis) **Establish the minimum required AFW flow (22E4 lbm/hr) prior to a transition to FRHS-1 being required.** **SAT_____ UNSAT_____**			
	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.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports AFW flow is > 22E4 lbm/hr.		
	PO reports both SGFPs are tripped.		
Simulator Operator: Insert **RT-9** after PO reports both SGFPs are not running. **OVERRIDE: B606 F DI** 23 Aux Feed Pump-Speed Decrease Condition: ON			
7. Loss of all AFW flow			
	PO reports 23 AFW pump speed lowering and no AFW flow.		
	RO reports 22 charging pump trip.		
Note: 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.			
	The crew identifies when a Heat Sink RED path exists when all SG NR levels are <9% and no feed flow exists.		
Depending on scenario flow, SGNR levels may not be <9% when the last AFW pump is lost. The crew should continue actions in TRIP-2 until entry conditions for FRHS-1			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
are met. (AFW flow <22E4 lbm/hr and all SG NR levels <9%.)			
	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.		
	CRS goes to Step 23 Bleed and Feed initiation.		
8. RCS Bleed and Feed			
	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.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports 2PR6 is shut with power available, and 2PR7 is open.		
	RO opens 2PR6.		
	RO opens both PZR PORVs.		
	RO reports both PZR PORV Stop Valves and both PZR PORVs are open.		
CT#2B (FR-H.1 --B) Establish RCS Bleed and Feed before PZR PORVs open automatically due to loss of heat 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		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	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 criteria.		
	PO reports Steam Dumps are available.		
Note: Steam dump availability is based on having condenser vacuum, at least one circulator in service on a waterbox and no MSLI initiated.			
Note: 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.			
	RO initiates MSLI for all loops EXCEPT for		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	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.		
Simulator Operator: 2 minutes after being directed, use following remote to open the selected 22BF40 or 24BF40. **REMOTE: BF06A**, 22BF40 fails to position (0-100%) Final Value: 100 Ramp: 00:00:45 **REMOTE: BF08A**, 24BF40 fails to position (0-100%) Final Value: 100 Ramp: 00:00:45			
	PO opens selected BF13.		
	PO releases or verifies released selected BF22.		
	PO opens 21 and 22 CN48s and closes 21 and 22 CN32s.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Depressurization of selected SG should not be stopped until WR level is rising in selected SG.			
	PO reports indication of feed flow to selected SG and WR level rising.		
The Scenario can be terminated at the Lead Evaluator's discretion, after SG WR level is observed to be 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, two bistables (411C and 411D) have not been restored yet, 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: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
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:

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

Y/N	Event	Y/N	Event
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

Y/N	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
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

Y/N	OPERATOR ACTION
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