STATION:	SALEM				
SYSTEM:	Admin				
TASK:	Respond to a Void in the Read	ctor Vessel			
TASK NUMBER:	N1150410501				
JPM NUMBER:	09-01 NRC RO Admin A1-1				
ALTERNATE PATH:		K/A NUMBER:	EPE10 EA1.1		
APPLICABILITY:			RO SRO		
EVALUATION SETTIN	G/METHOD: Classroom				
REFERENCES: 2-	FRCI-3 Rev. 25 Response to Voi	id in Reactor Vessel			
TOOLS AND EQUIPM	ENT: None				
VALIDATED JPM CON	IPLETION TIME: 8	min			
TIME PERIOD IDENTI	FIED FOR TIME CRITICAL STEP	PS:N/	A		
Developed By:	G Gauding Instructor	Date:	07-20-11		
Validated By:	J Pierce, Jr SME or Instructor	Date:	07-28-11		
Approved By:	Training Department	Date:	8-2-11		
Approved By:	Operations Representativ	– Date: /e	8/1/11		
ACTUAL JPM COMPLETION TIME:					
ACTUAL TIME CRITICAL COMPLETION TIME:					
PERFORMED BY:					
EVALUATODIS CION			DATE		
EVALUATUR 5 SIGNA	ATURE:				

SYSTEM: TASK:	Admin NAME: DATE: Respond to a Void in the Reactor Vessel
TASK NUMBER:	N1150410501
SIMULATOR SETUP	
INITIAL CONDITIONS:	

Unit 2 is performing 2-EOP-FRCI-3, Response to Void in Reactor Vessel, due to an unexpected void formation in the Rx Vessel following a LOCA.

- Containment temperature is 220 degrees F.
- Containment hydrogen concentration is 1.0%.
- RCS pressure is 800 psig.

INITIATING CUE:

The CRS directs you to calculate the maximum Rx Vessel Head venting time using Attachment 1 of FRCI-3.

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. Calculate maximum head vent time to be 20-24 minutes.

NAME: _____

DATE: _____

SYSTEM Admin

TASK: Respond to a Void in the Reactor Vessel

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
		Once operator has read Initial Condition and Initiating Cue, provide them with FRCI-3 Attachment 1 and Figure 1.			
	Att. 1 Step 1	Record the following data:	Operator records the following data given in Initial Conditions: 1.1 Containment temperature: 220 1.2 Containment hydrogen concentration (H): 1.0 1.3 RCS pressure: 800		
*	Att. 1 Step 2	 Determine containment air volume at standard temperature and pressure 2.1 Calculate containment absolute temperature, T_{abs} T_{abs} =Containment temperature (°F) +460= 2.2 Calculate containment air volume (V) at STP: V=1.28E09/T_{abs}= 	Operator calculates containment absolute temperature. 220 + 460= 680 Operator calculates containment air volume at STP. 1.28E09/680=1.88E6 (actual value of 1.882353E6 will be used for bounding number, and can be used by operator)		

NAME:	 	
DATE:	 	

SYSTEM Admin

TASK: Respond to a Void in the Reactor Vessel

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
*	Att. 1 Step 3	Determine maximum hydrogen vent volume			
		3.1 Record containment hydrogen concentration (from Step 1.2)	Operator records 1.0		
		3.2 Record containment air volume at STP (from Step 2.2)	Operator records 1.88E6 (or 1.882353E6)		
		3.3 Calculate maximum vent volume (M) M= <u>(3.0%-H) x V</u> 100%	Operator calculates maximum vent volume M= <u>(3.0%-1.0%) x 1.88E6(or</u> <u>1.882353E6)</u> 100%		
			M= 37600 (or 37647)		

NAME:	

DATE: _____

SYSTEM Admin

TASK: Respond to a Void in the Reactor Vessel

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
*	Att. 1 Step 4	 Determine maximum vent time 4.1 Record RCS pressure (from Step 1.3) 4.2 Record calculated maximum vent volume (from Step 3.3) 4.3 Record hydrogen vent flow rate (from Figure 1) 4.4 Calculate maximum vent time (T_v) T_v=M/F 	STANDARDOperator records 800Operator records 37600 (or 37647)Operator records 1600-1800 (allowed extrapolation)Operator calculates maximum vent time T_v = 37600/1600 T_v = 23.5 minutesNote: Using the 37647 (M) value and the 1600-1800 allowed extrapolation from Figure 1, the bounding correct answers for Tv are 20.89 minutes and 23.53 minutes.The allowable answer for this JPM is 20-24 minutes.	5/0	
			Once operator has provided maximum head vent time, 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. <u>1</u> 3. Performance location specified. (in-plant, control room, or simulator) 2 4. Initial setup conditions are identified. \mathcal{N}_{--} 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 (*). γ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. <u>25</u> Date <u>4/29/08</u> 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. Date: 7/28/11 SME/Instructor: 225 J. PIERCE Date: SME/Instructor: Date: ____ SME/Instructor:

INITIAL CONDITIONS:

Unit 2 is performing 2-EOP-FRCI-3, Response to Void in Reactor Vessel, due to an unexpected void formation in the Rx Vessel following a LOCA.

- Containment temperature is 220 degrees F.
- Containment hydrogen concentration is 1.0%.
- RCS pressure is 800 psig.

INITIATING CUE:

The CRS directs you to calculate the maximum Rx Vessel Head venting time using Attachment 1 of FRCI-3.

STATION:	SALEM					
SYSTEM:	Admin					
TASK:	FASK: TCAF a Loss of Spent Fuel Pool Cooling (Calculate the time at which SFP temperature will exceed Design Bases)					
TASK NUMBER.						
JPM NUMBER:	09-01 NRC RO Admin A1-2					
ALTERNATE PATH:		K/A NUMBER:	2.4.47 3.8 3.6			
		SRO X	RO SRO			
EVALUATION SETTING	METHOD: Classroom					
S1. S1. REFERENCES: Sal	OP-AB.SF-0001, Rev. 7 Loss c OP-AR.ZZ-0003, Rev. 17, Ove em UFSAR Section 9.1.3 Spen	of Spent Fuel Pool Coc rhead Annunciator Wir It Fuel Pool Cooling Sy	ndow C rstem (pg 9.1-13)			
TOOLS AND EQUIPME	NT: Calculator					
VALIDATED JPM COM	PLETION TIME:10	<u>min</u>				
TIME PERIOD IDENTIF	ED FOR TIME CRITICAL STE	PS:N//	٩			
Developed By:	G Gauding Instructor	Date:	07-20-11			
Validated By:	J Pierce, Jr SME or Instructor	Date:	07-28-11			
Approved By:	Ciráining Department	Date:	8-2-11			
Approved By:	Operations Representativ	Date:	8/1/11			
ACTUAL JPM COMPLETION TIME:						
ACTUAL TIME CRITICA	L COMPLETION TIME:					
PERFORMED BY: GRADE: SAT	UNSAT					
REASON, IF UNSATISF	ACTORY:					
EVALUATOR'S SIGNAT			DATE:			

	NAME:
	DATE:
SYSTEM:	Admin
TASK:	TCAF a Loss of Spent Fuel Pool Cooling (Calculate the time at which SFP temperature will exceed Design Bases)
TASK NUMBER:	N1140900401
SIMULATOR SETUP	
INITIAL CONDITIONS:	
Salem Unit 1 is defuele Spent Fuel Pool tempe	ed during a regular refueling outage. erature is stable at 121°F.

On November 30th at 0100, the operating Spent Fuel Pool Cooling pump trips, and cannot be re-started.

The standby Spent Fuel Pool Cooling pump cannot be started.

At 0115, OHA C-19, SFP TEMP HI alarms.

INITIATING CUE:

At 0200, the CRS directs you to calculate the time of day at which the Unit 1 Spent Fuel Pool will reach its Design Temperature, IAW S1.OP-AB.SF-0001, if no operator actions are taken.

Assume the heat-up rate has been linear from 0100 to 0200.

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. Calculates that SFP temp will exceed Design Temp (180) @ 0436-0442. See bases for range on page 5.

NAME: ______

SYSTEM Admin

TASK: TCAF a Loss of Spent Fuel Pool Cooling (Calculate the time at which SFP temperature will exceed Design Bases)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
		Provide candidate with blank copy of S1.OP-AB.SF-0001, Loss of Spent Fuel Pool Cooling.	IF asked, provide a copy of S2.OP- AR.ZZ-0003, Overhead Annunciator Window C. Cue: <u>IF</u> asked by candidate if the OHA C-19 has been adjusted to a temporary setpoint, <u>THEN</u> state" OHA C-19 has not been adjusted to a temporary setpoint.		
	AB.SF-1 Step 3.3	INITIATE Attachment 5, Spent Fuel Pool Heatup Trending, for Unit 1 Spent fuel Pool, as directed by the CRS.	Refers to S1.OP-AB.SF-0001, Loss of Spent Fuel Pool Cooling, Attachment 5, Spent Fuel Pool Heatup Trending.		
*	AB.SF-1 Att.5		Enters 121 as Initial SFP TEMP (A) on Attachment 5.		
	AB.SF-1 Att.5		Refers to S1.OP-AR.ZZ-0003, Overhead Annunciator Window C, and determines the alarm setpoint is 125°F.		

NAME: ______ DATE: _____

SYSTEM Admin

TASK: TCAF a Loss of Spent Fuel Pool Cooling (Calculate the time at which SFP temperature will exceed Design Bases)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
*	AB.SF-1 Att. 5		Determines the SFP TEMP (A) at "+1 HR" is 137 based on the temperature rise from 0100 (121°) to the alarm at 0115 (125°) over 15 minutes, and multiplies by 4 to get heatup for the hour of 16°.		
*	AB.SF-1 Att. 5		Determines the ∆TEMP/HR (B) at +1HR is 16.		
	AB.SF-1 Att. 5		Performs calculation to determine the time to 180°F: (180-A)/B (180-137)/16 = 2.6875 HRS Note: 2.6875 hrs= 2 hours, 41.25 min.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: ______ DATE: _____

SYSTEM Admin

TASK: TCAF a Loss of Spent Fuel Pool Cooling (Calculate the time at which SFP temperature will exceed Design Bases)

*.	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
			Calculates the time of day at which SFP temp will reach Design Temp: Time of calculation: 0200 Time to reach 180: 2 hours, 41.25 min 04:41:15 Determination to the second is not required. The Task Standard states the band is 0436 (if rounded down to 2.6 hours, and 0442 (if round up to 2.7 hours)		
			Terminate the JPM when all paperwork has been returned to the 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. <u>9</u>5. Initiating and terminating Cues are properly identified. 6. Task standards identified and verified by SME review. γ 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. <u>7</u> Date <u>7/28/n</u> 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. Date: 7/28/11 SME/Instructor: J. PIERCE Date: SME/Instructor:_____ Date: _____ SME/Instructor:

INITIAL CONDITIONS:

Salem Unit 1 is defueled during a regular refueling outage. Spent Fuel Pool temperature is stable at 121°F. On November 30th at 0100, the operating Spent Fuel Pool Cooling pump trips, and cannot be re-started. The standby Spent Fuel Pool Cooling pump cannot be started. At 0115, OHA C-19, SFP TEMP HI alarms.

INITIATING CUE:

At 0200, the CRS directs you to calculate the time of day at which the Unit 1 Spent Fuel Pool will reach its Design Temperature, IAW S1.OP-AB.SF-0001, if no operator actions are taken.

Assume the heat-up rate has been linear from 0100 to 0200.

STATION:	SALEM		
SYSTEM:	Admin		
TASK:	Prepare a Manual Tagout		
TASK NUMBER:	N3130060301		
JPM NUMBER:	09-01 NRC RO Admin A2		
ALTERNATE PATH:		K/A NUMBER:	2.2.13
APPLICABILITY:			RO SRO
EVALUATION SETTING	G/METHOD: Classroom	I.	
REFERENCES: OF	P-AA-109-115, Rev. 2, Safety	Tagging Operations	
TOOLS AND EQUIPME	NT: None		
VALIDATED JPM COM	PLETION TIME:	30 min	
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL ST	FEPS: N/	'A
Developed By:	G Gauding Instructor	Date:	07-20-11
Validated By:	J. Pierce SME or Instructor	Date:	07-28-11
Approved By:	Training Department	Date:	8-2-11
Approved By:	Operations Representa	Date:	8/. 1.1
ACTUAL JPM COMPLI	ETION TIME:		
ACTUAL TIME CRITIC	AL COMPLETION TIME:		
PERFORMED BY:			
REASON IE UNISATIS			
			DATE
EVALUATOR'S SIGNA			

NAME: _____

DATE:

SYSTEM	:
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Admin

TASK:

Prepare a Manual Tagout

TASK NUMBER:	N3130060301
SIMULATOR SETUP	

INITIAL CONDITIONS:

Unit 1 is operating at 100% power.

While performing a surveillance on 11 Safety Injection Pump, a leak was observed on the pump outlet flange discharge piping.

The Work Clearance Module is not available due to an emergent power outage.

INITIATING CUE:

You are directed to perform the following:

- 1. Determine the correct blocking points which will allow repair of the 11 SI pump.
- 2. Sequence those blocking points in the correct order.
- 3. Determine the correct tag type for each blocking point.
- 4. Determine the required positions necessary to allow repair on 11 SI pump.
- 5. Enter all the above information on the provided OP-AA-109-115, Safety Tagging Operations Form 4.

Specific WCM identifiers are NOT required.

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. Identifies correct blocking points.
- 2. Sequence tagging in order by 1: Bezels, 2: Electrical, 3: Mechanical isolation, 4: Vents and drains.
- 3. Identifies correct tag types for components.
- 4. Identifies desired positions.

N	JΔ	N/	F	
			L.,	

DATE: _____

SYSTEM Admin

TASK: Prepare a Manual Tagout

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
		Provide candidate with package containing several blank Form 4's, (Tagging/Untagging Worklist), a copy of OP-AA-109-115, Safety Tagging Operations, drawings 205234 sheets 1-4, 203002, 207910-207912, and 207931-207933. Several of these drawings are not required.	Note : If requested, provide extra blank copies of Form 4 Tagging/Untagging Work List		
*			Determines Blocking Points as per key.		
*			 Sequences Blocking Points in following order: 1. Bezels 2. Electrical Isolation 3. Mechanical Isolation 4. Vents and Drains 		
*			Determines correct tag type for each Blocking Point as per key.		
*			Determines position required for each Blocking Point as per key.		

NAME:	 	
DATE:		

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SYSTEM Admin

TASK: Prepare a Manual Tagout

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
			 Notes for Evaluators: Attachment 2, Component Tagging Rules, contains information which allows for the following: 1. "A minimum of 1 vent or drain is required to be RBT opened, there is no limit to how many can be used inside boundaries." (This is why all the vents and drains are sequenced #16) 2. MOV's are allowed to be used as Blocking Points. It would be acceptable procedurally if the 11SJ113 AND 12SJ113 were used as Blocking Points instead of the single manual valve 1SJ114. IF used as blocking points, the 11/12SJ113 breakers (RBT-OFF), bezels (INFO), and valve handwheels (RBT-SHUT)would also be required to be tagged. Note for Evaluators: The electrical power to a component must be cleared and tagged before that components manual operator is tagged, but may be sequenced within the tagout after other 		
			Note: Actual WCD 4278552 (CRTE) used as the bases for the blocking points in JPM, with addition of vents and drains.		

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.

2	_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.
2	_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. <u>2</u> Date <u>6/10/11</u>
Y	9. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and b. ensure performance time is accurate.
2	_ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM
2	_ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Inst	ructor: And J. PIERCE Date: 7/28/11
SME/Inst	ructor: Date:

SME/Instructor:

Date: _____ SME/Instructor:

INITIAL CONDITIONS:

Unit 1 is operating at 100% power.

While performing a surveillance on 11 Safety Injection Pump, a leak was observed on the pump outlet flange discharge piping.

The Work Clearance Module is not available due to an emergent power outage.

INITIATING CUE:

You are directed to perform the following:

- 1. Determine the correct blocking points which will allow repair of the 11 SI pump.
- 2. Sequence those blocking points in the correct order.
- 3. Determine the correct tag type for each blocking point.
- 4. Determine the required positions necessary to allow repair on 11 SI pump.
- 5. Enter all the above information on the provided OP-AA-109-115, Safety Tagging Operations Form 4.

Specific WCM identifiers are NOT required.



OP-AA-109-115 Revision 2 Page 94 of 97

FORM 4 TAGGING / UNTAGGING WORK LIST

REQUEST

RELEASE TYPE (circle one)

FULL PARTIAL TEMPORARY

DISCIPLINE REVIEWS:

WORK CLEARANCE DOCUMENT NUMBER

This Worksheet:

Page ____ of ____

			Tag	Current	Desired	Apply/Release	QO	Verified	QO
Seq.	WCM Identifier	l agging Point Description	Туре	Position	Position	Date/Time	Initials	Date/Time	Initials
1	S1SJ -11SIPP-BZL	11 SI Pump Bezel	INFO						
2	S1SJ -11SJ33-BZL	11SJ33 Bezel	INFO						
3	S1SJ -11SJ113-BZL	11SJ113 Bezel	INFO						
4	S1SJ -12SJ113-BZL	12SJ113 Bezel	INFO						
5	S14KV-1AD1AX5D	11 SI Pump 4KV breaker	RBT		DI				
6	S1230-1AY2AX3E	11SJ33 Valve Motor	RBT		OFF				
7	S1230-1AY2AX3I	11SJ113 Valve Motor	RBT		OFF				
8	S1230-1BY2AX8A	12SJ113 Valve Motor	RBT		OFF				
9	S1SJ -11SJ35	11 SI Pump Discharge valve	RBT		×				
10	S1SJ -11SJ65	11 SI Pump mini flow isolation	RBT		Х				
11	S1SJ -11SJ922	11 SI Pump mini flow isolation	RBT		X				
12	S1SJ -11SJ33	11 SI Pump Suction valve	RBT		X				
13	S1SJ -1SJ114	SJ-CHG pump x-over isolation vlv	RBT		X				
14	S1SJ -11SJ113	11SJ113 Cross over	RBT		×				
_ 15	S1SJ -12SJ113	12SJ113 Cross over	RBT		X				
16	S1SJ -1SJ181	SJ-CHG pump x-over drain vlv	RBT		0				
16	S1SJ -1SJ326	SJ-CHG pump x-over vent vlv	RBT		0				
16	S1SJ -11SJ102	11 SI Pump drain	RBT		0				
16	S1SJ -11SJ106	11 SI Pump drain	RBT		0				
16	S1SJ -11SJ104	11 SI Pump drain	RBT		0				
16	S1SJ -11SJ103	11 SI Pump vent	RBT		0				
16	S1SJ -11SJ105	11 SI Pump vent	RBT		0				

TAGGED BY:

DATE/TIME:

_____ VEF

VERIFIED BY: DATE/TIME:

STATION:	SALEM	
SYSTEM:	ADMINISTRATIVE	
TASK:	Perform Duties of Secondary Communic	cator During an Alert
TASK NUMBER:	N1240100501	
JPM NUMBER:	09-01 NRC RO Admin A4	
ALTERNATE PATH:	K/A N	1UMBER: 2.4.39
APPLICABILITY:		RO SRO
EVALUATION SETTING	G/METHOD: Simulator	
REFERENCES: Sa	alem ECG, Attachment 8 Secondary Comr	municator Log, Rev. 24
TOOLS AND EQUIPME	ENT: None	
VALIDATED JPM COM	PLETION TIME: 8 min	_
TIME PERIOD IDENTIF	FIED FOR TIME CRITICAL STEPS:	N/A
Developed By:	G Gauding Instructor	Date: 7-19-11
Validated By:	J Pierce, Jr SME or Instructor	Date: 07-28-11
Approved By:	Training Department	Date: 8-2-1/
Approved By:	Operations Representative	Date: 8/1/11
ACTUAL JPM COMPLI	ETION TIME:	
ACTUAL TIME CRITIC	AL COMPLETION TIME:	
PERFORMED BY: GRADE: SAT		
REASON, IF UNSATIS	FACTORY:	
EVALUATOR'S SIGNA	TURE:	DATE:

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 1 of 8

	NAME:
	DATE:
SYSTEM:	Administrative
TASK:	Perform Duties of Secondary Communicator During an Alert.
TASK NUMBER:	N1240100501

SIMULATOR OPERATOR	CALL THE NRC OPERATIONS CENTER ON LAND LINE 1-301-951-0550 <u>BEFORE</u> STARTING JPMS TO INFORM THEM ERDS WILL BE ACTIVATED DURING EXAM. PLACE FOLLOWUP CALL AFTER LAST RO HAS PERFORMED JPM.
	ENSURE modem in simulator computer room, by 3 monitors is turned ON. Reset simulator to MODE 3 HSB IC, and place simulator in RUN.
INITIAL CONDITIONS:	An ALERT was declared at Salem due to the Unit 2 reactor failing to trip when a manual trip signal was initiated. The Rx tripped when the second trip handle was used.
	The unit is currently stable in MODE 3.
INITIATING CUE:	You are the Secondary Communicator. You are directed to perform Salem ECG Attachment 8, Secondary Communicator Log.
Successful Completion Criter	ia:

- 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. Activate ERDS.
- 2. Does NOT provide plant information to outside caller.
- 3. Terminate ERDS.

DATE:	

System: ADMINISTRATIVE

Task:	Perform	Duties	of Second	dary Comm	nunicator	During an /	Alert
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*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide a copy of ECG Attachment 8.			
			Fills out ECG Attachment 8 by:1. Printing name2. Circles ALERT and circles CM2.		
	A.1	OBTAIN a copy of Attachment 6 and ASSIST Primary Communicator with 15-minute notifications, as necessary.	Cue : Primary Communicator does not require assistance.		
	A.2	DIRECT the Shift Rad Pro Tech (SRPT) (2644) to implement SC.EP- EP.ZZ-0301(Q) Shift Radiation Protection Technician Response. (N/A for Common Site)	Cue: Shift Rad Pro Tech (Matt Hassler) has been notified to implement SC.EP-EP.ZZ-0301(Q) Shift Radiation Protection Technician Response.		
	A.3	For an ALERT or higher Emergency; a. IF an on-shift SRO is not available to fill the OSC Operations Supervisor position, CALLOUT an additional SRO and have him/her report to the OSC.	Cue: The WCC Supervisor is the OSC Supervisor.		

NAME:		
DATE:	 	

System: ADMINISTRATIVE

Task:	Perform Duties of Secondary Communicator During an Alert
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*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	A.3	 b. ACTIVATE ERDS within 60 minutes from the affected unit's SPDS terminal: 1. CLICK <erds> button</erds> 2. CLICK <initiate> button</initiate> 3. CHECK for the following status: ERDS <u>Active</u> LINK <u>Dialing Modem → Link</u><u>Active</u> 	Uses SPDS display to activate ERDS by: 1. Clicking <erds> button 2. Clicking<initiate> button 3. Checking for the following status: ERDS <u>Active</u> LINK <u>Dialing Modem → Link</u> <u>Active</u></initiate></erds>		
	A.3	c. <u>IF</u> ERDS Activator is not successful, CONTACT IT Support: Network Operations (DID 7008), EOF IT Supervisor (NETS 5009), or the IT Help Desk (Ext. 5555) for assistance.	Determines ERDS Activator was successful.		
	A.4	ENSURE FAXed or FAX the ICMF to Group A.	Cue: The ICMF has been FAXed to Group A.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME:	
DATE:	

System: ADMINISTRATIVE

Task:	Perform Duties of Secondary Communicator During an Alert
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*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		Simulator Operator: After candidate has performed step A.4 above, call the desk phone and say the following: "This is Anderson Cooper calling from CNN headquarters in Atlanta. We have received a report that the Salem 2 reactor has experienced a Rx accident and the core is melting. Can you give me an update on the current condition of Salem Unit 2?"	Does NOT give plant information to caller. Attachment 8, Section C, INCOMING CALLS, MEDIA, CAUTION, states, "Communicators are <u>NOT</u> authorized to release any information to the News Media."		
			C, Incoming Calls, 3B, OR tell them he cannot provide any information.		
			activated.		
			CUE : Once ERDS is activated AND Media call action is complete, then state, "The Station Event has been terminated. The NRC Operations Center directs you to terminate ERDS transmission."		

OPERATOR TRAINING PROGRAM

NAME:		
DATE:		

JOB PERFORMANCE MEASURE

System: ADMINISTRATIVE

Task: Perform Duties of Secondary Communicator During an Alert

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	C.4	WHEN directed by the NRC to TERMINATE ERDS transmission, <u>THEN</u> GO TO any SPDS terminal of the affected unit <u>AND</u> PROCEED as follows: a. CLICK <erds> button b. CLICK <terminate> button c. CHECK for the following status: ERDS <u>Inactive</u> LINK <u>Not Connected</u> d. WHEN completed, NOTIFY the SM</terminate></erds>	Uses SPDS display to activate ERDS by: 1. Clicking <erds> button 2. Clicking <terminate> button 3. Checking for the following status: ERDS <u>Inactive</u> LINK <u>Not Connected</u> Cue: SM notified, JPM is complete.</terminate></erds>		

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.
2 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. <u>27</u> Date <u>7/29/11</u>
 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: MS J, PIERCE Date: 7/28/11

SME/Instructor:_____

SME/Instructor:______

Date: _____

Date:

INITIAL CONDITIONS:

An ALERT has been declared at Salem due to the Unit 2 reactor failing to trip when a manual trip signal was initiated. The Rx tripped when the second trip handle was used.

The unit is currently stable in MODE 3.

INITIATING CUE:

You are the Secondary Communicator. You are directed to perform Salem ECG Attachment 8, Secondary Communicator Log.

OPERATOR TRAINING PROGRAM					
STATION:	SALEM				
SYSTEM:	Administrative				
TASK:	Determine the required action conditions	is based on abnormal Se	condary Plant chemistry		
TASK NUMBER:	N1140530402				
JPM NUMBER:	09-01 NRC SRO Admin A1-1				
ALTERNATE PATH:		K/A NUMBER: RTANCE FACTOR:	2.1.34 3.5		
APPLICABILITY: EO		SRO X	RO SRO		
EVALUATION SETTING	G/METHOD: Classroom				
REFERENCES: S2	.OP-AB.CHEM-0001, Rev. 21				
TOOLS AND EQUIPME	NT: None				
VALIDATED JPM COM	PLETION TIME: 10 n	ninutes			
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STE	PS: N/A			
Developed By:	G Gauding Instructor	Date: 7	-21-11		
Validated By:	C Recchione SME or Instructor	Date: 0	7-28-11		
Approved By:	Training Department	Date: 🨪	-2-11		
Approved By:	Operations Department	Date: 6	3/1/11		
ACTUAL JPM COMPLETION TIME:					
ACTUAL TIME CRITICAL COMPLETION TIME:					
PERFORMED BY: GRADE: SAT	UNSAT				
REASON, IF UNSATIS	FACTORY:				
EVALUATOR'S SIGNA	TURE:		DATE:		

NAME:

DATE:

SYSTEM: Administrative

TASK: Determine the required actions based on abnormal Secondary Plant chemistry conditions.

TASK NUMBER: N1140530402

INITIAL CONDITIONS:

While operating at 100% power, Salem Unit 2 has experienced a rise in Sodium levels in 22B main condenser hotwell. Chemistry samples have been reported at 0800 on September 11th: S/G Blowdown pH: 10.1 S/G Blowdown Cl⁻: 38 ppb S/G Blowdown Na: 40 ppb S/G Blow down Cation Conductivity: 0.9 uS/cm. Feedwater DO: 0.25 ppb

INITIATING CUE:

Using the assumption that the Secondary Chemistry conditions cannot be corrected, develop a timeline that describes required actions, starting at 0800 on September 11th.

Assume that any plant power changes will only be the minimum required.

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. Calculates that Unit 2 must be \leq 30% power by 1600 on September 18th.
- 2. Calculates that Unit 2 must be <5% power by 1600 on September 22nd.

NAME: ______ DATE: _____

SYSTEM: Administrative

TASK: Determine the required actions based on abnormal Secondary Plant chemistry conditions.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		When asked, provide a clean copy of S2.OP-AB.CHEM-0001, Abnormal Secondary Chemistry.			
			Note : Once entered, the AB would not be exited until the conditions cause were found and isolated.		
			Note: Action Levels are found on Attachment 4.		
			S/G blowdown Cl- and S/G blowdown Cation Conductivity both meet Action Level 1 at 0800 on September 11 th .		
			Operation in Action Level 1 for 7 days is the escalation to Action Level 2, which is entered at 0800 on September 18 th .		
*			Action Level 2 actions are directed at Step 3.28, which requires initiation of actions and reduce power ≤30 % in the next 8 hours, by 1600 on September 18 th .		
			100 hours of operation at Action Level 2 is the escalation to Action Level 3 , which is entered at 1200 on September 22 nd .		

NAME: ______ DATE: _____

SYSTEM: Administrative

TASK: Determine the required actions based on abnormal Secondary Plant chemistry conditions.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*			Action Level 3 actions are directed at Step 3.18, which requires initiation of actions and reduce power <5% in the next four hours, by 1600 on September 22nd.		
			Terminate JPM when operator turns in paperwork.		

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.

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0					
4	_1. Task description and number, JPM descript	tion and number are identified.			
-4-	2. Knowledge and Abilities (K/A) references a	re included.			
a	_ 3. Performance location specified. (in-plant, co	ontrol room, or simulator)			
Û	4. Initial setup conditions are identified.				
4	5. Initiating and terminating Cues are properly	identified.			
4	_6. Task standards identified and verified by SI	ME review.			
G	7. Critical steps meet the criteria for critical ste	eps and are identified with an asterisk (*).			
q	8. Verify the procedure referenced by this JPN that procedure: Procedure Rev. <u>てい</u> Date	/ matches the most current revision of 			
	9. Pilot test the JPM: a. verify Cues both verbal and visual are f b. ensure performance time is accurate.	ree of conflict, and			
Nr	_ 10. If the JPM cannot be performed as written	with proper responses, then revise the JPM			
$\underline{\mathcal{M}}$ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.					
SME/Instr	ructor: CMM	Date: 72811			
SME/Instructor:		Date:			
SME/Instructor:		Date:			

INITIAL CONDITIONS:

While operating at 100% power, Salem Unit 2 has experienced a rise in Sodium levels in 22B main condenser hotwell. Chemistry samples have been reported at 0800 on September 11th:

S/G Blowdown pH: 10.1 S/G Blowdown Cl⁻: 38 ppb S/G Blowdown Na: 40 ppb S/G blow down Cation Conductivity: 0.9 uS/cm. Feedwater DO: 0.25 ppb

INITIATING CUE:

Using the assumption that the Secondary Chemistry conditions cannot be corrected, develop a timeline that describes required actions, starting at 0800 on September 11th.

Assume that any plant power changes will only be the minimum required.

STATION:	SALEM					
SYSTEM:	Administrative					
TASK:	Determine the TSAS(s) for a	a dropped rod and comp	lete the appropriate log			
TASK NUMBER:	1120700302					
JPM NUMBER:	09-01 NRC SRO A1-2					
ALTERNATE PATH:		K/A NUMBER:	2.1.18			
			RO SRO			
EVALUATION SETTING	G/METHOD: Classroom					
Sa REFERENCES: OF	lem Tech Specs P-SA-108-115-1001, Rev. 2					
TOOLS AND EQUIPME	NT: None					
VALIDATED JPM COM	PLETION TIME:	20 min				
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:N/A						
Developed By:	G Gauding Instructor	Date:	07-21-11			
Validated By:	C Recchione SME or Instructor	Date:	07-28-11			
Approved By:	Training Department	Date:	8-2-11			
Approved By:	Operations Representati	Date:	8/1/11			
ACTUAL JPM COMPLETION TIME:						
ACTUAL TIME CRITICAL COMPLETION TIME:						
PERFORMED BY: GRADE: SAT UNSAT						
REASON, IF UNSATISFACTORY:						
EVALUATOR'S SIGNATURE: DATE:						

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 1 of 9
NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE

TASK: Determine the TSAS(s) for a dropped rod and complete the applicable log

TASK NUMBER: 1120700302

INITIAL CONDITIONS:

- 1. Unit 2 is at EOL in a 300 day run at 100% power.
- 2. Control Rod 2SA4 dropped fully into the core at 1015, the reactor did not trip.
- 3. The crew has implemented S2.OP-AB.ROD-0002, Dropped Rod.
- 4. Control Rod 2SA4 has been declared inoperable, and Reactor Engineering reports it will be at least 2 hours before they determine how to recover the rod.
- 5. The 3rd NCO has just completed a QPTR at 1025. The highest reading quadrant is 1.031.
- 6. Computerized LCO tracking is not being used.

INITIATING CUE:

As CRS, determine <u>ALL</u> TSAS(s) that apply and make the appropriate log entries on OP-SA-108-115-1001, Operability Assessment and Equipment Control Program, Attachment 4-1, and Form 1, Section 1.0.

Creation or documentation of notifications is not required.

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. Identifies TSAS 3.1.3.4.b , 3.1.3.1.c, and 3.2.4.a are applicable with correct action times identified.
- 2. Fills out Attachment 4-1 and Form 1's as per Standard in JPM body.

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate package consisting of blank copy of OP-SA-108-115-1001, Operability Assessment and Equipment Control Program, marked up copy of Attachment 4-1, and blank Form 1's.	Note to Evaluator : Completed Form 1's for each of the 3 TSAS's are included as keys with this JPM.		
*		Obtains a copy of Plant Technical Specifications and reviews for LCO applicability.	Determines the following LCO's apply: 3.1.3.4.b , 3.1.3.1.c , 3.2.4.a		
			Refers to Section 5.2, Entry into an Active/Tracking Technical Specification (T/S) LCO Action Statements of OP-SA-108-114- 1001, Operability Assessment and Equipment Control Program.		
*	5.2.2	DETERMINE if the T/S LCO Action Statement is ACTIVE or TRACKING based on the following criteria:	Determines the LCOs are ACTIVE.		
	5.2.3	IF the cause of the SSC being INOPERABLE is a plannedevolution	Determines the cause of the SSC being INOPERABLE it is NOT a planned evolution.		

NAME: _______

SYSTEM: ADMINISTRATIVE

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.4	For activities that cause a TECH SPECS SSC to be INOPERABLE that do not meet the criteria of Section 5.2.3, DOCUMENT the condition as follows:			
	5.2.4.A	For SAP LCO tracking, REFER TO guidance provided in OP-SH-108-115- 1001, LCO Entry/Exit & Operability Determination SAP Guidance.	Determines computerized SAP LCO tracking is not being used as per stem.		

NAME: ______ DATE: _____

SYSTEM: ADMINISTRATIVE

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.4.B	For LCO tracking using Attachment 4 and Form 1, PERFORM the following:	CUE: Provide copies of Attachment 4-1 and Form 1. On Att. 4-1, the first LCO Index No. should is filled in so the candidate can number sequentially.		
*		 ASSIGN the next consecutive LCO Index Number obtained from the Action 	Makes entries on Att. 4-1:		
		Statement Log Index (Attachment 4) and	Next LCO Index No. is 11-234		
		the Index.	• TS No's. 3.1.3.4.b. 3.1.3.1.c, 3.2.4.a		
			Active		
			Summary Descriptions		
			Planned? NO		
			Entry Date/Time		
			 Expiration: 3.1.3.1.c- 1 hour, 3.2.4.a- 1 hour, 3.1.3.4.b 1 hour 		
		2. UPDATE Unit Status Board for the Technical Specification Action Statement.	CUE: Another operator will update the Unit Status Board.		

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE

	STEP	STEP		FVΔI	COMMENTS (Required for UNSAT
*	NO.	(*Denotes a Critical Step)	STANDARD	S/U	evaluation)
*	5.2.4.B	 3. COMPLETE Sections 1 and 2 of Form 1 by performing the following: RECORD the LCO Index Number (from Attachment 4) RECORD the LCO Status (Active / Tracking) RECORD the applicable Technical Specification LCO number. When an INOPERABLE TECH SPECS/SSC affects multiple LCO Action Statements, RECORD the LCO number with the most limiting Action Time. RECORD the Date/Time entered. RECORD the Date/Time Action Required. When recording the date and time that Action is required for an LCO Action Statement that has multiple actions, use the most limiting Action time. For Tracking Action Statements, record 'N/A'. 	 Makes entries on Form 1, Section 1.0 as per initiating cue: Note: Separate Form 1's should be filled out for each Tech Spec, listing the other 2 Tech Specs in the "Other Applicable T/S" section. LCO Index No: same as Att. 4 LCO Status: Active TS No.: 3.1.3.1.c (3.2.4.a)(3.1.3.4.b) Date/Time entered: Same as Att. 4 Applicability: MODES 1 & 2 (MODE 1 above 50% RTP)(MODES 1&2) Date/Time Action Required: Within one hour from entry 		

NAME: _____

SYSTEM: ADMINISTRATIVE

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.4.B	 RECORD Other Applicable T/S. List only active LCO's. Applicable Tracking LCOs should be listed seperately in the Summary Description of the Log Sheet. 	 Other Applicable TS: 3.1.3.1.c, 3.2.4, 3.1.3.4.b (whichever 2 were not listed as "Tech Spec Number" in Section 1.0 top section.) 		
		 RECORD the Equipment description. 	Equipment: Shutdown Rod 2SA4		
		 Briefly STATE the reason for the SSC condition in the Summary Description section and include a brief summary of actions required, including submittal of any special reports to the NRC. NOTIFY the SOS of any reporting requirements. 	 Summary: Brief summary of TS and required action for that TSAS. See provided keys (3) for Summary Desription for each Active Tech Spec. Note to Evaluators: Providing the LCO Action number, i.e, "3.1.3.1 actions c.1,2,3a-d is acceptable in lieu of writing all the required actions. 		
			When candidate returns all paperwork, terminate JPM.		

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.

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4	_ 1. Task description and number, JPM descri	ption and number are identified.
<u> </u>	2. Knowledge and Abilities (K/A) references	are included.
<u> </u>	_ 3. Performance location specified. (in-plant,	control room, or simulator)
0	4. Initial setup conditions are identified.	
Û.	5. Initiating and terminating Cues are proper	ly identified.
G	_6. Task standards identified and verified by \$	SME review.
<u> </u>	7. Critical steps meet the criteria for critical s	teps and are identified with an asterisk (*).
G	8. Verify the procedure referenced by this JF that procedure: Procedure Rev. 4 Da	M matchéš the most current revision of te بالعام المعالية
<u> </u>	2 9. Pilot test the JPM: a. verify Cues both verbal and visual are b. ensure performance time is accurate.	المراميخ free of conflict, and
_ppi	_ 10. If the JPM cannot be performed as writte	n with proper responses, then revise the JPM.
Mh4	_ 11. When JPM is revalidated, SME or Instruc	ctor sign and date JPM cover page.
		ί ι
SME/Instr	ructor:	Date: 7 28/11
SME/Instr	ructor:	Date:
SME/Instr	ructor:	Date:

INITIAL CONDITIONS:

- 1. Unit 2 is at EOL in a 300 day run at 100% power.
- 2. Control Rod 2SA4 dropped fully into the core at 1015, the reactor did not trip.
- 3. The crew has implemented S2.OP-AB.ROD-0002, Dropped Rod.
- 4. Control Rod 2SA4 has been declared inoperable, and Reactor Engineering reports it will be at least 2 hours before they determine how to recover the rod.
- 5. The 3rd NCO has just completed a QPTR at 1025. The highest reading quadrant is 1.031.
- 6. Computerized LCO tracking is not being used.

INITIATING CUE:

As CRS, determine <u>ALL</u> TSAS(s) that apply and make the appropriate log entries on OP-SA-108-115-1001, Operability Assessment and Equipment Control Program, Attachment 4-1, and Form 1, Section 1.0.

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STATION:	SALEM				
SYSTEM:	ADMINISTRATIVE				
TASK:	Review a completed survei	illance to calculate	e Shutdo	own Margin	
TASK NUMBER:	1200030301				
JPM NUMBER:	09-01 NRC SRO Admin A2	2			
ALTERNATE PATH:		K/A NUM	BER:	2.2.5	12
APPLICABILITY:			TOR: _	RO	SRO
EVALUATION SETTING	S/METHOD: Classroom	1			
REFERENCES: SC S1	RE-ST.ZZ-0002, Rev. 19 S .RE-RA.ZZ-0016, Rev. 3 Fig	hutdown Margin (ures (Cycle 21)	Calculati	on	
TOOLS AND EQUIPME	NT: Calculator	cations 15A5 3.1.	3. I MOV	able Control A	ssemblies
VALIDATED JPM COM	PLETION TIME:2	0 minutes	Ba	17-11	
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL S	терs: <u>3</u> 0	25 min	utes	
Developed By:	G Gauding Instructor		Date:	07-21-11	
Validated:	C Recchione SME or Instructor		Date:	07-28-11	
Approved By:		nf	Date:	8-2-11	
Approved By:	Operations Represen	tative	Date:	8/1/11	
ACTUAL JPM COMPLE	ETION TIME:				
ACTUAL TIME CRITICA	AL COMPLETION TIME:				
PERFORMED BY: GRADE: SAT	UNSAT		_		
REASON, IF UNSATIS	FACTORY:				
EVALUATOR'S SIGNA	TURE:			DATE:	

NAME:			
DATE:	_		

SYSTEM: Administrative

 TASK:
 Review a completed surveillance to calculate Shutdown Margin

TASK 1200030301

NUMBER: INITIAL CONDITIONS:

Control Rod 1D5 was declared INOPERABLE at 2210 today due to not moving during a rod exercise test.

A NCO has completed a SDM as required by Tech Spec 3.1.3.1 IAW SC.RE-ST.ZZ-0002, Shutdown Margin Calculation, and reports that SDM is SAT.

Unit 1 Reactor Power is 70%. Control Bank D is at 174 steps.

Current boron concentration is 300 ppm.

Current core burnup is 10,000 EFPH.

INITIATING CUE:

- 1. Review the attached SDM calculation procedure SC.RE-ST.ZZ-0002 for completeness and accuracy.
- 2. Note any discrepancies found by the review on Attachment 7.
- 3. Determine if SDM is SAT.

The current time is 2240. This is a time critical JPM. Time will start when procedures are given to you. Time will stop when procedures are given to proctor.

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 identifies incorrect Total Control Bank Worth at Step 4.2.1 of Att. 3.
- 2. Operator identifies incorrect Total Shutdown Bank Worth at Step 4.2.2 of Att. 3.
- 3. Operator identifies incorrect Integral Rod Worth inserted at Step 4.2.5 of Att. 3
- 4. Operator identifies incorrect value of Power Defect at Step 4.3.3 of Att. 3.
- 5. Operator determines SDM is SAT.
- 6. Operator completes review within 30 minutes.

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 2 of 7

NAME:		
DATE:		_

System: ADMINISTRATIVE

Task: Review a completed surveillance to calculate Shutdown Margin

*	STEP NO	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Note to Evaluator: The actions contained in this JPM do not require the SRO candidate to perform the Shutdown Margin, only to identify the portions that have been performed incorrectly. All the actual numbers are more conservative than the errors, and the SDM can be determined from this conclusion, or recalculation of correct numbers can be performed to determine SAT SDM. The time critical aspect refers to the time required when the Shutdown Margin requirement of TSAS 3.1.3.1.c must be met.		
	1	Provide the candidate with the marked up copy of SC.RE-ST.ZZ-0002 and copy of S2.RE-RA.ZZ-0016, Curve Book. Time Start:	Ensures Sections 3 and 4 are completed.		
	2	Review Section 5 to ensure the correct Attachment was performed.	Reviews Section 5 and determines the correct Attachment (3) was performed.		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 3 of 7

NAME:_____ DATE:_____

System: ADMINISTRATIVE

Task: Review a completed surveillance to calculate Shutdown Margin

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	3	Review the completed Shutdown Margin Calculation: 4.1.1 Power Level 4.1.2 Boron Concentration 4.1.3 Control Bank Position 4.1.3 Burnup Step 4.1.5 Step 4.2.1 Step 4.2.2 Step 4.2.2 Step 4.2.3 Step 4.2.4 Step 4.2.5	Verifies power is 70% from stem initial conditions. Verifies 300 ppm from initial conditions Verifies Bank D at 174 from initial conditions. Verifies burnup 10,000 EFPH from initial conditions. Verifies 1 from stem. Determines Total Control Bank Worth is incorrect from Figure 15/Table G (Should be -3018) Determines Total Shutdown Bank Worth is incorrect from from Figure 16/Table H (Should be -3743) Verifies 722 for 1 control rod. Determines Integral Rod Worth Inserted is incorrect from Figure 2C/Table 1-7 or Figure 2A/Table 1-8.	S/U	Evaluation
			(Should be 221)		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 4 of 7

System: ADMINISTRATIVE

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*	STEP	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*		Step 4.2.6	Determines errors carried forward. (Should be -5096)		
*		Step 4.3.1	Determines errors carried forward. (Should be -5096)		
*		Step 4.3.2	Determines errors carried forward. (Should be 604)		
*		Step 4.3.3	Determines incorrect Power Defect is used. (Should be 1937)		
*		Step 4.3.4	Determines SDM is incorrect. (Should be - 2555)		
*	4	Acceptance Criteria	Determines Acceptance Criteria are met.		
		Time Stop:	Turns in procedures within 30 minutes of start time. Total time to complete JPM MUST be 30 minutes or less.		

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.

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ch	1. Task description and number, JPM description and number are identified.
CR	2. Knowledge and Abilities (K/A) references are included.
G	3. Performance location specified. (in-plant, control room, or simulator)
4	4. Initial setup conditions are identified.
G	5. Initiating and terminating Cues are properly identified.
4	6. Task standards identified and verified by SME review.
Ŷ	7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
9	8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 15 Date 512110
<u> (</u>	9. Pilot test the JPM:a. verify Cues both verbal and visual are free of conflict, andb. ensure performance time is accurate.
M	10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
M	11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Inst	ructor: CHAII DECLHIOME Date: 7/28/
C) (E/I	D

 SME/Instructor:
 Date:

 SME/Instructor:
 Date:

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training Page 6 of 7

INITIAL CONDITIONS:

Name:

Control Rod 1D5 was declared INOPERABLE at 2210 today due to not moving during a rod exercise test. A NCO has completed a SDM as required by Tech Spec 3.1.3.1 IAW SC.RE-ST.ZZ-0002, Shutdown Margin Calculation, and reports that SDM is SAT.

Unit 1 Reactor Power is 70%. Control Bank D is at 174 steps.

Current boron concentration is 300 ppm.

Current core burnup is 10,000 EFPH.

INITIATING CUE:

- 1. Review the attached SDM calculation procedure SC.RE-ST.ZZ-0002 for completeness and accuracy.
- 2. Note any discrepancies found by the review on Attachment 7.
- 3. Determine if SDM is SAT.

The current time is 2240. This is a time critical JPM. Time will start when procedures are given to you. Time will stop when procedures are given to proctor.

STATION:	SALEM			
SYSTEM:	Waste Liquid			
TASK:	Select Release Path for Radi	oactive Liquid Waste R	elease	
TASK NUMBER:	N0680070302			
JPM NUMBER:	09-01 NRC SRO Admin A3			
ALTERNATE PATH:		K/A NUMBER:	2.3.6	8
APPLICABILITY: EO		SROX	RO	3.8 SRO
EVALUATION SETTING	METHOD: Classroom			
REFERENCES: S1.	OP-SO.WL-0002, Rev.25, 20)5209 (CW), 205242 <u>(</u> S	W)	
TOOLS AND EQUIPME	NT: None			
VALIDATED JPM COM	PLETION TIME: 30	minutes		
TIME PERIOD IDENTIFI	ED FOR TIME CRITICAL STE	:PS:		
Developed By:	G Gauding Instructor	Date:	06-24-11	
Validated By:	A Crampton SME or Instructor	Date:	06-30-11	
Approved By:	Araining Department	Date:	8-2-11	
Approved By:	BAM Operations Department	Date:	7/8/11	
ACTUAL JPM COMPLE	TION TIME:			
ACTUAL TIME CRITICA	L COMPLETION TIME:			
EVALUATOD'S SIGNAT			DATE	
LVALUATOR 3 SIGNA			DATE.	

NAME:		

DATE:

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

TASK NUMBER: N0680070302

INITIAL CONDITIONS:

Salem Unit 2 is on day 25 of a scheduled 45 day refueling outage.

11 and 12 CCHX's are in service.

21 CCHX is in service, 22 CCHX is removed from service and drained.

All Unit 2 Circulators are O/S.

Salem Unit 1 is operating at 75% power.

12A Circulator is O/S for waterbox cleaning.

The Non-Rad Waste Treatment System is in service performing a release, and must remain in service.

Unit 1 is NOT in any active Tech Specs.

12 CVCS Monitor Tank is in Recirc using **11** CVCS Monitor Tank Pump, and Chemistry has granted permission to release the tank with a minimum dilution flow rate of 100,000 gpm.

INITIATING CUE: You are the Unit 1 CRS. Select the release path for 12 CVCS Monitor Tank IAW S1.OP-SO.WL-0002, Attachment 2, Section 2.2 Release Verification <u>AND</u> provide marked up drawings of the flow path from 12 CVCS Monitor tank to its ultimate release point.

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. Candidate determines the release path as 21 CCHX to 12A AND/OR 12B CW Pump I/S (Att. 2 Step 2.2.3)
- 2. Provides release flow path drawing of 12 CVCS MT to 21 CCHX, (via Unit x-conn) to discharge of 12A/12B Circulators.

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide marked up copy of S1.OP- SO.WL-0002., and blank copies of drawings: 205230 205239-1 205229-2 205242-4 205339-1 205342-3,4,5,6 205209-2 and a colored marker. Have a blank copy of S1.OP-SO.CW- 0001 Circulating Water System Operation available if asked for.	Note: Drawings 205229-2 205242-4 205342-5 are not needed for flowpath but are included to ensure an incorrect alternate flowpath could be selected.		
*			Uses S2.OP-SO.WL-0002, Attachment 2, Section 2.2, to select the release flow path based on CCHX's available and Circulators in service, as 12 CVCS Monitor Tank to 21 CCHX, to 12A and/or 12B CW pumps I/S.		

NAME: ______

SYSTEM: Waste Liquid

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TASK: Select Release Path for Radioactive Liquid Waste Release

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*			Candidates mark the appropriate drawings, from the 12 CVCS MT on drawing 205230 to 205239 Sheet 1, to 205339 Sheet 1 via x-connect line, to 205342 Sheet 4, to 205342 Sheet 3, through 21SW222, to 205342 Sheet 6, to 205342 Sheet 3, to 205209 Sheet 2.		
			Terminate JPM when candidate has returned procedures and marked up drawings.		

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.

A1. Task description and number, JPM description and number are identified.
An2. 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. 25 Date 31.01/15
9. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and b. ensure performance time is accurate.
$-\frac{n}{A}$ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM
$-\frac{1}{2}$ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Instructor: 1/11 Date: 6/30/11
SME/Instructor: Date:
SME/Instructor: Date:

INITIAL CONDITIONS:

Salem Unit 2 is on day 25 of a scheduled 45 day refueling outage.

11 and 12 CCHX's are in service.

21 CCHX is in service, 22 CCHX is removed from service and drained.

All Unit 2 Circulators are O/S.

Salem Unit 1 is operating at 75% power.

12A Circulator is O/S for waterbox cleaning.

The Non-Rad Waste Treatment System is in service performing a release, and must remain in service. Unit 1 is NOT in any active Tech Specs.

12 CVCS Monitor Tank is in Recirc using **11** CVCS Monitor Tank Pump, and Chemistry has granted permission to release the tank with a minimum dilution flow rate of 100,000 gpm.

INITIATING CUE:

You are the Unit 1 CRS. Select the release path for 12 CVCS Monitor Tank IAW S1.OP-SO.WL-0002, Attachment 2, Section 2.2 Release Verification <u>AND</u> provide marked up drawings of the flow path from 12 CVCS Monitor tank to its ultimate release point.

STATION:	SALEM		
SYSTEM:	Emergency Plan		
TASK:	Classify an event and complete an ICMF limit (ESG-1) 1240020502	within the r	egulatory committed time
JPM NUMBER:	09-01 NRC SRO Admin A4-1 (ESG-1)		
ALTERNATE PATH:	K/A N IMPORTANCE F	UMBER:	2.4.41
APPLICABILITY: EO F]	RO SRO
EVALUATION SETTING	S/METHOD: Simulate (Simulator or C	Classroom)	
REFERENCES: Sal	em ECG		
TOOLS AND EQUIPME	NT: Inform Simulator Operators – DO		E ANY PROCEDURES
VALIDATED JPM COM	PLETION TIME:12 minutes	-	
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STEPS:	15 min	utes
Developed By:	G Gauding Instructor	Date:	07-05-11
Validated By:	B Boos SME or Instructor	Date:	07-28-11
Approved By:	Fraining Department	Date:	8-2-11
Approved By:	Facility Representative	Date:	8/1/11
ACTUAL JPM COMPLE	ETION TIME:		
ACTUAL TIME CRITICA	AL COMPLETION TIME:		
PERFORMED BY:			
GRADE: SAT			
REASON, IF UNSATISF	FACTORY:		
EVALUATOR'S SIGNA	TURE:		DATE:

NAME: ______

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)
		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.		
	1	Reviews ECG to classify event	Note: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event and refers to ECG Attachment 2 (ALERT)		
	3	Fills out Section A of Emergency Coordinator Log Sheet, Attachment 2	Unit: 2 EAL#(s):EALs 3.2.2.a (or 3.2.2.b if subcooling is 0°F) Declared at: Current Time and Date Initials as EC		
	4	CALL communicators to the Control Room	Pages communicators and initials as SM Cue : I am the Primary Communicator		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: ______ DATE: _____

Emergency Plan SYSTEM:

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5	ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (EP96-003)	Cue : Activation of ERO Emergency Callout is not required for this JPM.		
*	6	COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	<u>Fills out Section II of ICMF</u> : Time/Date: Time/date filled in on Attachment 2 EAL#(s): 3.2.2.a (or 3.2.2.b if subcooling is 0°F) Description of Event: Potential Loss of the Reactor Coolant System Barrier (or Loss of the Reactor Coolant System Barrier)		
			Note: Description of Event is found in Section IV of the ECG. <u>Fills out Section III:</u> Checks No Radiological Release is in		
			progress <u>Fills out Section IV</u> : Retrieves wind speed and direction data from SPDS		
			Initials for approval to transmit		

NAME: _____

DATE: _____

SYSTEM: Emergency Plan

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	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:		

ECG ATT 2 Pg 2 of 2

	INITIAL CONTACT MESSAGE FORM
I.	THIS IS, COMMUNICATOR IN THE CONTROL ROOM (NAME)
	AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO2
II.	THIS IS NOTIFICATION OF A ALERT WHICH WAS
	DECLARED ATTIMEONTODAYS DATE (Time-24 HR CLOCK) (DATE)
	EAL #(s) 3.2.2.a (or 3.2.2.b if subcooling is 0°F)
	DESCRIPTION OF EVENT: Potential Loss of the Reactor Coolant System Barrier (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.
	☑ <u>NO</u> RADIOLGICAL RELEASE IS IN PROGRESS. see NOTE for release
	THERE IS A RADIOLOGICAL RELEASE IN PROGRESS 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
	<u>SM INITIALS</u> EC Initials (Approval to Transmit ICMF)

SGS

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Rev. 08

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 descri	ption and number, JPM descripti	on and number are identified.			
<u>A</u> 2. Knowledge	and Abilities (K/A) references a	re included.			
A Performanc	e location specified. (in-plant, co	ontrol room, or simulator)			
4. Initial setup	conditions are identified.				
D 5. Initiating ar	nd terminating Cues are properly	identified.			
6. Task standa	rds identified and verified by SM	ſE review.			
7. Critical step	os meet the criteria for critical ste	eps and are identified with an asterisk (*).			
8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. <u>B</u> Date <u>6/30/10</u>					
9. Pilot test the a. verif b. ensu	e JPM: Ty Cues both verbal and visual ar are performance time is accurate.	e free of conflict, and			
N/A 10. If the JPM	cannot be performed as written	with proper responses, then revise the JPM.			
11. When JPM	1 is revalidated, SME or Instructo	or sign and date JPM cover page.			
SME/Instructo	2 J. Jon	/ Date: 07-38-301)			
SME/Instructor: Date:					
SME/Instructor:		Date:			

INITIAL CONDITIONS:

 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."

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.

STATION:	SALEM						
SYSTEM:	Emergency Plan						
TASK:	Classify an event and complete an ICMF within the regulatory committed time						
TASK NUMBER:	1240020502	1240020502					
JPM NUMBER:	09-01 NRC SRO Admin A4-2 (ESG-2)						
ALTERNATE PATH:	K/A NUMBER: 2.4.41						
		RO SRO					
EVALUATION SETTING	G/METHOD: Simulate (Simulator or C	Classroom)					
REFERENCES: Sal	lem ECG						
TOOLS AND EQUIPME	NT: Inform Simulator Operators – DO	NOT ERASE ANY PROCEDURES					
VALIDATED JPM COM	PLETION TIME: 12 minutes	-					
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STEPS:	15 minutes					
Developed By:	G Gauding Instructor	Date: 07-05-11					
Validated By:	B Boos SME or Instructor	Date: 07-28-11					
Approved By:	Training Department	Date: 8-2-1/					
Approved By:	Facility Representative	Date: 8/1/11					
ACTUAL JPM COMPLETION TIME:							
ACTUAL TIME CRITICAL COMPLETION TIME:							
REASON, IF UNSATIS							
EVALUATOR'S SIGNA		DATE:					

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:

 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 5.1.3**. and provide it to the Primary Communicator within 15 minutes of Start Time.

NAME: ______ DATE: _____

SYSTEM: Emergency Plan

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		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.		
	1	Reviews ECG to classify event	Note: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event and refers to ECG Attachment 3 (SAE)		
	3	Fills out Section A of Emergency Coordinator Log Sheet, Attachment 3	Unit: 2 EAL#(s):EALs 5.1.3 Declared at: Current Time and Date Initials as EC		
	4	CALL communicators to the Control Room	Pages communicators and initials as SM Cue : I am the Primary Communicator		

NAME: ______ DATE: _____

SYSTEM: Emergency Plan

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5	ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (EP96-003)	Cue : Activation of ERO Emergency Callout is not required for this JPM.		
*	6	COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	Fills out Section II of ICMF:Time/Date: Time/date filled in on Attachment 3EAL#(s): 5.1.3Description of Event:Reactor Trip Failure with power above 5%Note: Description of Event is found in Section IV of the ECG.Fills out Section III: Checks No Radiological Release is in progressFills out Section IV: Retrieves wind speed and direction data from SPDSInitials for approval to transmit		
*	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:		

ECG ATT 3 Pg 2 of 2

		INITIAL CONTACT MESSAGE FOR	M			
I.	T	HIS IS, COMMUNICATOR II (NAME)	N THE	☑ CONTR □ TSC □ EOF	OL ROOM	
	A	T THE SALEM NUCLEAR GENERATING STATION, UNIT((s) NO	2		
II.	Ø	THIS IS NOTIFICATION OF A SITE AREA EMERGENCY	Y WHIC	H WAS		
		DECLARED ATTIME ONTO (Time-24 HR CLOCK)	DDAYS (DAT	DATE E)	_·	
	EA DES	L #(s) 5.1.3 SCRIPTION OF EVENT: Reactor Trip Failure with p	ower a	above 5%		
III.						
	<u>NOTE:</u> 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.					
	\checkmark	NO RADIOLGICAL RELEASE IS IN PROGRESS.	see for	NOTE release		
		THERE IS A RADIOLOGICAL RELEASE IN PROGRESS	def	inition		
IV.	Ø	33 FT. LEVEL WIND DIRECTION (From):V (From MET Computer /SPDS) (DEGREES)	WIND S	PEED:	(MPH)	
V.	Ø	NO PROTECTIVE ACTIONS ARE RECOMMENDED AT	THIS 1	TIME		
		(Ag	<u>SM</u> E(oproval	<u>INITIALS</u> C Initials to Transmi	t ICMF)	

SGS

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Rev. 09

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.

11	
<u><u> </u></u>	. Task description and number, JPM description and number are identified.
ΔS_{2}	. Knowledge and Abilities (K/A) references are included.
<u></u> 3.	. Performance location specified. (in-plant, control room, or simulator)
AB_4	. Initial setup conditions are identified.
5.	. Initiating and terminating Cues are properly identified.
<u> </u>	. Task standards identified and verified by SME review.
<u>NB</u> 7.	. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
<u> 8</u> . 1	. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. \underline{Q} Date $\underline{Q-30-10}$
_ <u>A</u> 9.	. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and b. ensure performance time is accurate.
10	0. If the JPM cannot be performed as written with proper responses, then revise the JPM.
1	1. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Instru	Alanding J. Jon Date: 07-28-201)
SME/Instruc	ctor: Date:

SME/Instructor:_____

Date:				
	 	 	 	-

INITIAL CONDITIONS:

 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."

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.

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:	09-01 NRC SRO Admin A4-3 (ESG-3)					
ALTERNATE PATH:		UMBER:	2.4.41			
			RO SRO			
EVALUATION SETTING	METHOD: Simulate (Simulator or)	Classroom)				
REFERENCES: Sal	em ECG					
TOOLS AND EQUIPME	NT: Inform Simulator Operators – DC		E ANY PROCEDURES			
VALIDATED JPM COM	PLETION TIME:12 minutes					
TIME PERIOD IDENTIFI	ED FOR TIME CRITICAL STEPS:	15 min	utes			
Developed By:	G Gauding Instructor	Date:	07-05-11			
Validated By:	B Bonner SME or Instructor	Date:	07-28-11			
Approved By:	Training Department	Date:	8-2-11			
Approved By:	Facility Representative	Date:	3/1/11			
ACTUAL JPM COMPLETION TIME:						
ACTUAL TIME CRITICAL COMPLETION TIME:						
PERFORMED BY:						
GRADE: SAT UNSAT						
REASON, IF UNSATISF	ACTORY:					
EVALUATOR'S SIGNAT			DATE:			
NAME:						
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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:

 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 5.1.2.a** and provide it to the Primary Communicator within 15 minutes of Start Time.

NAME: _____ DATE: _____

SYSTEM: **Emergency Plan**

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

*	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.		
	1	Reviews ECG to classify event	Note: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event and refers to ECG Attachment 2 (ALERT)		
	3	Fills out Section A of Emergency Coordinator Log Sheet, Attachment 2	Unit: 2 EAL#(s):EALs 5.1.2.a Declared at: Current Time and Date Initials as EC		
	4	CALL communicators to the Control Room	Pages communicators and initials as SM Cue: I am the Primary Communicator		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Plan

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5	ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation (EP96-003)	Cue : Activation of ERO Emergency Callout is not required for this JPM.		
*	6	COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	<u>Fills out Section II of ICME</u> : Time/Date: Time/date filled in on Attachment 2		
			EAL#(s): 5.1.2.a Description of Event: Reactor Trip Failure Note: Description of Event is found in Section IV of the ECG.		
			<u>Fills out Section III:</u> Checks No Radiological Release is in progress		
			<u>Fills out Section IV</u> : Retrieves wind speed and direction data from SPDS Initials for approval to transmit		
*	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:		

ECG ATT 2 Pg 2 of 2

	INITIAL CONTACT MESSAGE FORM	
I.	THIS IS, COMMUNICATOR IN THE CONTROL ROOM	[
	AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) NO2	
П.	☑ THIS IS NOTIFICATION OF A ALERT WHICH WAS	
	DECLARED AT <u>TIME</u> ON <u>TODAYS DATE</u> . (Time-24 HR CLOCK) (DATE)	
	EAL #(s) 5.1.2.a	
	DESCRIPTION OF EVENT: Reactor Trip Failure	
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.	
	✓ <u>NO</u> RADIOLGICAL RELEASE IS IN PROGRESS. See NOTE for release	
	THERE IS A RADIOLOGICAL RELEASE IN PROGRESS 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	
	SM INITIALS EC Initials (Approval to Transmit ICMF)	

SGS

Rev. 08

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.

-W	_ 1. Task description and number, JPM description and number are identified.
Q	2. Knowledge and Abilities (K/A) references are included.
¥	3. Performance location specified. (in-plant, control room, or simulator)
0	4. Initial setup conditions are identified.
Q	5. Initiating and terminating Cues are properly identified.
\bigcirc	_6. Task standards identified and verified by SME review.
\downarrow	$_{2}$ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
Ø	8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 2 Date 1/3/10
Ø	9. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and
P	b. ensure performance time is accurate. 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
\bigcirc	11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Inst	tructor: Brin Borne Date: 7/28/11

SME/Instructor:_____

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SME/Instructor:_____

Date: _____

Date: _____

INITIAL CONDITIONS:

 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."

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 PRO JOB PERFORMANCE MEA	OGRAM ASURE	Alternative from the part of a second sec
STATION:	SALEM		
SYSTEM:	Rod Control		
TASK:	Take corrective actions for a dropp	ped control rod(s)	
TASK NUMBER:	1140330401		
JPM NUMBER:	09-01 NRC Sim a		
ALTERNATE PATH:		K/A NUMBER: NCE FACTOR:	003 AA2.03
APPLICABILITY:		X	RO SRO
EVALUATION SETTIN	IG/METHOD: Simulator		
REFERENCES: S	2.OP-AB.ROD-0002 Rev. 10 (checke	d 6/30/11)	
TOOLS AND EQUIPM	ENT: None		
VALIDATED JPM CON	MPLETION TIME: 5 minute	S	
TIME PERIOD IDENTI	FIED FOR TIME CRITICAL STEPS:	N/A	
Developed By:	G Gauding Instructor	Date: 06	G-17-11
Validated By:	K Riedmuller SME or Instructor	Date: 0	6-30-11
Approved By:	Training Department	Date: 7/2	25/1,
Approved By:	Operations Department	Date: 7	1/8/11
ACTUAL JPM COMPL	ETION TIME:		
ACTUAL TIME CRITIC	CAL COMPLETION TIME:		
PERFORMED BY: GRADE: SAT	UNSAT		
REASON, IF UNSATIS	SFACTORY:		
EVALUATOR'S SIGN	ATURE:	D	ATE:

NAME:

DATE:

SYSTEM: Rod Control

TASK:Take corrective actions for 2 dropped control rods

TASK NUMBER: 1140330401

SIMULATOR SETUP IC-251 Insert RT-1, RD0267, ANY ROD DROPS INTO RX, Final Severity 5 after candidate has assumed the watch.

Modify **RD0267** ANY ROD DROPS INTO RX, to Final Severity 53 when candidate has completed step 3.10 of S2.OP-AB.ROD-0002 **OR** if candidate attempts to change Main Turbine load due to Tavg being >1.5 degrees lower than Tref.

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. Candidate places Rod Control in Manual following 1st dropped rod.

2. Candidate trips the reactor upon discovery of 2nd dropped rod.

NAME: ______ DATE: ______

SYSTEM: ROD CONTROL

TASK: Take corrective actions for a dropped control rod(s)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		SIMULATOR OPERATOR:			
		Insert <u>RT-1</u> RD0267, ANY ROD DROPS INTO RX, Final Severity 5, when candidate assumes the watch.	Candidate announces cluster of rod related "E" Window OHAs as unexpected alarms. Announces indications of rod 2SA1 dropped into the core. Enters S2.OP-AB.ROD-0002, Dropped Rod.		
	2.1	IF more than one rod is verified to be tripped, <u>THEN</u> Manually TRIP Reactor <u>AND</u> GO TO 2-EOP-TRIP-1, Reactor Trip OR Safety Injection.	Verifies only 1 rod has dropped into core.		
*	3.1	PLACE Rod Bank Selector Switch in MAN.	Places Rod Bank Selector Switch in MAN.		
	3.2	IF a Turbine load change is in progress	Verifies no turbine load change in progress.		

NAME: _______ DATE: _____

SYSTEM: ROD CONTROL

TASK: Take corrective actions for a dropped control rod(s)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.3	ADJUST T _{ave} to within 1.5 ⁰ of program as follows:	Verifies T _{ave} is within 1.5 ⁰ of program.		
		 <u>IF</u> Main Turbine is operating, <u>THEN</u> adjust Turbine load. 	Simulator Operator: <u>IF</u> operator attempts to lower turbine load, then		
		 <u>IF</u> Main Turbine is NOT operating, <u>THEN</u> ADJUST Steam Dumps OR 21-24MS10 valves. 	change RT-1 as described on next page <u>now</u> .		
	3.4	Is Reactor subcritical as a result of the dropped rod?	Answers NO, <u>GOES TO</u> step 3.9		
	3.9	<u>IF AT ANY TIME</u> a power reduction becomes necessary, <u>THEN</u> BORATE <u>AND</u> ADJUST Turbine load or Steam Dump System flowrate to maintain T_{ave} within 1.5 ⁰ F of program.	Determines no power reduction is necessary.		
	3.10	ls power above 50% of RATED THERMAL POWER?	Answers NO, and GOES TO Step 3.12		
			SIMULATOR OPERATOR: Modify malfunction RD0267, ANY ROD DROPS INTO RX, to Final Severity 53, when candidate has completed step 3.10 of S2.OP-AB.ROD-0002.		

NAME: _____

DATE: _____

SYSTEM: ROD CONTROL

TASK: Take corrective actions for a dropped control rod(s)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	2.1	IF more than one rod is verified to be tripped, <u>THEN</u> Manually TRIP Reactor <u>AND</u> GO TO 2-EOP-TRIP-1, Reactor Trip OR Safety Injection.	Candidate should observe a second rod bottom light by direct observation, or by depressed power in the region of the 2 dropped rods, Terr or Tavg lowering, or OHA D-32 TAVE LO, and MANUALLY TRIP the Reactor IAW Step 2.1.		
			Evaluator: See next step if candidate does not recognize the second dropped rod and continues in the procedure. (This will allow the candidate to continue in the JPM until the 2 times validation time has been reached and the JPM is terminated.)		
	3.12	REQUEST Maintenance to determine if an Individual Rod Position Indicator (IRPI) malfunction has occurred.	Candidate contacts Maintenance or requests CRS to contact Maintenance to determine if an IRPI malfunction has occurred. Cue: Maintenance has been contacted.		
	3.13	Has an IRPI malfunction occurred?	Candidate answers NO based on rod bottom, OHAs, and primary plant parameter changes, and GOES TO Step 3.15.		
	3.15	INITIATE a power reduction to <75% Rated Thermal Power	Candidate recognizes power is 40%.		

SYSTEM: ROD CONTROL

Take corrective actions for a dropped control rod(s) TASK:

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.16	REQUEST Reactor Engineering assistance to recover rod.	Candidate contacts Reactor Engineering or requests CRS to contact Reactor Engineering for assistance in recovering dropped rod.		
			Cue: Reactor Engineering has been contacted.		
	3.17	Is dropped rod to be recovered, per Reactor Engineering?	Cue: Reactor Engineering will be performing a flux map to aid in determination of whether a recovery will be made of the dropped rod.		
			Terminate the JPM once the candidate has inserted a manual Reactor Trip or reaches two times the validation time.		

NAME: _____ DATE: _____

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.
- <u>1</u>. Performance location specified. (in-plant, control room, or simulator)
- 4. Initial setup conditions are identified.
- <u>5</u>. Initiating and terminating Cues are properly identified.
- <u>46</u> 6. Task standards identified and verified by SME review.
- <u>1</u><u>1</u><u>7</u>. 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. <u>16</u> Date <u>6.70.11</u>
- 9. Pilot test the JPM:

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- 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: 1000 . Nueumille

Date: 6.30.11

SME/Instructor:

Date: _____

Date: _____

INITIAL CONDITIONS:

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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.

STATION:	Salem Generating Station			
SYSTEM:	Emergency Core Cooling	Systems		
TASK:	Raise ECCS Accumulator	Level with a Safety Inject	ion Pump	
TASK NUMBER:	0065010101			
JPM NUMBER: ALTERNATE PATH:	09-01 NRC Sim b	K/A NUMBER:	006 A4	.07
				SRO
EVALUATION SETTING	S/METHOD: Simulator	/ Perform		
REFERENCES: S2	.OP-SO.SJ-0002, Accumula	tor Operations, Rev. 22		
TOOLS AND EQUIPME	NT: None			
VALIDATED JPM COM		3 minutes		
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL S	TEPS:N/,	Α	
Developed By:	G Gauding Instructor	Date:	07-09-11	
Validated By:	S Harris SME or Instructor	Date:	07-28-11	
Approved By:	Araining Department	Date:	8-2-1.	
Approved By:	Operations Represent	Date:	8/1/11	
ACTUAL JPM COMPLE				
ACTUAL TIME CRITICA	AL COMPLETION TIME:			
PERFORMED BY: GRADE: SAT				
REASON, IF UNSATISF	ACTORY:			
EVALUATOR'S SIGNA	TURE:		DATE:	

NAME:	
DATE:	

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

 TASK
 006 501 01 01

 NUMBER:
 006 501 01 01

INITIAL IC-254 CONDITIONS:

- **1.** The plant is at 100% power with all systems in their normal alignment with control systems in automatic.
- **2.** 24 Accumulator is at 57.9% level.
- 3. The Safety Injection System is available.
- 4. RWST Boron Concentration is 2400 ppm.

INITIATING CUE:

Raise 24 ECCS Accumulator to 60% using 21 SI pump IAW S2.OP-SO.SJ-0002, Accumulator Operations, Section 5.2.

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. Raise 24 Accumulator to 60% using 21 SI pump, and return system to normal lineup.

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: ______

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide copy of S2.OP-SO.SJ-0002(Q), Accumulator Operations, with Prerequisites signed off.	Reviews procedure, and initials all Precautions and Limitations.		
	5.2.1	 ENSURE either of the following conditions exist: ALL RCS Cold Leg Temperatures >312°F OR The Reactor Vessel Head is Removed. 	Determines ALL RCS Cold Leg Temperatures >312°F.		
	5.2.2	IF RCS Pressure <2000 psig, <u>THEN</u> ENSURE CLOSED 21SJ134, COLD LEG DISCHARGE.	Determines RCS pressure is >2000 psig and marks step N/A		
*	5.2.3	START 21 Safety Injection Pump.	Operator depresses 21 Safety Injection Pump START PB. Cue if required : <u>IF</u> operator asks for a Field Operator to do pre-start checks on 21 SI pump, <u>THEN</u> report as NEO that 21 SI Pump is ready for start.		

NAME: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.4	OPEN 2SJ53, 21 SI PUMP DISCHARGE TEST LINE VALVE.	Pushes and holds 2SJ53 21 SI PUMP DISCHARGE TEST LINE VALVE OPEN PB until open light illuminates.		
*	5.2.5	OPEN 2SJ123, TEST LINE TO CVCS HUT.	Depresses 2SJ123 TEST LINE TO CVCS HUT OPEN PB and notes change in light status.		
*	5.2.6	 OPEN associated Accumulator fill valve: 21SJ20, 21 ACCUMULATOR FILL 22SJ20, 22 ACCUMULATOR FILL 23SJ20, 23 ACCUMULATOR FILL 24SJ20, 24 ACCUMULATOR FILL 	Depresses 24SJ20 24 ACCUMULATOR FILL OPEN PB; notes change in light status, and monitors level on the applicable level channels.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*.	5.2.7	When desired level is reached, CLOSE the associated Accumulator fill valve: 21SJ20, 21 ACCUMULATOR FILL 	Cue : After level starts to rise in 24 Accumulator, state: "24 Accumulator level has risen to 60%."		
		 22SJ20, 22 ACCUMULATOR FILL 23SJ20, 23 ACCUMULATOR FILL 	After acknowledging cue, depresses 24SJ20 24 ACCUMULATOR FILL		
		◆ 24SJ20, 24 ACCUMULATOR FILL	CLOSE PB.		
	5.2.8	If required, REPEAT Steps 5.2.6 and 5.2.7 to fill additional Accumulators.	Determines no other Accumulators will be filled.		
*	5.2.9	CLOSE 2SJ53.	Depresses 2SJ53 CLOSE PB.		
*	5.2.10	CLOSE 2SJ123.	Operator depresses 2SJ123 CLOSE PB.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME:		 	

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SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.11	STOP 21 Safety Injection Pump.	Depresses 21 SI Pump STOP PB.		

TERMINATING CUE: Terminate JPM after 21 SI pump is stopped.

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

$h_{\rm max}$ 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.
$\frac{1}{2}$ 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. $\frac{\partial 2}{\partial 2}$ Date $\frac{12/3400}{2}$
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.
$\mathcal{M}_{\mathcal{M}}$ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.
SME/Instructor: 1/28/11
SME/Instructor: Date:

SME/Instructor:_____

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Date: _____

INITIAL CONDITIONS:

- 1. The plant is at 100% power with all systems in their normal alignment with control systems in automatic.
- 2. 24 Accumulator is at 57.9% level.
- 3. The Safety Injection System is available.
- 4. RWST Boron Concentration is 2400 ppm.

INITIATING CUE:

Raise 24 ECCS Accumulator to 60% using 21 SI pump IAW S2.OP-SO.SJ-0002, Accumulator Operations, Section 5.2.

STATION:	SALEM						
SYSTEM:	M: Pressurizer Pressure and Level						
TASK:TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)							
TASK NUMBER:	1140240401						
JPM NUMBER:	09-01 NRC Sim c						
ALTERNATE PATH:	X K/A		010 A	4.01			
APPLICABILITY:		<	RO	SRO			
EVALUATION SETTING	G/METHOD: Simulator						
REFERENCES: S2	.OP-AB.PZR-0001, Rev. 18 (Rev. check	ed 6-30-11)					
TOOLS AND EQUIPME	NT: None						
VALIDATED JPM COM	PLETION TIME: 4 min						
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STEPS:	N/A	A				
Developed By:	G Gauding Instructor	Date:	6-17-11				
Validated By:	W. Neiheiser SME or Instructor	Date:	6-30-11				
Approved By:	Training Department	Date:	7-21-11				
Approved By:	Department	Date:	7/8/11				
ACTUAL JPM COMPLETION TIME:							
ACTUAL TIME CRITICAL COMPLETION TIME:							
PERFORMED BY: GRADE: SAT	UNSAT						
REASON, IF UNSATISI	FACTORY:						
EVALUATOR'S SIGNA	TURE:		DATE:				

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	NAME: DATE:	-
SYSTEM:	Pressurizer Pressure and Level	
TASK:	TCAF Pressurizer Pressure Malfunction (Failed open Pressurizer Spray Valve)	
TASK NUMBER:	114 024 04 01	
SIMULATOR SET	 UP: 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. Stop 22 OR 24 RCP.

NAME:	
DATE:	

SYSTEM: Pressurizer Pressure and Level

STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	Simulator Operator: Insert <u>RT-1</u> 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 candidate 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 for the candidate to attempt closing 2PS1 prior to entering S2.OP-AB.PZR-001.		

NAME:			
DATE			

SYSTEM: Pressurizer Pressure and Level

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. <u>IF</u> the candidate 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, <u>THEN AFTER</u> the candidate 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.		

NAME:		
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SYSTEM: Pressurizer Pressure and Level

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.		

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 <u>ET-1</u> is TRUE when 23 RCP stop PB is depressed.		

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NAME:	
DATE:	

SYSTEM: Pressurizer Pressure and Level

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

$\omega_{\rm I}$ 1. Task description and number, JPM des	cription and number are identified.
2. Knowledge and Abilities (K/A) reference	es are included.
$-\omega$ 3. Performance location specified. (in-plan	it, control room, or simulator)
4. Initial setup conditions are identified.	
$_$ \bigcirc 5. Initiating and terminating Cues are prop	erly identified.
$\underbrace{\mathcal{W}}_{}$ 6. Task standards identified and verified b	y SME review.
\underline{P} 7. Critical steps meet the criteria for critica	I steps and are identified with an asterisk (*).
8. Verify the procedure referenced by this that procedure: Procedure Rev. 19	JPM matches the most current revision of Date <u>6-30-11</u>
9. Pilot test the JPM: a. verify Cues both verbal and visual a b. ensure performance time is accurat	are free of conflict, and te.
10. If the JPM cannot be performed as wri	itten with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Inst	ructor sign and date JPM cover page.
SME/Instructor: Wille	Date: 6-30-11
SME/Instructor:	Date:
SME/Instructor:	Date:

INITIAL CONDITIONS:

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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.

STATION:	SALEM 1 & 2			
SYSTEM:	Emergency Operating Procedure	es		
TASK: TASK NUMBER:	Respond to a Loss of Heat Sink Head Vents) N1150290501	(Initiate Bleed and I	Feed with SI pumps and Rx	
JPM NUMBER:	09-01 NRC Sim d			
ALTERNATE PATH:	X	K/A NUMBER:	EPE E05 EA1.1	
			<u>4.1</u> <u>4.0</u> RO SRO	
EVALUATION SETTING	METHOD: Simulator - Perf	orm		
REFERENCES: 2-E	OP-FRHS-1, Loss of Secondary I	leat Sink, Rev. 24	(checked 6/20/11)	
TOOLS AND EQUIPME	NT: None			
VALIDATED JPM COM	PLETION TIME: 5 minu	ites		
TIME PERIOD IDENTIFI	ED FOR TIME CRITICAL STEPS	:N/	A	
Developed By:	G Gauding Instructor	Date:	06-17-11	
Validated By:	J Klein SME or Instructor	Date:	06-30-11	
Approved By:	Praining Department	Date:	7-21-11	
Approved By:	Operations Department	Date:	8/./	
ACTUAL JPM COMPLETION TIME:				
ACTUAL TIME CRITICAL COMPLETION TIME:				
PERFORMED BY:				
GRADE: SAT				
REASON, IF UNSATISF	ACTORY:			
EVALUATOR'S SIGNAT	[URE:		DATE:	

NAME: _____

DATE:

SYSTEM: Emergency Operating Procedures

TASK:TCAF a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head
Vents)

TASK NUMBER: N1150290501

SIMULATOR SETUP:

IC-252 developed by : MSL rupture downstream of MSIVs. Fail auto MT trip. Fail all MSIVs open. All AFW pumps failed. Fail <u>2PR2</u> shut. 21 CVCS pp C/T. Performed TRIP-1 through Step 20. 22 CVCS pp tripped during TRIP-1.

INITIAL CONDITIONS:

- Unit 2 initiated a Rx trip from 100% power in response to a Main Steamline break at the mixing bottle.
- An automatic Safety Injection initiated.
- The Main Turbine failed to trip automatically, and was manually tripped from the control console.
- MSLI failed, and all MSIV's remain open.
- All AFW flow has been lost.
- 21 charging pump is C/T.
- 22 charging pump tripped 3 minutes ago.
- EOP-TRIP-1 was performed and a transition to FRHS-1, Loss of Secondary Heat Sink was made at Step 20.

INITIATING CUE:

You are the Reactor Operator. Perform FRHS-1 starting at Step 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.

Task Standard for Successful Completion:

- 1. Stop ALL RCPs.
- 2. Open 2PR1.
- 3. Open Rx Head Vent Valves 2RC40-2RC43.

SYSTEM: Emergency Operating Procedures

TASK:

K: Respond to a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head Vents)

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Operator states he has the watch.		
	1	IS TOTAL AFW FLOW LESS THAN 22E04 LB/HR DUE TO OPERATOR ACTIONS	Determines it was not operator action which caused total AFW flow to be less than 22E04 lb/hr.		
	2	IF <u>AT LEAST ONE INTACT OR</u> <u>RUPTURED</u> SG IS AVAILABLE, <u>THEN</u> DO <u>NOT</u> FEED A <u>FAULTED</u> SG	Recognizes ALL SGs are faulted.		
	3	IS RCS PRESSURE GREATER THAN ANY INTACT OR <u>RUPTURED</u> SG PRESSURE	Checks RCS pressure on control console and determines it is greater than all SG pressures checked on control console.		
	3.1	ARE RCS T-HOTS GREATER THAN 350°F	Checks RCS Thot indication on control console and determines that RCS Thots are greater than 350°F.		
	4	IS 21 <u>OR</u> 22 CHARGING PUMP AVAILABLE	Determines neither 21 nor 22 charging pump is available based on initial conditions and/or control console indications.		
		GO TO STEP 23	Goes to Step 23.		

NAME: ______ DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Respond to a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head Vents)

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	23	CAUTION TO ESTABLISH RCS HEAT REMOVAL BY RCS BLEED AND FEED, STEPS 24 THRU 29 MUST BE PERFORMED QUICKLY AND WITHOUT INTERRUPTION	Reads Step.		
*	23	STOP <u>ALL</u> RCPS	Depresses STOP PB for 21-24 RCPs and verifies green stop light illuminates and red start light extinguishes.		
	24	INITIATE SI	Uses Safeguards key and initiates SI on at least one train of Safeguards initiation.		
	25	ARE SI VALVES IN SAFEGUARDS POSITION	Checks 2RP4 and/or console indication to determine that all valves listed in Table B are in Safeguards position. <u>Table B valves are:</u> 2SJ4 OPEN BIT INLET 2SJ5 OPEN BIT INLET 2SJ12 OPEN BIT OUTLET 2SJ13 OPEN BIT OUTLET 2CV68 CLOSED CHARGING DISCHARGE 2CV69 CLOSED CHARGING DISCHARGE (continued next page)		

NAME: ______ DATE: _____

SYSTEM: **Emergency Operating Procedures**

	J		
TACK.	Decreed	to	- 1 -

Respond to a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head Vents) TASK:

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Table B Valves (con't):21-24SJ54 OPEN ACCUMULATOR OUTLET2SJ1OPEN RWST TO CHARGING2SJ2OPEN RWST TO CHARGING2CV40CLOSED DISCHARGE STOP2CV41CLOSED DISCHARGE STOP		
	25.1	IS 21 <u>OR</u> 22 CHARGING PUMP RUNNING	Checks control console and determines neither 21 nor 22 charging pump is running.		
	25.2	IS ANY SI PUMP RUNNING	Checks control console and determines both 21 and 22 SI pumps are running.		
	25.2	ARE VALVES IN TABLE C OPEN FOR <u>AT LEAST</u> ONE RUNNING SI PUMP	Checks control console indication for valves listed in Table C and determines the valves are open for at least one running SI pump. <u>Table C valves are:</u> <u>21/22 SI PUMPS</u> 2SJ30 (FROM RWST) 21/22SJ33 (SI PUMP SUCTION) 2SJ135 (COLD LEG DISCHARGE) 21/22SJ134 (COLD LEG DISCHARGE)		
	26	OPEN <u>BOTH</u> PZR PORV STOP VALVES	Checks control console and determines BOTH 2PR6 and 2PR7 PORV STOP VALVES are open.		

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NAME: ______ DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Respond to a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head Vents)

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	26	OPEN <u>BOTH</u> PZR PORVS	Depresses 2PR1 PZR PORV open PB and verifies green closed light extinguishes and red open light illuminates. Depresses 2PR2 PZR PORV open PB and reports that 2PR2 will not open.		
	26.1	ARE <u>BOTH</u> PZR PORV STOP VALVES OPEN	Checks control console and determines BOTH 2PR6 and 2PR7 PORV STOP VALVES are open.		
		ARE <u>BOTH</u> PZR PORVS OPEN	Determines 2PR2 PZR PORV is not open.		
*	26.1	OPEN 2RC40 THRU 2RC43 (REACTOR HEAD VENTS)	Inserts key into each 2RC40 THRU 2RC43 (REACTOR HEAD VENTS) switch on 2RP3, turns to open, and verifies each valve opens.		
			Terminate JPM when operator has opened 2RC40 thru 2RC43 Reactor Head Vents.		

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.

AL_ 1	. Task description and number, JPM description a	nd number are identified.
<u> </u>	2. Knowledge and Abilities (K/A) references are incl	luded.
<u>Jr</u> 3	B. Performance location specified. (in-plant, control	room, or simulator)
AL 4	I. Initial setup conditions are identified.	
AL 5	5. Initiating and terminating Cues are properly ident	ified.
Gr_6	. Task standards identified and verified by SME re	view.
GK_7	. Critical steps meet the criteria for critical steps ar	nd are identified with an asterisk (*).
<u>M</u> 8.	b. Verify the procedure referenced by this JPM mate that procedure: Procedure Rev. 24_ Date 4	ches the most current revision of
QAL_ 9.	 Pilot test the JPM: a. verify Cues both verbal and visual are free of b. ensure performance time is accurate. 	f conflict, and
1(0. If the JPM cannot be performed as written with	proper responses, then revise the JPM.
1	1. When JPM is revalidated, SME or Instructor sig	n and date JPM cover page.
SME/Instruc	ctor: Allein	Date: <u>6-30-1(</u>
SME/Instruc	ctor:	Date:

SME/Instructor:_____

Date: _____

Date: _____

INITIAL CONDITIONS:

- Unit 2 initiated a Rx trip from 100% power in response to a Main Steamline break at the mixing bottle.
- An automatic Safety Injection initiated.
- The Main Turbine failed to trip automatically, and was manually tripped from the control console.
- MSLI failed, and all MSIV's remain open.
- All AFW flow has been lost.
- 21 charging pump is C/T.
- 22 charging pump tripped 3 minutes ago.
- EOP-TRIP-1 was performed and a transition to FRHS-1, Loss of Secondary Heat Sink was made at Step 20.

INITIATING CUE:

You are the Reactor Operator. Perform FRHS-1 starting at Step 1.

	JOB PERFORMANCE M	ROGRAM EASURE	
STATION:	SALEM		
SYSTEM:	Main Turbine		
TASK:	TCAF Main Turbine Trip < P-9	(Loss of Turbine Au	xiliaries Cooling Expansion
TASK NUMBER:	N1140420401		
JPM NUMBER:	09-01 NRC Sim e		
ALTERNATE PATH:		K/A NUMBER:	2.4.31 4.2 4.1
APPLICABILITY: EO			RO SRO
EVALUATION SETTIN	IG/METHOD: Simulator - Perf	orm	
REFERENCES: S	2.OP-AR.ZZ-0007, Rev. 46, Overhe 2.OP-AB.TRB-0001, Rev. 14, Turbi	ead Window G ne Trip <p-9 (bot<="" th=""><th>h rev checked 6-21-11)</th></p-9>	h rev checked 6-21-11)
TOOLS AND EQUIPM	ENT: None		
VALIDATED JPM CO	MPLETION TIME: 5 m	in	
TIME PERIOD IDENTI	FIED FOR TIME CRITICAL STEPS	: N//	4
Developed By:	G Gauding Instructor	Date:	06-17-11
Validated By:	J. Klein SME or Instructor	Date:	06-30-11
Approved By:	Graining Department	Date:	2-2-8
Approved By:	Operations Department	Date:	7/8/11
ACTUAL JPM COMP	LETION TIME:		
ACTUAL TIME CRITIC	CAL COMPLETION TIME:		
PERFORMED BY: GRADE: SAT	UNSAT		
REASON, IF UNSATI	SFACTORY:		
EVALUATOR'S SIGN	ATURE:		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

RT-1
MALFAN0105 SER 105 Fails-: G8 Turbine Auxiliary CoolingMALF
OverrideTU0118A 21MS28 Turb Stop Valve Fails Open
CK23 Turbine Trip-Trip

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		SIMULATOR OPERATOR:			
		Insert <u>RT-1</u> after candidate assumes the watch.	Announces unexpected OHA G-8 TAC EXP TK LVL HI OR LO.		
			Refers to S2.OP-AR.ZZ-0007, Overhead Window G.		
	ARP 1.0/2.0		Reviews causes and determines there are no automatic actions associated with this alarm.		
	ARP 3.1	DETERMINE if level alarm is high or lowfrom the Annunciator CRT:CRT PointDescription104Turbine Auxiliary Cooling Expansion Tank Level High105Turbine Auxiliary Cooling Expansion Tank Level Low	Determines CRT point 105 Turbine Auxiliary Cooling Expansion Tank Level Low is in alarm.		

NAME: _____ DATE: _____

SYSTEM: Main Turbine

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.2	<u>IF</u> level is high, <u>THEN:</u>	Determines level is not high, and continues to next step.		
	3.3	 <u>IF</u> level is low, <u>THEN:</u> A. Send an operator to MAKEUP to tank. B. Send an operator to IDENTIFY <u>AND</u> ISOLATE any leaks. 	Dispatches an operator to makeup to tank, and identify and isolate any leaks.		
		Simulator Operator: 2 minutes after being dispatched, call control room and report: "This is the Secondary Operator. The Unit 2 TAC expansion tank level is 7" and lowering one inch per minute. The auto makeup valve is stuck shut, and I can't get the bypass valve open."			

NAME:	 		 	
DATE:				

SYSTEM: Main Turbine

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3.4	 IF unable to maintain tank level above 6 inches, <u>THEN:</u> A. IF >P-9 (49% power), <u>THEN TRIP</u> the Reactor, <u>AND</u> GO TO 2-EOP-TRIP-1, Reactor Trip or Safety Injection. B. IF <p-9 (49%="" <u="" power)="">THEN TRIP the Turbine, <u>AND</u> GO TO S2.OP-AB.TRB-0001(Q), Turbine Trip Below P-9.</p-9> 	Determines tank level cannot be maintained above 6 inches, and attempts to trip the Main Turbine with the Turbine Trip handle, and reports the Main Turbine did not trip. Depresses the Turbine Trip PB and determines the Turbine has tripped. Goes to S2.OP-AB.TRB-0001. Note: <u>IF</u> the candidate observes the 21MS28 remaining open at this point, <u>THEN</u> they may determine the turbine is not tripped, and perform a MSLI by depressing all 4 MSLI PBs on either Safeguards bezel. Initiating a MSLI before the Rx is tripped is an <u>incorrect action</u> which may challenge SG safeties if they lift. Initiating a MSLI renders the Main Steam Dumps inoperable and prematurely isolates the SGFPs. With Rx power >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. Go to page 7 for required actions IF a Rx trip is performed here.		

NAME: _____ DATE: _____

SYSTEM: Main Turbine

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL <u>S</u> /U	COMMENTS (Required for UNSAT evaluation)
	AB.TRB 3.1	INITIATE Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	3.2	VERIFY the Turbine is tripped.	Note: <u>IF</u> the candidate observes the 21MS28 remaining open at this point, <u>THEN</u> they may determine the turbine is not tripped, and perform a MSLI by depressing all 4 MSLI PBs on either Safeguards bezel. Initiating a MSLI before the Rx is tripped is an <u>incorrect action</u> which may challenge SG safeties if they lift. Initiating a MSLI renders the Main Steam Dumps inoperable and prematurely isolates the SGFPs. With Rx power >P-10 (10%) and steam dumps not available, a Rx trip is required IAW CAS actions 1.0 and 2.0. See page 8 for complete discussion. See <u>next page</u> for required actions <u>IF</u> a Rx trip is performed here.		

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NAME: _______ DATE: ______

SYSTEM: Main Turbine

		STEP			COMMENTS
*	NO.	(*Denotes a Critical Step)	STANDARD	EVAL	(Required for UNSAT
				<u>_S/U</u>	evaluation)
*	EOP- TRIP-1	TRIP REACTOR IS REACTOR TRIP CONFIRMED TRIP TURBINE	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. Confirms Rx trip Attempts to trip the Main Turbine using the Trip handle. Determines the Trip handle did not close all Main Turbine Stop Valves. Depresses Turbine Trip bezel.		
	EOP- TRIP-1 3	TRIP TURBINE (MSLI step)	Main Turbine Stop Valves. Initiates a MSLI. Terminate JPM after MSLI has been performed.		
	3.3	Are all Turbine Stop Valves closed?	Determines all Turbine Stop Valves are NOT closed from 2RP4. Goes to Step 3.7.		
	3.7	TRIP the Reactor, GO TO 2-EOP-TRIP- 1, Reactor Trip or Safety Injection.	Trips the Reactor using either of the Reactor Trip handles.		
			Begins performing immediate actions of 2- EOP-TRIP-1, Reactor Trip or Safety Injection.		

SYSTEM: Main Turbine

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

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

<u>Turbine Trip requirements</u>. 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-8, page 18-19, 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.

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. Hold Date 6-30-1 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. Date: (9-30-11 SME/Instructor:

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 TRAININ JOB PERFORMANC	G PROGRAM E MEASURE				
STATION:	SALEM					
SYSTEM:	AC Electrical Distribution					
TASK:	Transfer A 4 KV Group Bus	To The Alternate Power	Supply (SPT to APT)			
TASK NUMBER:	N0620110101					
JPM NUMBER:	09-01 NRC Sim f					
ALTERNATE PATH:		K/A NUMBER:	062 A4.01			
APPLICABILITY:			RO SRO			
EVALUATION SETTIN	G/METHOD: Simulator -	Perform				
SI REFERENCES: SI	2.OP-IO.ZZ-0003, Rev. 35, Hot 2.OP-SO.4KV-0008, Rev. 12, 4	Standby to Minimum Lo KV Group Buses Power	oad r Supply Transfer			
TOOLS AND EQUIPM	ENT: None					
VALIDATED JPM CON	IPLETION TIME: 1	2 min				
TIME PERIOD IDENTI	FIED FOR TIME CRITICAL ST	EPS: N/.	A			
Developed By:	G Gauding Instructor	Date:	06-17-11			
Validated By:	J Klein SME or Instructor	Date:	06-30-11			
Approved By:	Training Department	Date:	7-21-11			
Approved By:	P Operations Department	Date:	7/8/11			
ACTUAL JPM COMPLETION TIME:						
ACTUAL TIME CRITIC	AL COMPLETION TIME:					
PERFORMED BY: GRADE: SAT	UNSAT					
REASON, IF UNSATIS	FACTORY:					
EVALUATOR'S SIGNA	ATURE:		DATE:			

NAME:

DATE:

SYSTEM: AC Electrical Distribution

TASK: Transfer A 4 Kv Group Bus To The Alternate Power Supply (SPT to APT)

TASK NUMBER: N0620110101

SIMULATOR SETUP IC-256 19.2% power BOL.

MALFS: AN0637 SER 637 Fails-: J14 21ESD Breaker Failure tied to ET-1 RP0058 Failure of Automatic Reactor Trip Overrides: C308 OVDI 2AEGD 2E GROUP BUS FEEDER -CLOSE OFF All tied C308 OVDI 2AEGD 2E GROUP BUS FEEDER-OPEN ON to ET-1 C312 OVDI 21ESD 2E GROUP BUS FEEDER-OPEN ON C312 OVDI 21ESD 2E GROUP BUS FEEDER-CLOSED OFF C307 OVDI 21HSD 2H GROUP BUS FEEDER-OPEN ON C307 OVDI 21HSD 2H GROUP BUS FEEDER-CLOSED OFF C601 OVDI 13 KV SECTION 1-6-OPEN ON C601 OVDI 13 KV SECTION 1-6-CLOSED OFF Check APT voltage the same as the Group bus voltage pre-reg 2.3.3

Note to Evaluator: The bus transfer sequence - H,E,F,G corresponds to RCPs 21, 22, 23, AND 24.

INITIAL CONDITIONS:

19.2% power, BOL.The Main Turbine was synchronized 10 minutes ago.Steam Dumps are in Tavg Mode-Auto.Rod Control is in Manual until Group Buses are transferred.Group Buses are powered from the Station Power Transformers.

INITIATING CUE: You are the NCO assigned to transfer the 4KV Group Buses. The CRS directs you to transfer all 4KV Group buses from their respective Station Power Transformers to the Aux Power Transformers, starting with H Group Bus, IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer. All pre-requisites are complete SAT.

The CRS directs you to transfer the buses in this order: H, E, F, G

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. Transfer 2H 4KV Group bus from SPT to APT.

2. Trip Rx upon ATWT while transferring 2E 4KV Group bus from SPT to APT

Page 2 of 7

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NAME: _____ DATE: _____

SYSTEM: Electrical

TASK: Transfer A 4 Kv Group Bus To The Alternate Power Supply (SPT to APT)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Reviews Precautions and Limitations.		
	5.4.1	ENSURE all Overhead Annunciators for 2 APT are clear.	Checks OHA Windows and determines all Overhead Annunciators for 2 APT are clear.		
	5.4.2	ENSURE 2B APT voltage is 4.22 - 4.36KV.	Checks 2B APT reading on 2CC3 and determines 2B APT voltage is 4.22 - 4.36KV.		
	5.4.3	IF Auxiliary Power Unit Isolation Transfer is tripped, THEN RESET Auxiliary Power Unit Isolation Transfer (UIT).	Determines Auxiliary Power Unit Isolation Transfer is not tripped from control console indication.		
*	5.4.4	PRESS the Mimic Bus 2H GROUP BUS INFEED 2AHGD BREAKER pushbutton, <u>AND</u> ENSURE console bezel 2AHGD MIMIC BUS INTLK CLOSE SELECTION illuminates.	Depresses Mimic Bus 2H GROUP BUS INFEED 2AHGD BREAKER pushbutton and checks console bezel 2AHGD MIMIC BUS INTLK CLOSE SELECTION Illuminates.		

NAME: ______ DATE: _____

SYSTEM: Electrical

TASK: Transfer A 4 Kv Group Bus To The Alternate Power Supply (SPT to APT)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.4.5	 PRESS control console 2AHGD CLOSE pushbutton, AND ENSURE the following: A. 21HSD is OPEN. B. 2AHGD is CLOSED. C. 2H 4KV Group Bus voltage is from 4.22 - 4.36KV. D. Console bezel 2AHGD MIMIC BUS INTLK CLOSE SELECTION is extinguished. 	 Depresses control console 2AHGD CLOSE pushbutton, and checks the following: A. 21HSD is OPEN. B. 2AHGD is CLOSED. C. 2H 4KV Group Bus voltage is from 4.22 - 4.36KV. D. Console bezel 2AHGD MIMIC BUS INTLK CLOSE SELECTION is extinguished. 		
	5.1.1	ENSURE all Overhead Annunciators for 2 APT are clear.	Checks OHA Windows and determines all Overhead Annunciators for 2 APT are clear.		
	5.1.2	ENSURE 2B APT voltage is 4.22 - 4.36KV.	Checks 2B APT reading on 2CC3 and determines 2B APT voltage is 4.22 - 4.36KV.		
	5.1.3	IF Auxiliary Power Unit Isolation Transfer is tripped, THEN RESET Auxiliary Power Unit Isolation Transfer (UIT).	Determines Auxiliary Power Unit Isolation Transfer is not tripped from control console indication.		
*	5.1.4	PRESS Mimic Bus 2E GROUP BUS INFEED 2AEGD BREAKER pushbutton, <u>AND</u> ENSURE console bezel 2AEGD MIMIC BUS INTLK CLOSE SELECTION illuminates.	Depresses Mimic Bus 2E GROUP BUS INFEED 2AEGD BREAKER pushbutton, <u>AND</u> checks console bezel 2AEGD MIMIC BUS INTLK CLOSE SELECTION illuminates.		

NAME: _____ DATE: _____

SYSTEM: Electrical

TASK: Transfer A 4 Kv Group Bus To The Alternate Power Supply (SPT to APT)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.5	 PRESS control console 2AEGD CLOSE pushbutton, AND ENSURE the following: A. 21ESD is OPEN. B. 2AEGD is CLOSED. C. 2E 4KV Group Bus voltage is 4.22 - 4.36KV. D. Console bezel 2AEGD MIMIC BUS INTLK CLOSE SELECTION is extinguished. 	Determines 2E Group bus did not transfer and recognizes a Rx trip demand signal is present by First Out Annunciator F-10, RC LO FLO OR RCP BKR OPEN & P-7. Recognizes the Rx did not trip. Announces ATWT. Trips the Rx using either trip handle.		
			Terminate the JPM when a Rx trip has been initiated.		

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.

91 <u> </u>	_1. Task description and number, JPM description and number are identified.
ak	2. Knowledge and Abilities (K/A) references are included.
Ar_	3. Performance location specified. (in-plant, control room, or simulator)
An	_4. Initial setup conditions are identified.
_ AL_	5. Initiating and terminating Cues are properly identified.
<u>Ón</u>	_6. Task standards identified and verified by SME review.
Au	7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
Gji	8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. <u>35/)2</u> Date <u>6-30-11</u>
Gm_	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/Inst	ructor:

SME/Instructor:_____

SME/Instructor:_____

Date:		

Dato.	 	

Dat	e:				
		• • • • • •	_		

INITIAL CONDITIONS:

19.2% power, BOL.The Main Turbine was synchronized 10 minutes ago.Steam Dumps are in Tavg Mode-Auto.Rod Control is in Manual until Group Buses are transferred.Group Buses are powered from the Station Power Transformers.

INITIATING CUE:

You are the NCO assigned to transfer the 4KV Group Buses. The CRS directs you to transfer all 4KV Group buses from their respective Station Power Transformers to the Aux Power Transformers, starting with H Group Bus, IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer. All pre-requisites are complete SAT.

The CRS directs you to transfer the buses in this order: H, E, F, G

STATION:	SALEM			
SYSTEM:	Emergency Procedures			
TASK:	Take Corrective Action For A Nuclear I	nstrumentation System Malfunction		
TASK NUMBER:	channel) N1140230401			
JPM NUMBER:	09-01 NRC Sim g			
ALTERNATE PATH:	X K/A	NUMBER: EPE 007 EA1.05		
APPLICABILITY:		FACTOR: 4.0 4.1 RO SRO		
EVALUATION SETTING	G/METHOD: Simulator / Perform			
REFERENCES: 2-E	EOP-TRIP-2, Rev. 27 Reactor Trip Respo	onse (rev checked 6-17-11)		
TOOLS AND EQUIPME	NT: None			
VALIDATED JPM COM	PLETION TIME:10 Minutes			
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date: 05-04-2011		
Validated By:	K Reidmuller SME or Instructor	Date: 06-30-11		
Approved By:	Araining Department	Date: 7-21-11		
Approved By:	Department	Date: 7/8/11		
ACTUAL JPM COMPLETION TIME:				
ACTUAL TIME CRITICAL COMPLETION TIME:				
PERFORMED BY: GRADE: SAT				
REASON, IF UNSATISFACTORY:				
EVALUATOR'S SIGNA	TU <u>RE:</u>	DATE:		
PSEG Restric	ted- Possession Requires Specific Appro	val from Nuclear Training		

NAME: ______

DATE: _____

SYSTEM: Emergency Procedures

 TASK:
 Take Corrective Action For A Nuclear Instrumentation System Malfunction (Energize Source Range NIS IAW TRIP-2 One under compensated IR channel)

TASK NUMBER: 1150030501

SIMULATOR SETUP: IC-257 on 2011 Flash Drive

MALF: NI0195D IR CH N36 Compensating Volts Lo - TRUE

IC setup by tripping both SGFP's and initiating a MANUAL Rx trip

Perform EOP's through up to Step 19 of TRIP-2

Ensure audio count rate monitor selected to 10K scale

INITIAL CONDITIONS:

A MANUAL reactor trip from full power was initiated 15 minutes ago when both SGFP's tripped automatically. Operators performed the immediate actions of EOP-TRIP-1, Reactor Trip or Safety Injection, then transitioned to 2-EOP-TRIP-2, Reactor Trip Response. Operators have performed TRIP-2 up to Step 19, Steam Dump Mode Shift.

INITIATING CUE:

You are the board operator. Starting at Step 19, perform 2-EOP-TRIP-2 Reactor Trip Response

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 Performance for Successful Completion:

- 1. Transfers Main Steam Dumps to MS Pressure Control Auto
- 2. Energizes BOTH SRNI Channels
- 3. Adjusts audio count rate monitor to 1K scale

NAME: _____

DATE:

1944 - 1 - 1946

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	19	Are Condenser Steam Dumps Available?	Checks Condenser Steam Dumps are reports they are available based on circulators in service and condenser vacuum established.		
*		Place Steam Dumps in "Manual"	Depresses Steam Dumps Manual PB on control console and verifies Manual light illuminates and Auto light extinguishes.		
*		Align Steam Dump Valve demand "Press %" and "Tavg %"	Uses Increase Demand (Open VIv) PB on to align Steam Dump Valve demand "Press %" and "Tavg %".		
*		Place Steam Dumps in "MS Pressure Control"	Depresses "MS Pressure Control" PB on control console and verifies light illuminates and Tavg Control light extinguishes.		
*		Place Steam Dumps in "Auto"	Depresses Steam Dumps Auto PB on control console and verifies Auto light illuminates and Manual light extinguishes.		

NAME: _____

DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Adjust Steam Pressure Valve Demand to maintain SG Pressure at 1005 psig.	Adjusts Steam Pressure Valve Demand to maintain SG Pressure at 1005 psig. Note: Steam dumps may be placed in Manual for adjustment then returned to auto. IF candidate takes additional time to monitor steam pressure (preventing them from continuing to next step) THEN CUE: The Crew will continue monitoring steam pressure to ensure it stabilizes at 1005 psig.		
	20	Is any RCP running	Checks RCP status and determines all RCP's are running.		
	22	Are <u>both</u> IR Channels less than 7E-11 Amps	Checks IRNI Channel 1 and Channel II indication and determines 2N36 reads >7E-11 Amps.		
		Is undercompensation preventing proper IR operation?	 Determines undercompensation of channel 2N36 is preventing proper IR operation by: Elapsed time since trip SUR 0 on affected channel with power above minimum display 		

NAME: _____

DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	22.1	Energize Source Range Channels	Energizes Source Range Channel I by depressing RESET SOURC RANGE A		
*			Energizes Source Range Channel II by depressing RESET SOURC RANGE B		
	22.2	Transfer NR-45 (Nuclear Power Recorder) to Source Range Channels	Transfers NR-45 (Nuclear Power Recorder) to Source Range Channels by selecting Source Range Channel I on Pen 1 or 2, and selecting Source Range Channel II on the other Pen.		
	22.3	Adjust Audio Count Rate Circuit Scale	Adjusts Audio Count Rate Circuit Scale so that SR counts can be heard in the control room.		
			Terminate JPM after audio count rate scale adjustment has been verified in the control room.		

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.

Kar	_1. Task description and number, JPM description and number are identified.
1L0	2. Knowledge and Abilities (K/A) references are included.
1Lm	3. Performance location specified. (in-plant, control room, or simulator)
10-	_4. Initial setup conditions are identified.
Ka	5. Initiating and terminating Cues are properly identified.
Ko	_6. Task standards identified and verified by SME review.
10-	7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
16-	_ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. <u>17</u> Date <u> くっっ ル</u>
10	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:	Keinin.	Red	malle	

Date: _____6.30.11

SME/Instructor:_____

Date: _____

SME/Instructor:_____

Date: _____

A MANUAL reactor trip from full power was initiated 15 minutes ago when both SGFP's tripped automatically. Operators performed the immediate actions of EOP-TRIP-1, Reactor Trip or Safety Injection, then transitioned to 2-EOP-TRIP-2, Reactor Trip Response. Operators have performed TRIP-2 up to Step 19, Steam Dump Mode Shift.

INITIATING CUE:

You are the board operator. Starting at Step 19, perform 2-EOP-TRIP-2 Reactor Trip Response.

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE						
STATION:	SALEM					
SYSTEM:	Component Cooling System					
TASK: Take Corrective Action For A Component Cooling Water System Abnormality						
TASK NUMBER:	N1140080401					
JPM NUMBER:	09-01 NRC Sim h					
ALTERNATE PATH:		K/A NUMBER: 008 A4.01 ANCE FACTOR: 3.3 3.1				
APPLICABILITY: EO		RO SRO				
EVALUATION SETTING	G/METHOD: Simulator - Perf	orm				
S2 S2 REFERENCES : S2	.OP-AB.CC-0001, Rev. 14 Compo .OP-AB.RCP-0001, Rev. 21 React .OP-AR.ZZ-0004, Rev. 26, Overhe	nent Cooling Abnormality or Coolant Pump Abnormality ad Window D (all rev checked 6-22-11)				
TOOLS AND EQUIPME	NT: None					
VALIDATED JPM COM	PLETION TIME: 10 minu	utes				
TIME PERIOD IDENTIF	IED FOR TIME CRITICAL STEPS	: N/A				
Developed By:	G Gauding Instructor	Date: 06-17-11				
Validated By:	K Reidmuller SME or Instructor	Date: 06-30-11				
Approved By:	Graining Department	Date: $8 - 2 - 11$				
Approved By:	B Operations Department	Date: <u>8/11/11</u> 8/1/11				
ACTUAL JPM COMPLETION TIME:						
ACTUAL TIME CRITICAL COMPLETION TIME:						
PERFORMED BY: GRADE: SAT	UNSAT					
REASON, IF UNSATIS	FACTORY:					
EVALUATOR'S SIGNA	TURE:	DATE:				

	NAME.
	DATE:
SYSTEM: TASK:	Component Cooling System Take Corrective Action For A Component Cooling Water System Abnormality
TASK NUMBER:	N1140080401
SIMULATOR SETU	P IC-258 100% power EOL.
	<u>RT-1</u>
	 MALF: CC0172B 22 Component Cooling Water Pump Trip MALF: CC0172A 21 Component Cooling Water Pump Trip DELAY: 4 minutes OVLO 23 CC Pump Auto ~ ON OVLO 23 CC Pump Manual OFF (23 CCW pump placed in manual before OVLOs inserted, pump is in manual but looks like it is in auto.) OVDI 23 CC Pump-Start OFF ET-5 and ET-6 delete the OVLO's for 23 CC pp and allow the pump indication to swap to manual, but the 23 CCW pump start PB does not start the pump.

INITIAL CONDITIONS:

100% power, EOL.

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 Reactor.
- 2. Trip 21-24 RCPs.
- 3. Isolate Letdown and swap Charging Pump suction to the RWST.

NAME: _____

DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Note for Simulator Operator: The remaining CCW pump <u>must</u> be tripped <u>PRIOR</u> to the determination that the Rx must be tripped and RCPs stopped in either the Reactor Coolant Pump or Component Cooling System Abnormal Procedures. <u>IF required, THEN</u> remove the delay from 22 CCW pump trip prior to the candidate tripping the reactor.	Note to Evaluator: The end result of this JPM will be the same whether the Component Cooling or Reactor Coolant Pump Abnormal Procedure is used. The Attachment in each procedure for Stopping RCPs is the same. S2.OP-AB.RCP-0001 steps start on page 8 S2.OP-AB.CC-0001 steps start on page 13		

NAME: _____

DATE: _____

SYSTEM: Component Cooling System

•

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		 Simulator Operator: Insert <u>RT-1</u> after candidate assumes the watch. MALF: CC0172B 22 Component Cooling Water Pump Trip MALF: CC0172A 21 Component Cooling Water Pump Trip DELAY: 4 minutes Note: <u>IF</u> candidate announces intention to trip the Rx before the remaining CCW pump has tripped, then remove remaining delay time from the 21 CCW pump trip. 	 Reports 22 CCW pump has tripped. The following alarms will annunciate: OHAs D20-D23 21/22/23/24 RCP BRG CLG WTR FLO LO. RCP Thermal Barrier Return Lo Flow. 21 and 22 CCW Header Lo Pressure Console alarms. Note: Each of the Alarm Response actions is contained here, as well as the actions contained here, as well as the actions contained in both S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, and S2.OP-AB.CC-0001, Component Cooling Abnormality. Either of the Abnormal Procedures may be entered directly, or through the Alarm Response Procedure to get to ABs. 		
			Determines that the standby CCW pump has failed to auto start, and attempts to manually start it here or when directed by Abnormal Procedure.		
	ARP D20-23		Refers to S2.OP-AR.ZZ-0004, Overhead Window D.		

NAME: _____

DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP D20-23 2.0		Determines there are no automatic actions associated with these alarms.		
	ARP D20-23 3.1	 CHECK OPEN the following Component Cooling Water valves: A. 2CC117, RCP CC MOT OP INLET V. B. 2CC118, RCP CC MOT OP INLET VALVE C. 2CC136, RCP BRG MOT OP OUTLET VALVE D. 2CC187, RCP MOTOR CC MOTOR OPERATED OUTLET VALVE. 	 Determines the following Component Cooling Water valves are open on CC1: A. 2CC117, RCP CC MOT OP INLET V. B. 2CC118, RCP CC MOT OP INLET VALVE C. 2CC136, RCP BRG MOT OP OUTLET VALVE D. 2CC187, RCP MOTOR CC MOTOR OPERATED OUTLET VALVE. 		
	ARP D20-23 3.2	MONITOR 21 RCP Motor Bearing temperatures. (T0413A, T0414A T0415A, and T0416A)	 Monitors 21 RCP Motor Bearing temperatures. (T0413A, T0414A T0415A, and T0416A) using P-250 computer on the Reactor Coolant Pumps screen, which has 21-24 RCP bearing temperatures. Note: OHA D20-23 are identical except for bearing temperature instrument numbers. Only OHA D-20 for 21 RCP is listed here, but all RCP bearing temperatures should be monitored. 		

DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

	OTED	STEP			COMMENTS
*	NO.	(*Denotes a Critical Step)	STANDARD	EVAL	(Required for UNSAT
				<u> </u>	evaluation)
	ARP D20-23 3.3	 IF either of the following conditions exist, GO TO S2.OP-AB.RCP-0001(Q) Reactor Coolant Pump Abnormality: 21 RCP Motor Bearing Temperature reaches 175°F, or CCW flow can <u>NOT</u> be established within 5 minutes <u>AND</u> 21 RCP Motor Bearing temperatures are trending up. 	Determines 21 RCP Motor Bearing Temperature has not reached 175° (will reach maximum of ~ 157 °F) Determines that RCP Motor Bearing temperatures are not trending up. (The temps will rise from ~141 to 157 quickly, within 3 minutes, and the curve of the line flattens out quickly. There IS still CCW flow going to the RCPs, and it WILL keep them from reaching required pump trip temperatures. IF pace of JPM performance results in it being determined that temperatures are trending up, <u>THEN</u> will go to S2.OP-AB.RCP-001 here.		
	ARP D20-23 3.4	MONITOR CC Surge Tank and Containment Sump Pump runs for leakage indication.	Determines CC Surge Tank and Containment Sump Pump runs do not indicate leakage.		
	ARP D20-23 3.5	<u>IF</u> CC Console alarms header pressure low, <u>OR</u> Surge Tank Level High Low, <u>THEN</u> INITIATE S2.OP-AB.CC-0001, Component Cooling Abnormality.	Initiates S2.OP-AB.CC-0001, Component Cooling Abnormality based on CC header Pressure low console alarms.		
	ARP CC1 2.0	21 (22) CC HDR PRESSURE LO	Determines there are no automatic actions associated with these alarms.		

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NAME: ______ DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP CC1 3.1	ENSURE Seal Injection Flow to each RCP is between 6-12 gpm <u>NOT</u> to exceed 40 gpm <u>total</u> seal injection.	Checks seal injection to each RCP between 6-12 gpm, and total seal injection flow less than 40 gpm.		
	ARP CC1 3.2	IF 2CC131 closed due to momentary high flow while balancing CC flow or pump shifting	Determines 2CC131 did not close on high flow while balancing CC flow or pump shifting.		
	ARP CC1 3.3	IF the High flow alarm also occurs	Determines the High flow alarm is not alarmed.		
	ARP CC1 3.4	 ENSURE OPEN: 2CC190, RCP THERM BAR CC OUTLET V. 2CC117, RCP CC MOT OP INLET V. 2CC118, RCP CC MOT OP INLET VALVE. 2CC131, RCP THERM BAR CC CONT VALVE. 	 Determines the following valves are open on 2CC1: 2CC190, RCP THERM BAR CC OUTLET V. 2CC117, RCP CC MOT OP INLET V. 2CC118, RCP CC MOT OP INLET VALVE. 2CC131, RCP THERM BAR CC CONT VALVE. 		

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NAME: _____

DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

* STEP * NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ARP CC1 3.5	IF the low flow alarm does NOT clear, THEN: A. SEND an operator to: 1. MONITOR CC flow from each RCP seal locally. 2. ENSURE CC valve positions to/from each RCP. B. GO TO S2.OP-AB.RCP-0001, Reactor Coolant Pump			
AB RCP 3.1	Abnormality. INITIATE Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary. Note: The first 2 bulleted CAS actions for 1) losing CCW flow to ALL RCPs 2) not restoring CCW flow within 5 minutes of initial loss are based on a loss of ALL CCW flow. However, if a conservative decision is made that the actions of Attachment 2, Stopping Reactor Coolant Pumps are applicable, then CUE: The CRS directs you to dispatch an operator to 23 CCW pump breaker first to see if there is any apparent reason why 23 CCW pump		

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Component Cooling System SYSTEM:

Take Corrective Action For A Component Cooling Water System Abnormality TASK:

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB RCP 3.2	MONITOR <u>AND</u> COMPARE RCP parameters in Attachment 3 to determine affected RCP(s) until malfunction is corrected or as directed by SM/CRS.	Monitors and compares RCP parameters in Attachment 3 on the Plant Computer, Control Console, and RP Panels, and determines that all RCPs are affected.		
	AB RCP 3.3	 <u>IF</u> Component Cooling Water supply is causing the RCP(s) abnormal condition, <u>THEN</u>: A. ENSURE the following automatic CC valves supplying RCP(s) are OPEN. 2CC117 <u>AND</u> 2CC118, RCP COOLING INLET 	Determines 2CC117 AND 2CC118, RCP		
		 2CC131 <u>AND</u> 2CC190, RCP THERMAL BARRIER VALVE 2CC136 <u>AND</u> 2CC187, RCP BEARING OUTLET B. ENSURE CCW Heat exchanger(s) in service IAW S2.OP-SO.CC-0002(Q), 21 & 22 Component Cooling Heat Exchanger Operation. 	COOLING INLET, 2CC131 AND 2CC190, RCP THERMAL BARRIER VALVE, and 2CC136 AND 2CC187, RCP BEARING OUTLET valves are all open on control console. Determines that CCW system operation prior to the event was normal, and CCW HX(s) are in service. Cue if required: <u>IF</u> verification of CCW HX operation is begun using S2.OP-SO.CC- 0002, <u>THEN</u> cue: "21 & 22 CCW HX's are in service."		
NAME: ______ DATE: _____

SYSTEM: **Component Cooling System**

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		C. ENSURE RCP Seal Injection flows are 6-12 gpm per pump, <u>NOT</u> to exceed 40 gpm total RCP Seal Injection Flow.	Checks RCP Seal Injection flows are 6-12 gpm per pump, total RCP Seal Injection Flow adds up to \leq 40 gpm.		
	AB RCP 3.4	<u>IF</u> any RCP Motor winding temperature, indicated on 2RP4 recoder, is >235°F for Hot Loop Conditions (Modes 1-4), <u>OR</u> >248°F for Cold Loop Conditions (Mode 5) <u>THEN:</u>	Determines all RCP Motor winding temperatures, indicated on 2RP4 recoder, are <235° for Hot Loop Conditions (Modes 1-4). Note: 2RP4 Motor winding temperature recorder is broken, so the following cue is required. Cue: All RCP Motor winding temperatures, indicated on 2RP4 recoder, are <235°		
	AB RCP 3.5	<u>IF</u> Loss of Seal Injection is causing RCP(s) abnormal condition, <u>AND</u> RCP Seal Leakoff is <2.5 gpm on any RCP, <u>THEN:</u>	Determines Loss of Seal Injection flow is not causing RCS(s) abnormal condition.		
	AB RCP 3.6	IF affected RCP Seal Water Leakoff is <0.8 gpm or is slowly appraoching 6 gpm, <u>AND</u> affected Pump bearing/sea inlet temperatures are stable or lowqering, <u>THEN:</u>	Determines affected RCP Seal Water Leakoff is >0.8 gpm and is not slowly approaching 6 gpm from console indications.		

NAME: ______

SYSTEM: Component Cooling System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note: 22 CCW pump will trip 4 minutes after 21 CCW pump trips. Determines last remaining Component Cooling water has tripped.		
	AB RCP CAS 1.0	<u>IF AT ANY TIME</u> , any of the <u>validated</u> RCP conditions exist, <u>THEN GO TO</u> Attachment 2, Stopping Reactor Coolant Pumps:	Determines Component Cooling Water flow has been lost to all RCPs and goes to Attachment 2, Stopping Reactor Coolant pumps.		

NAME: _____

DATE: _____

SYSTEM: Component Cooling System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.RCP	IF Reactor Trip Breakers are CLOSED,			
	Att. 2	THEN:			
*	1.0	1.1 TRIP the Reactor.	Trips the Reactor using either trip handle.		
*		1.2 STOP affected RCP(s).	Depresses stop PBs for 21-24 RCPs.		
		1.3 IF RCP shutdown was due to RCP	Determines RCP shutdown was not due to		
		seal Leakon now > 6gpm, <u>I HEN</u>	RCP seal Leakon now > 6gpm.		
		following:			
		1.4 IF RCP shutdown was due to a	Determines RCP shutdown was due to a		
		TOTAL LOSS of Component Cooling	TOTAL LOSS of Component Cooling		
		Water (including loss of CCW to the	Water and simultaneously performs the		
		CVCS Letdown Heat Exchanger),	following:		
		<u>THEN</u> simultaneously PERFORM the			
		• ISOLATE ROS letdown <u>AND</u> SWAP charging nump suction to			· · · · ·
		the RWST by performing the			
		following:			
*		a) CLOSE 2CV2 AND	Depresses the close PB for 2CV2 AND		
		2CV277 to isolate letdown.	2CV277 to isolate letdown.		
*		b) OPEN 2SJ1 AND 2SJ2 to	Depresses the open PB for 2SJ1 AND		
		swap charging pump	2SJ2 to swap charging pump suction to the		
		suction to the RWST.	RWST.		
*		c) CLOSE 2CV40 <u>AND</u>	Depresses the close PB for 2CV40 AND		
		2CV41 to isolate the VCT.	2CV41 to isolate the VCT.		
		• GO TO 2-EOP-TRIP-1, Reactor	Goes to 2-EOP-TRIP-1, Reactor Trip or		
		I rip or Safety Injection AND	Satety Injection.		
		KEIUKN to this attachment, at	reminate JPM when TRIP-1 immediate		
			actions begin to be performed.		

NAME: ______ DATE: _____

SYSTEM: Component Cooling System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.CC 3.1	INITIATE Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	AB.CC 3.2	Is CCW Surge Tank level >58% and rising?	Determines CCW Surge tank level is < 58% and stable from console indication, goes to Step 3.13.		
	AB.CC 313	Is CCW Surge Tank level <42% and dropping?	Determines CCW Surge tank level is >42% and stable from console indication, goes to Step 3.40.		
	AB.CC 3.40	Is either of the following annunciators in alarm? • 21 CC HDR PRESSURE LO • 22 CC HDR PRESSURE LO	Determines both 21 and 22 CC HDR PRESSURE LO annunciators are in alarm.		
	AB.CC 3.41	START available CC Pumps as necessary to clear CC HDR PRESSURE LO alarms(s).	Determines no CCW pumps are available to be started to clear CC HDR PRESSURE LO alarms(s).		
			Note : 22 CCW pump will trip 4 minutes after 21 CCW pump trips. Determines last remaining Component Cooling water has tripped.		

NAME: _____ DATE: _____

SYSTEM: Component Cooling System

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.CC CAS 1.0	<u>IF AT ANY TIME</u> , any of the <u>validated</u> conditions exist, <u>THEN</u> STOP RCP's IAW Attachment 2, Stopping Reactor Coolant Pumps:	Determines Component Cooling Water flow has been lost to all RCPs and goes to Attachment 2, Stopping Reactor Coolant pumps.		

NAME: ______ DATE: _____

SYSTEM: Component Cooling System

TASK: Take Corrective Action For A Component Cooling Water System Abnormality

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL	COMMENTS (Required for UNSAT
*		IF Reactor Trip Breakers are CLOSED, THEN: A. TRIP the Reactor.	Trips the Reactor using either trip handle.	3/0	evaluation
*		 B. STOP affected RCP(s). C. Simultaneously PERFORM the following: IF a total loss of Component Cooling Water was the initiating event (including loss of CCW to the CVCS Letdown Heat Exchanger), THEN ISOLATE RCS letdown AND SWAP Charging Pump suction to the RWST as follows: 	Depresses stop PBs for 21-24 RCPs.		
*		a. CLOSE 2CV2 <u>AND</u> 2CV277 to isolate letdown. b. OPEN 2S 11 AND 2S 12 to swap	Depresses the close PB for 2CV2 <u>AND</u> 2CV277 to isolate letdown. Depresses the open PB for 2S I1 AND		
		charging pump suction to the RWST.	2SJ2 to swap charging pump suction to the RWST.		
*		 c. CLOSE 2CV40 AND 2CV41 to isolate the VCT. IF a Component Cooling Water LEAK in Containment with 2CC113 AND 2CC215 closed was the initiating event, THEN CLOSE the following valves: GO TO 2-EOP-TRIP-1, Reactor Trip or Safety Injection. 	Depresses the close PB for 2CV40 <u>AND</u> 2CV41 to isolate the VCT. Detemines CCW leak in containment was not the initiating event. Goes to 2-EOP-TRIP-1, Reactor Trip or Safety Injection. Terminate JPM when TRIP-1 immediate		
			actions begin to be performed.		

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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.

- <u>Y</u>. 1. Task description and number, JPM description and number are identified.
- <u>k</u>*G*. 2. Knowledge and Abilities (K/A) references are included.
- <u>1</u>3. Performance location specified. (in-plant, control room, or simulator)
- <u>10</u> 4. Initial setup conditions are identified.
- <u>V</u>. 5. Initiating and terminating Cues are properly identified.
- <u>1</u>. 6. Task standards identified and verified by SME review.
- 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- LG-8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. <u>14</u> Date <u>6-30-11</u>
- 9. Pilot test the JPM: 26 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: / Uni M. Riedmullen

SME/Instructor:_____

SME/Instructor:_____

Date:	6.30-11	

Date: _____

Date: _____

INITIAL CONDITIONS:

100% power, EOL.

INITIATING CUE:

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

•

STATION:	SALEM				
SYSTEM:	Control Room Evacuation				
TASK:	Control charging flow after Con	ntrol Room evacuation.			
TASK NUMBER:	1130070501				
JPM NUMBER:	09-01 NRC IP-i				
ALTERNATE PATH:		K/A NUMBER: APE 068 AA1.22			
APPLICABILITY: EO R		$\frac{4.0}{\text{RO}} = \frac{4.3}{\text{SRO}}$			
EVALUATION SETTING	/METHOD: In Plant/Simul	ate			
REFERENCES: S2.	OP-AB.CR-0001, Rev. 22 Att. 5	5			
TOOLS AND EQUIPMEN	NT: JAM Key				
VALIDATED JPM COMF	PLETION TIME: 10	min			
TIME PERIOD IDENTIFI	ED FOR TIME CRITICAL STEP	PS: <u>N/A</u>			
Developed By:	G Gauding Instructor	Date: 06-30-11			
Validated By:	J Pierce, Jr SME or Instructor	Date: 07-28-11			
Approved By:	Araining Department	Date: 2-2-11			
Approved By:	Operations Department	Date: 8/1/11			
ACTUAL JPM COMPLETION TIME:					
ACTUAL TIME CRITICAL COMPLETION TIME:					
PERFORMED BY:					
GRADE: SAT	UNSAT				
REASON, IF UNSATISF	ACTORY:				
EVALUATOR'S SIGNAT	URE:	DATE:			

NAME: _____

DATE:

SYSTEM: CVCS

TASK:Control charging flow after Control Room evacuation.

TASK NUMBER: 1130070501

INITIAL CONDITIONS:

- 1. The Control Room has been evacuated in accordance with S2.OP-AB.CR-0001, Control Room Evacuation.
- 2. A reactor trip from 100% was initiated prior to evacuating the Control Room.

INITIATING CUE:

You have been directed to take local control of charging flow per S2.OP-AB.CR-0001, Control Room Evacuation Att. 5, starting at Step 8.0. Steps 1.0-7.0 have been completed.

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. Take local control of 2CV55.
- 2. Adjust air operator to change charging flow from current reading to 70 gpm.

NAME: ______ DATE: _____

SYSTEM: CVCS

TASK: Control charging flow after Control Room evacuation.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator reviews a copy of S2.OP-AB.CR-0001, Att. 5, and proceeds to Charging Pump Alley, El. 84.	Evaluator provides copy of Attachment 5, and a JAM Key. Note: If operator inquires why steps 1.0- 7.0 are not signed off, state that another		
			has the procedure with him in the field.		
			Proceeds to Panel 216-2, Chg Pmps FL & PR Inst Pnl.		
			Note: Panel 216-2 will alarm in the Control Room. The Control Room must be notified prior to opening this panel, and when it is secured.		
	8.0	TAKE local control of 2CV55, Cent Chg Pmp Flow Cont Valve, by performing the following:			
	8.1	RECORD the charging flow as indicated on 2FI-128A.	Records charging flow from 2FI-128A, Charging Pump Flow Indication.		
*	8.2	PLACE local E/P Bypass Line Selector Valve in Manual.	Locates local E/P Bypass Line Selector Valve and discusses turning valve to Manual.		

NAME:	 		
DATE:			

SYSTEM: CVCS

TASK: Control charging flow after Control Room evacuation.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	8.3	Using the MANUAL hand air operator, ENSURE that the flow rate as noted in Step 8.1 is being maintained with 2CV55.	Reads flowrate from 2FI-128A, Charging Pump Flow Indication to ensure the flow rate is maintained with 2CV55. Cue: Flow rate is the same as that recorded in Step 8.1.		
	8.4	OBSERVE local air pressure indicator to verify local control.	Points out local air pressure indicator. Cue: Air pressure on local air pressure indicator is 8 psig.		

NAME: ______ DATE: _____

SYSTEM: CVCS

TASK: Control charging flow after Control Room evacuation.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	9.0	NOTIFY the CRS and STA that Steps 1.0-8.0 of Att. 5 are completed.	Locates page or states that they would walk to HSD Panel, to inform CRS and STA that steps 1-8 of Attachment 5 are completed.		
			Note: May inform CRS and STA that Step 8 is completed, since they didn't perform Steps 1-7.		
			Cue: The CRS directs you to adjust charging flow to 70 gpm (Evaluator: or a value not currently read on FI-128A).		
*			Discusses adjusting flow using MANUAL hand air operator. <u>Raises</u> air pressure to lower flow or <u>lowers</u> air pressure to raise flow. (2CV55, Cent Chg Pmp Flow Cont Valve is fail open valve)		-
			Cue: If candidate states they would LOWER air pressure, then provide feedback that charging flow indicated on FI-128A has risen to 5 gpm above that recorded in Step 8.1. When candidate RAISES air pressure, then provide feedback that charging flow indicated on FI-128A has lowered to 70 gpm.		

Terminating Cue: Adjusts air pressure to match new requested flow rate. State "this JPM is 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.

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. $\frac{1}{2}$ 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. <u>22</u> Date <u>2/28/u</u> 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. γ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page. S J. PIERCE Date: 7/28/11 SME/Instructor: SME/Instructor: Date: Date: SME/Instructor:

INITIAL CONDITIONS:

- 1. The Control Room has been evacuated in accordance with S2.OP-AB.CR-0001, Control Room Evacuation.
- 2. A reactor trip from 100% was initiated prior to evacuating the Control Room.

INITIATING CUE:

You have been directed to take local control of charging flow per S2.OP-AB.CR-0001, Control Room Evacuation Att. 5, starting at Step 8.0. Steps 1.0-7.0 have been completed.

STATION:	SALEM			
SYSTEM:	Auxiliary Feedwater			
TASK:	Reset Auxiliary Feedwater Pump Turb	oine Trip Valve	MS52	
TASK NUMBER:	113 004 05 01			
JPM NUMBER:	09-01 NRC IP-j			
ALTERNATE PATH:	K/A		APE 068 /	AA1.02
APPLICABILITY: EO				SRO
EVALUATION SETTIN	IG/METHOD: In Plant	_		
REFERENCES:	SI 2. OP-AB.CR-0001, Control Room Evacu	ation, Rev	Att. 13	
TOOLS AND EQUIPM	ent: None	19 8.10	-1)	
VALIDATED JPM CO	MPLETION TIME: 8 min			
TIME PERIOD IDENTI	FIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	06-24-11	
Validated By:	J Pierce, Jr. SME or Instructor	Date:	07-28-11	
Approved By:	Praining Department	Date:	8-2-11	
Approved By:	Operations Department	Date:	8/1/11	
ACTUAL JPM COMPI				
ACTUAL TIME CRITIC	CAL COMPLETION TIME:			
PERFORMED BY:				
GRADE: SAT				
REASON, IF UNSATIS	SFACTORY:			
EVALUATOR'S SIGN	ATURE:		DATE:	

Page 1 of 7 PSEG Restricted- Possession Requires Specific Permission from Nuclear Training

NAME	
DATE	

SYSTEM: AUXILIARY FEEDWATER SYSTEM

TASK:Reset an Auxiliary Feedwater Turbine Trip Valve (MS52)

 TASK NUMBER:
 113 004 05 01

INITIAL CONDITIONS: Unit 1 reactor has been tripped and the Unit 1 control room has been evacuated due to a bomb threat. 13 AFW Pump has tripped on over speed.

INITIATING CUE: You have been directed to reset 13 AFW Pump Turbine Trip Valve (1MS52) IAW S1.OP-AB.CR-0001, Control Room Evacuation, Attachment 13, Turbine - Driven AFW Pump Restoration. Maintenance has corrected the cause of the overspeed trip, and there are no AUTO start signals present for 13 AFW pump.

SUCCESSFUL COMPLETION CRITERIA:

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

Task Standard for Successful Completion: 1. Perform Attachment 13 in correct sequence.

NAME:				_
DATE:				_

SYSTEM: Auxiliary Feedwater TASK: Reset MS52

*	STEP No.	STEP (*Denotes Critical Step)	STANDARD	EVAL S/U	COMMENTS
		Provide operator with the correct procedure, S1.OP-AB.CR-0001, Rev. 17, Att.13.	Operator obtains procedure.		
			Contacts Control Room and reports that they will be entering 13 AFP Room. Note : 13 AFP Room is a High Energy Line Break (HELB) area, and the Control Room must be contacted prior to opening door or access panel to room.		
	1.0	RESETTING 1MS52			
*	1.1	SEAT tappet nut by slightly pulling Head Lever away from trip linkage <u>AND</u> CHECK that the Emergency Trip Lever is in its RESET position (horizontal).	Verifies tappet nut seated and EMERGENCY TRIP LEVER in reset position. Cue: Tappet nut seated and EMERGENCY TRIP LEVER is reset.		
*	1.2	ROTATE 1MS52 handwheel in the closed direction (clockwise). This will cause the Latch-Up Lever to move up toward the Trip Hook.	Simulates rotating 1MS52 13 AFW Pp Turbine Trip Valve handwheel clockwise and verifies Latch-Up Lever moving toward Trip Hook. Cue : Lever is moving towards trip hook.		

NAME:		 		 _
DATE:			 	

SYSTEM: Auxiliary Feedwater TASK: Reset MS52

*	STEP No.	STEP (*Denotes Critical Step)	STANDARD	EVAL S/U	COMMENTS
*	1.3	CHECK that the Latch-Up Lever moves up into position, that it moves to and engages the Trip Hook.	Verifies Trip Hook engages. Cue : Trip Hook is engaged.		
	1.4	PULL UP on the Hand Trip Lever to ensure full engagement of the Trip Hook and Latch-up Lever.	Points out Hand Trip Lever to ensure full engagement of the Trip Hook and Latch-up Lever. Cue : Trip Hook and Latch-up Lever are fully engaged.		
		CAUTION: Extra caution is advised while in the Turbine Driven AFW Pump Room when resetting the AFW Pump with AUTO Start signals locked in. In this condition, the pump will start. Leaving 1MS52 backseated may impose more reaction loading on the Trip Hook than the Trip Linkage can overcome, thus rendering the 1MS52 trip function INOPERABLE.			
*	1.5	Slowly ROTATE 1MS52 handwheel in the OPEN direction (<u>counter-clockwise</u>) until the Split Coupling raises and makes contact with the bottom of the Sliding Nut <u>OR</u> the valve comes to rest on the backseat.	Simulates rotating Handwheel counter- clockwise and verifies Split Coupling makes contact with Sliding Nut OR the valve comes to rest on the backseat. Cue : Split Coupling makes contact with Sliding Nut.		

NAME:		 		
DATE:		 	_	

SYSTEM: Auxiliary Feedwater TASK: Reset MS52

*	STEP No.	STEP (*Denotes Critical Step)	STANDARD	EVAL S/U	COMMENTS
*	1.6	ROTATE 1MS52 handwheel clockwise approximately one turn until handwheel moves freely <u>AND</u> Latch-up lever is in full contact with Trip Hook.	Simulates rotating1MS52 Handwheel clockwise one turn and verifies Handwheel moves freely <u>AND</u> Latch-up lever is in full contact with Trip Hook. Cue : Handwheel moves freely and Latch-up lever is in full contact with Trip Hook.		
	1.7	ENSURE turbine stops spinning (indicates 1MS132 is seated)	Determines shaft is not spinning.		
	1.8	ENSURE proper engagement of tappet nut and head lever IAW Att. 13, page 2, 13 AF Pump Trip/Throttle Valve & Overspeed Trip Mechanism, Overspeed Trip Mechanism Reset.	Ensures proper engagement of tappet nut and head lever IAW Att. 13, page 2.		

TERMINATING CUE: When report is made that 1MS52 is reset, state JPM is complete. Ensure Control Room is contacted after 13 AFW pump room access door/panel is shut.

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.

-2 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. 22 Date $1/28/92$ $2/28/11$
9. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and b. ensure performance time is accurate.
2 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: 1/10 J. PIERCE

Date: 1/28/11 Date: _____

SME/Instructor:_____

SME/Instructor:_____

Date:

INITIAL CONDITIONS:

Unit 1 reactor has been tripped and the Unit 1 control room has been evacuated due to a bomb threat. 13 AFW Pump has tripped on over speed.

INITIATING CUE:

You have been directed to reset 13 AFW Pump Turbine Trip Valve (1MS52) IAW S1.OP-AB.CR-0001, Control Room Evacuation, Attachment 13, Turbine - Driven AFW Pump Restoration. Maintenance has corrected the cause of the overspeed trip, and there are no AUTO start signals present for 13 AFW pump.

STATION:	SALEM			
SYSTEM:	Control Room Evacuation			
TASK: TASK NUMBER:	TCAF Control Room Evacuati Trip SGFP's) 1140130401	on (Trip Turbine, Ope	n Exciter Field Breaker,	
JPM NUMBER:	09-01 NRC IP-k			
ALTERNATE PATH: APPLICABILITY: EO		K/A NUMBER: _ RTANCE FACTOR: _ SRO X	APE 068 AA1.04, AA1.23 AA1.27 All >2.5 RO SRO	3,
EVALUATION SETTING	/METHOD: In Plant/ Sim	ulate		
REFERENCES: S2.	OP-AB.CR-0001, Rev. 22 Att.	8 (checked 6-24-11)		
TOOLS AND EQUIPME	NT: None			
VALIDATED JPM COMP	PLETION TIME:10	min		
TIME PERIOD IDENTIFI	ED FOR TIME CRITICAL STE	PS:N/	A ·	
Developed By:	G Gauding Lead Regulatory Exam Aut	:hor	06-24-11	
Validated By:	J. P.exec SME or Instructor	Date:	7.28.11	
Approved By:	Haining Department	Date:	8-2-11	
Approved By:	Operations Department	Date:	8/1/11	
ACTUAL JPM COMPLE	TION TIME:			_
ACTUAL TIME CRITICA	L COMPLETION TIME:			
PERFORMED BY:				
GRADE: SAT	UNSAT			
REASON, IF UNSATISF	ACTORY:			
EVALUATOR'S SIGNAT			DATE:	

SYSTEM: Control Room Evacuation

TASK: TCAF Control Room Evacuation (Trip Turbine, Open Exciter Field Breaker, Trip SGFP's)

TASK 1140130401

NUMBER:

CONDITIONS:

The control room has been evacuated due to a bomb threat.

INITIATING CUE:

You are assigned to carry out the actions of S2.OP-AB.CR-001, Control Room Evacuation, Attachment 8, Steps 2.0-4.0: Trip the Main Turbine, open the Exciter Field Breaker, Trip both SGFP's. Assume you have the equipment required by the 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. Locate and describe TRIP operation of Reset-Normal-Trip Lever at Turbine Front standard.
- 2. Locate and describe opening of Exciter Field Breaker.
- 3. At SGFP area, locate and describe at least one method of locally tripping SGFPs.

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME:	 	
DATE:		

SYSTEM ABNORMAL PROCEDURES

TASK: TCAF Control Room Evacuation: Trip MT, Open Exciter Field Breaker, Trip SGFP's

#	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	1	Operator reviews procedure.	Evaluator provides copy of S2.OP- AB.CR-1, Control Room Evacuation Att. 8.		
*	2	Proceed to Turbine Front Standard, and place the Reset-Normal-Trip Lever in the TRIP position.	Proceeds to turbine front standard, locates Reset-Normal-Trip lever and points out TRIP position.		
*	3	Proceed to Excitation System Control Cubicle and open Generator Exciter Field Breaker.	Proceeds to Turb. Bldg., El. 120, (North End) locates Generator Exciter Field Breaker and discusses opening.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME:	 _	_	_

DATE: _____

SYSTEM ABNORMAL PROCEDURES

:

TASK: TCAF Control Room Evacuation: Trip MT, Open Exciter Field Breaker, Trip SGFP's

#	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	4	Locally, trip the following: • 21 SGFP • 22 SGFP	 Proceeds to Turb. Bldg., El. 100, and discusses operation of at least one of the ways to locally trip the SGFPs. 1. Pulling out the OS trip plunger 2. Depressing the "Local Emergency TRIP" button under glass on side of SGFP. 3. Depressing the Emergency Stop PB on the Woodward 505 Digital Control panel. 4. Opening Thrust Oil drain valves 21PL73 or 22PL73. (21 SGFP Trip Test Loading Oil ISLN VLV behind panel; same for 22) (If they select a different method such as de-energizing COPU, evaluate after JPM complete) 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. 2 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. 22 Date $\frac{\sqrt{28/2}}{\sqrt{28/2}}$ 9. Pilot test the JPM: a. verify Cues both verbal and visual are free of conflict, and b. ensure performance time is accurate. $\mathcal{O}_{\mathcal{I}}$ 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. 7/28/11 > J. PIERCE Date: SME/Instructor: SME/Instructor: Date:

SME/Instructor:_____

Date:

INITIAL CONDITIONS:

The control room has been evacuated due to a bomb threat.

INITIATING CUE: You are assigned to carry out the actions of S2.OP-AB.CR-001, Control Room Evacuation, Attachment 8, Steps 2.0-4.0: Trip the Main Turbine, open the Exciter Field Breaker, Trip both SGFP's. Assume you have the equipment required by the procedure.

Appendix	D		Scenario Outline Form ES-D-1				
Facility: _ Examine Initial Co Pressure Turnover	SALEM 1 & 2 rs: 	ower, BOL. 21 A for calibration.	nario No.: ESG-1 Op-Test No.: <u>09-01 NRC</u> Operators: AFW pp C/T for oil leak repair. 21 CFCU is C/T. PZR				
Event No.	Malf. No.	Event Type*	Event Description				
1	PR0017A	l CRS/RO	Controlling PZR level ch failure (TS)				
2	RC0002	C ALL	RCS leak (TS)				
3		N ALL	Power Reduction (directed based on RCS leak)				
4	RC0002	MALL	SBLOCA (~100 gpm)				
5	RP0342 RP0343	C CRS/RO	Failure of automatic High Head injection				
6	AF0182A RP318E2 O/R B606	C CRS/PO	AFW fails to automatically actuate				
7	O/R C206	C CRS/PO	SEC fails to reset				
8	RC0002	C CRS/RO	SBLOCA escalation (ECCS flow re-initiation in TRIP-3)				
			CT's 1. Establish hi head ECCS. 2. Initiate AFW flow. 3.Re-start ECCS pps				

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

O/R = Override

SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	RCS Leak, Escalating SBLOCA	
SCENARIO NUMBER:	09-01 NRC ESG-1	
EFFECTIVE DATE:	See Approval Date	
EXPECTED DURATION:	77 minutes	
REVISION NUMBER:	00	
PROGRAM:	L.O. REQUAL	
	STA	
	OTHER	
Revision Summary		
New Issue for 09-01 NRC Exam		
PREPARED BY:Lead Reg	G Gauding ulatory Exam Author	07-04-11 Date
APPROVED BY:Operatio	ns Training Manager	8-2-1, Date
APPROVED BY:	Representative	8/1/11 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 with multiple OHAs in alarm, the crew will prioritize, validate and then determine a course of action when provided with additional information, IAW approved station procedures.
- C. Given the order or indications of a charging system malfunction, perform actions as the nuclear control operator to RESPOND to the loss or malfunction of the charging system in accordance with the approved station procedures.
- D. Given indication of a loss or malfunction of the Charging system DIRECT corrective action for a Charging System malfunction in accordance with the approved station procedures.
- E. Given the indications of a reactor coolant system (RCS) malfunction or leak, perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with the approved station procedures.
- F. Given the indications of a reactor coolant system (RCS) malfunction or leak, DIRECT the response to the malfunction in accordance with the approved station procedures.
- G. Given the unit at power with an RCS leak greater than the Tech. Spec. limit, take corrective action IAW AB.RC-0001.
- H. 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.
- I. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- J. 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.
- K. Given indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.
- L. 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.
- M. Given indication of a loss of coolant accident (LOCA), DIRECT the immediate response to the LOCA in accordance with the approved station procedures.
- N. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

II. MAJOR EVENTS

- A. Controlling PZR level channel fails low
- B. 17 gpm RCS leak
- C. 100 gpm SBLOCA
- D. 1800 gpm SBLOCA

III. SCENARIO SUMMARY

- A. The crew takes the watch with the unit at 100% power, BOL. 21 AFW pump is C/T for oil bubbler repair. 21 CFCU is C/T after it tripped 1 hour ago. 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 maintain 100% power.
- B. Shortly after taking the watch the controlling PZR level channel will fail low, and a 17 gpm RCS leak will commence ramping in over 12 minutes. The CRS will enter S2.OP-AB.CVC-0001, Loss of Charging. The crew will respond and take manual control of the Master Flow Controller, swap to an operable level channel, restore letdown and PZR level, and return the system to auto. The CRS will enter the appropriate Tech Spec.
- C. The crew will diagnose the RCS leak based on indications and alarms. The CRS will enter S2.OP-AB.RC-0001, Reactor Coolant System Leak. The crew will swap to a centrifugal charging pump and quantify the leak. The CRS will identify that the Unidentified RCS leak rate exceeds Tech Spec limits, and a unit shutdown is required.
- D. During the power reduction, the RCS leak will worsen to a 100 gpm SBLOCA. The crew will identify that the RCS leak rate exceeds the capacity of the CVCS makeup system. The CRS will direct a Rx trip and Safety Injection be initiated.
- E. The High Head ECCS injection valves 2SJ12 and 2SJ13 fail to open on the Safety Injection signal. The crew opens the valves from the control room to establish High Head ECCS injection.
- F. AFW fails to initiate based on: 21 AFW pump C/T, 22 AFW pump fails to start on the SEC initiation signal, and 23 AFW pump governor fails to minimum speed. The crew establishes AFW flow by blocking and resetting 2B SEC and starting 22 AFW pump. 23 AFW pump remains unavailable for the remainder of the scenario.
- G. The crew performs diagnostics in EOP-TRIP-1, Rx Trip Response, and transitions to EOP-TRIP-3, Safety Injection Termination based on the size of the RCS LOCA. The 2C SEC cannot be reset, and will be deenergized to establish control over C bus equipment.
- H. Once ECCS equipment has been removed from service, the SBLOCA will increase in size. The crew will diagnose the inability to maintain PZR level, and start ECCS pumps to maintain PZR and RCS subcooling.
- I. The scenario will be terminated when the crew has started sufficient ECCS pumps to maintain PZR level and RCS subcooling .

IV. INITIAL CONDITIONS

IC-241 100% power, BOL

P	REP 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 21 AFW pump C/T.
- ____11 21 CFCU C/T.
- ____ 12 **2PR7** shut and deenergized.
- 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.
- ____ 14 SGBD directed to Condenser placard on 2CC3.
- 15 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

	EVE	NT TRIGGERS:	
Initial	ET #	Description	
1		EVENT ACTION:	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP)
	1	COMMAND:	<update as="" needed=""></update>
:		PURPOSE:	

MA	LFUNCTIONS:					
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	PR0017A PZR LEVEL CH I (LT459) FAILS H/L	N/A	N/A	N/A	RT-1	0
02	RC0002 RCS LEAK INTO CONTAINMENT (equiv to 0- 4 inches)	N/A	0	00:15:00	RT-1	17
03	RP0342 2SJ12 FAILS TO AUTO OPEN ON SEC	N/A	N/A	N/A	N/A	
04	RP0343 2SJ13 FAILS TO AUTO OPEN ON SEC	N/A	N/A	N/A	N/A	
05	RP318E2 Aux Feed Pump 22 Fails to Start on SEC	N/A	N/A	N/A	N/A	
06	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
07	AN0328 SER 328 FAILS - :A12 REACTOR PROT SYS CHANNEL II INSTRUMENT LOOP IN TEST	NA	N/A	N/A	N/A	SER POINT FAILS/OVRD TO ON

RE	MOTES:					
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	AF20D 21 AFW PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
02	PR02D PZR HI PR RX TRP CH 2 PC456A BS	N/A	N/A	N/A	N/A	TRIP
03	PR13D PZR LO PR BLK SI CH 2 PC456B BS	N/A	N/A	N/A	N/A	TRIP
04	PR06D PZR LO PR RX TRP CH 2 PC456C BS	N/A	N/A	N/A	N/A	TRIP
05	PR10D PZR LOW PRESS SI CH 2 PC456D BS	N/A	N/A	N/A	N/A	TRIP
06	RC02D OT DELTA T TRIP CH II BS (421C)	N/A	N/A	N/A	N/A	TRIP
07	RC06D OT DELTA T R/BCK CH II BS (421D)	N/A	N/A	N/A	N/A	TRIP
08	PR35D PORV STOP VALVE 2PR7 TAGGED	N/A	N/A	N/A	N/A	TAGGED
09	CT191-1D 21 CFCU BKR #1 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF
10	CT191-2D 21 CFCU BKR #2 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF
11	CT191-3D 21 CFCU BKR #3 Low Speed 125VDC	N/A	N/A	N/A	N/A	OFF
12	DG03D DEENERGIZE "C" SEC CABINET	N/A	N/A	N/A	RT-3	YES

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SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
01	B606 F DI 23 AUX FEED PUMP-SPEED DECREASE	N/A	N/A	- N/A	ET-1	ON
02	B606 E DI 23 AUX FEED PUMP-SPEED INCREASE	N/A	N/A	N/A	ET-1	OFF
03	C206 A DI 2C SFGD EMER OPR-EMERG LOADING RESET	N/A	N/A	N/A	N/A	OFF

Description

_____ 1. None

PSEG Restricted - Possession Requires Specific Permission from Nuclear Training

V. SEQUENCE OF EVENTS

- A. State shift job assignments and review scenario objectives.
- 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.
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|-------------------------------|--|--|
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1. PZR Level Controlling Channel (LT459) Fails Lo

Simulator Operator: Insert <u>RT-1</u> on direction from Lead Evaluator. MALF: PR0017A PZR level CH 1 (LT459) Fails Low Final Value: 0

MALF: RC0002 RCS leak into containment Final Value: 17 Ramp: 15 minutes

RO announces OHA E-36, PZR HTR OFF LVL LO, and console alarm PZR LO LVL as unexpected, and diagnoses failure of PZR controlling level channel.

RO may place Master Flow Controller in manual and reduce flow to minimize level rise in PZR prior to Abnormal Procedure entry.

CRS enters S2.OP-AB.CVC-0001, Loss of Charging.

CRS directs initiation of Attachment 1, Continuous Action Summary.

RO reports letdown is isolated.

RO reports 23 charging pump is running.

Evaluator/Instructor Activity	Expected Plant/Student Response	TQ-AA-106-0204 Page 10 of 30 SBT Comment
		LOG
	RO reports there is no indication of cavitation.	
	RO reports PZR level channel I has failed low.	
Note: RCP seal injection flow will lower as charging flow is lowered, and CV71 may have to be adjusted to maintain at least 6 gpm seal	RO takes manual control of charging flow if not previously done, and lowers charging flow to minimize level rise in PZR.	
injection now to each RCP.	RO selects channel III for control, and reports expected clearing of OHA E-36, PZR HTR OFF LVL LO, and console alarm PZR LO LVL.	
	RO reports OHA E20, PZR HTR ON LVL HI as expected due to no letdown flow.	
	RO places control heaters and one group of backup heaters in ON.	
Note: An auto makeup to the VCT may occur depending on how quickly crew restores letdown flow, and is an expected condition.	 PO restores letdown by: Ensuring open 2CV7 Placing 2CV18 in Manual closed Opening 2CV18 until close PB extinguishes. Opening 2CV2 and 2CV277 and placing in auto. Ensure charging flow 85-90 gpm. Open a 75 gpm orifice while adjusting 2CV18 to maintain letdown pressure ~300 psig. When selected orifice is open, place 2CV18 in auto. 	
	CRS directs RO to restore charging flow	
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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
477 a. 454 - Yan Angel Manana, ang kanana ang kanang ang kanang kanang kanang kanang kanang kanang kanang kanan Kanang kanang	controller to auto when PZR level is restored to program.		
Note: Charging flow should not be lowered lower than ~65 gpm to ensure adequate cooling of letdown flow through the Regen HX and prevent flashing in the Letdown	RO manually lowers charging flow to restore PZR level is restored to program.		
me.	CRS directs PO to remove PZR level channel I from service IAW S2.OP-SO.RPS-0003.		
	CRS enters TSAS 3.3.1.1 action 6.		
	PO verifies PZR Level channel III selected for control, Channel II selected for alarm, and selects PZR level recorder to channel II or III.		
Note: Crew may identify rising 2R11A prior to RMS alarm. CRS should enter S2.OP-AB.RC-0001, Reactor Coolant System Leak, or S2.OP-AB.RAD-0001, Abnormal Radiation upon indication that containment radiation level is rising.	PO informs CRS that IC support is required to perform remainder of procedure.		

Comment

2. RCS leak

Note: The 2R11A monitor, Containment Particulate, will go into warning at ~8 minutes from leak onset. Warning does not provide annunciation. 2R11A will go into Alarm ~ 11 minutes after leak onset, and will cause OHA A-6 to annunciate.	RO announces unexpected OHA A-6, RMS Trouble.
Note: Master Flow Controller may be in auto or manual at this point.	RO reports 2R11A is in alarm. CRS enters S2.OP-AB.RC-0001, Reactor Coolant System Leak, or S2.OP-AB.RAD- 0001, Abnormal Radiation.
Note: OHA C-2 will annunciate ~13 minutes after RT-1 insertion.	RO reports unexpected OHA C-2, CNTMT SUMP PMP START. CRS directs initiation of Attachment 1,
	Continuous Action Summary.
	RO reports RCS temperature is >350°F, and the unit is in MODE 1.
	RO raises charging flow to determine if PZR level can be maintained stable or rising, and reports that with maximum charging flow, PZR level is dropping slowly.
	RO reports a centrifugal charging pump is not running.

SBT

LOG

PO places 2 CFCUs in slow speed and 2 CFCUs in fast speed IAW CAS Step 4.0.

RO transfers to a centrifugal charging pump as follows:

- Ensures Master Flow Controller in auto.
- Shuts 2CV55.
- Starts a centrifugal charging pump
- Place 23 charging pump speed controller in manual and lowers 23 charging pump speed to minimum while adjusting 2CV55.
- Stops 23 charging pump when at minimum flow.
- Adjusts 2CV55 to stabilize PZR level.
- Maintains RCP seal injection flow 6-12 gpm per pump not to exceed 40 gpm total seal injection flow.

RO swaps to 45 gpm letdown orifice if required to stabilize PZR level.

RO reports 2CC131 Discharge Flow Lo console alarm when second letdown orifice is placed in service, and reports its clearing when 2nd orifice is removed from service.

RO stabilizes PZR level and estimates RCS leak rate.

RO reports PZR level can be maintained stable or rising.

RO ensures CVCS makeup system in service.

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Note: Alarm is due to the letdown HX CCW TCV 2CC71 opening due to the increased letdown flow, and will clear when 2nd orifice is shut.

Evaluator/Instructor Activity

Note: With RCS leak fully ramped in the leakrate is 20 gpm.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	CRS directs initiation of S2.OP-ST.RC-0008, RCS Water Inventory Balance.		
	CRS identifies Tech Spec 3.4.7.2.b for RCS unidentified leakage.		
Role Play: When directed by Lead Evaluator, call the CRS as the Operations Director. State" This is John Garecht. The Shift Manager has just updated me on the status of the Unit 2 RCS leak rate. I want you to have Unit 2 Rx shutdown within the next 2 hours. Commence the Unit 2 shutdown expeditiously."			
3. Power Reduction	CRS briefs crew on load reduction.		
	CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction.		
	CRS directs initiation of Attachment 1, Continuous Action Summary.	r	
	CRS directs RO and PO to coordinate and initiate a Turbine Load Reduction (at least 1% per minute.)		
	RO calculates boration required for load reduction.		
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Evaluator/Instructor Activity	Expected Plant/Student Response	CDT	Page 15 of 30
	Expected Flandbludent Response	LOG	Comment
	RO initiates boration.	a zarodni nakoli – rako uzioni menerale koko degoziste di kostatele	anino-Chantania Anina Anina Anino
Note: Digital EHC is set up for a SGFP trip to 66% turbine power at 15% per minute. PO must change rate to the rate directed by the CRS.	PO initiates load reduction at rate directed by CRS, and ensures load reduction starts.		
	RO maintains Tavg on program during load reduction by ensuring control rods automatically insert when Tavg-Tref deviation reaches +1.5°F.		
	RO energizes all PZR heaters.		
Proceed to next event after sufficient power reduction has been performed at direction of Lead Evaluator.			

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4. SBLOCA

Simulator Operator: Modify MALF RC0002 from 17 to 100 with no ramp or delay on direction from Lead Evaluator.

RO reports OHAs E-28 PZR HTR ON PRESS LO and C-38 CFCU LK DET HI.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
naadaa oo kaadaa ahaadaa kuu dhaxaa ahaan ahaa ahaa ahaa ahaa ahaa aha	RO reports PZR pressure lowering.		
	RO reports PZR level dropping faster than expected for the downpower.		
	RO reports PZR level cannot be maintained on program.		
5. Rx Trip, failure of High Head ECCS injection.	CRS directs RO to trip the Rx, confirm the trip, initiate Safety Injection, then perform immediate actions of EOP-TRIP-1.		
	RO trips the Rx using either Trip handle.		
	RO confirms the Rx trip and initiates Safety Injection with either key switch.		
Simulator Operator: Ensure <u>ET-1</u> is True upon the Rx trip. This inserts the 23 AFW pump governor failure.			
	 RO performs Immediate Actions for TRIP-1: Trip reactor Confirms reactor trip Trips turbine Verifies at least one 4KV vital bus energized 		

- Reports SI initiated

CRS and RO verify performance of immediate actions.

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Evaluator/Instructor Activity	Expected Plant/Student Response PO reports AFW status: - 21 AFW pump not available. - 22 AFW pump not running. - 23 AFW pump coasting down with speed demand at zero.	SBT LOG	Comment
	RO announces Unit 2 Rx trip, Safety Injection on plant page.		
	PO reports SEC loading is not complete for energized vital buses, and determines 22 AFW pump did not start.		
Note: When the 2B SEC is reset, 22 AFW pump will start due to the lo-lo SG NR signal which is present.	PO blocks and resets 2B SEC.		
CT #1: (E-OF) Establish the minimum required AFW flow rate (22E4 lbm/hr) to the SGs before transition out of EOP-TRIP-1. SATUNSAT	PO reports 22 AFW pump is running.		
	PO throttles AFW flow to no less than 22E4 lbm/hr.		

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	RO reports 2SJ12 and 2SJ13 have not opened as expected.		
CT #2: (E-OI) Establish flow from at least one High Head ECCS pump before transition out of EOP-TRIP-1.	RO opens 2SJ12 and 2SJ13 to establish high head ECCS injection flow.		
SATUNSAT			
i a teadin nan yének yang nang nang haring kang kang kang kang kang kang kang ka	RO reports 21/22CA330's are shut.		
	RO reports containment pressure has remained less than 15 psig, and will report to CRS if it exceeds 15 psig.		
	RO reports no indication of high steam flow coincident with low steam pressure or lo-lo Tavg.		
	PO reports all 4KV vital busses are energized.		
	RO reports control room ventilation is in Accident Pressurized mode.		
	RO runs 2 switchgear supply and one exhaust fans.		
	RO reports 2 CCW pumps in operation.		
	RO reports cold leg recirc has not been established.		
	RO reports greater than 100 gpm charging flow SI systems charging flowmeter.		
PSEG	Restricted - Possession Requires Specific Permis	sion from Nuclear Tra	ining

Comment

SBT

LOG

RO reports RCS pressure is >1540 psig.

PO reports AFW flow is > 22E4 lbm/hr.

PO receives permission to throttle AFW flow < 22E4 lbm hr when at least one SG NR level is > 9%, and maintains intact SG NR levels between 9-33%.

RO reports all RCPs are running.

RO reports RCS Tavg is stable at or trending to 547°F.

RO reports both reactor trip breakers are open.

RO reports both PZR PORVs are shut and both PORV block valves are open.

RO reports all RCPs running and spray valves shut.

RO reports RCS pressure is > 1350 psig.

RO maintains seal injection flow to all RCPs.

PO reports no SGs are depressurizing in an uncontrolled manner or completely depressurized.

RO reports no indications of any SGTR.

RO reports no radiation monitors in Table F are in warning, alarm, or rising.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports containment pressure remains < 4 psig.		
	RO reports containment sump is <46%.		
	RO reports RCS subcooling is >0°F.		
	PO reports AFW flow is either >22E4 lbm/hr or at least one SG NR level is >9%.		
	RO reports RCS pressure is stable or rising.		
Note: If PZR level is <11% at this point, it should be rising due to ECCS injection flow. CRS will loop back to step 29 until PZR level is > 11%	RO reports PZR level is > 11%.		
1170.	CRS transitions to EOP-TRIP-3, Safety Injection Termination.		
	RO resets SI and Phase A isolation.		
	RO opens 21/22CA330s.		
	RO reports neither spray valve is failed open.		
	PO resets A SEC, and reports C SEC will not reset.		
Note : 2C SEC will not block because there is no SI present to block.	PO attempts to block 2C SEC, or reports that the block function is unavailable due to SI reset actions already performed.		
	PO reports 2C SEC will not reset.		

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Comment

Evaluator/Instructor Activity

CRS dispatches an operator to deenergize 2C SEC.

Expected Plant/Student Response

SBT

LOG

Simulator Operator: 2 minutes after being dispatched, insert <u>RT-3</u> to deenergize 2C SEC. REMOTE: DG03D Deenergize 2C SEC RO reports OHAs A-29 SEC 2A-2C TEST OR TRBL and A-41 AUX ALM SYS PRINTER as expected due to deenergizing 2C SEC.

PO reports all 230V control centers are reset.

RO stops all but one centrifugal charging pump.

RO reports RCS pressure is rising slowly.

RO reports charging pump suction is aligned to the RWST.

RO reports 2CV139 and 2CV140 are open.

RO closes BIT isolation valves 2SJ4, 2SJ5, 2SJ12, and 2SJ13.

RO closes Charging Flow Control Valve 2CV55.

RO opens Charging Discharge Valves 2CV68 and 2CV69.

RO maintains PZR level >25% by adjusting 2CV55, while maintaining RCP seal injection flow to RCPs.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	TQ-AA-106-0204 Page 22 of 30 Comment
	RO reports PZR level is stable or rising.	LOG	
	RO reports RCS pressure > 1540 psig and stable or rising.		
	RO stops 21 and 22 SI pumps, and 21 and 22 RHR pumps.		
	RO reports RCS subcooling >0°F.		
	RO reports PZR level >11%.		
Simulator Operator: Modify RC0002 from 100 to 1800 with no ramp or delay after Step 10 is completed.			
	RO reports RCS pressure and PZR level are lowering rapidly.		
	RO raises charging flow to maintain PZR level >11%.		
	RO reports that PZR level will not be able to be maintained >11%.		
CRS should start the idle centrifugal charging pump and both SI pumps. RHR pumps may be started since the RCS leak rate will not have been determined. SI pumps may not be started until it is determined that RCS pressure will	CRS directs starting of ECCS pumps.		

Evaluator/Instructor Activity

Expected Plant/Student Response

SBT

LOG

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lower below the shutoff head of the pumps (~1560 psig).

RO starts the idle centrifugal charging pump and both SI pumps.



Terminate scenario when the idle centrifugal charging pump and both SI pumps have been started.

VI. SCENARIO REFERENCES

- A. Alarm Response Procedures (Various)
- B. Technical Specifications
- C. Emergency Plan (ECG)
- D. Salem FSAR
- E. OP-AA-101-111-1003, Use of Procedures
- F. S2.OP-AB.CVC-0001, Loss of Charging
- G. S2.OP-AB.RC-0001, Reactor Coolant System Leak
- H. 2-EOP-TRIP-1, Rx Trip or Safety Injection
- I. 2-EOP-TRIP-3, Safety Injection Termination

ATTACHMENT 5 ESG CRITICAL TASKS

09-01 NRC ESG-1

CT #1: (E-O--F) Establish the minimum required AFW flow rate (22E4 lbm/hr) to the SGs before transition out of EOP-TRIP-1.

BASIS: Failure to establish the minimum required AFW flow rate, under the postulated plant conditions, results in "adverse consequence(s) or a significant degradation in the mitigative capability of the plant."

CT #2: (E-O--I) Establish flow from at least one High Head ECCS pump before transition out of EOP-TRIP-1

- BASIS: Failure to manually start at least one high head ECCS pump under the postulated conditions constitutes "mis-operation or incorrect crew performance which leads to degraded ECCS capacity.
- CT #3: (FSAR) Start ECCS pumps to restore/maintain RCS subcooling and PZR level.
 - BASIS: Salem FSAR assumes a minimum of one train of ECCS pumps available for a SBLOCA. When ECCS pumps are secured in EOP-TRIP-3 and a subsequent SBLOCA causes a loss of PZR level (and eventually subcooling), operator action to start ECCS pumps is required to restore the minimum complement of ECCS pumps assumed in the Accident Analysis.

ATTACHMENT 6

ESG-PSA RELATIONSHIP EVALUATION

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	Event	<u>Y/N</u>	Event
Ν	TRANSIENTS with PCS Unavailable	Ν	Loss of Service Water
N	Steam Generator Tube Rupture	N	Loss of CCW
Ν	Loss of Offsite Power	N	Loss of Control Air
Ν	Loss of Switchgear and Pen Area Ventilation	Ν	Station Black Out
Y	LOCA		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
Ν	Containment Sump Strainers	Ν	Gas Turbine
Ν	SSWS Valves to Turbine Generator Area	N	Any Diesel Generator
Ν	RHR Suction Line valves from Hot Leg	Y	Auxiliary Feed Pump
Ν	CVCS Letdown line Control and Isolation Valves	N	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	OPERATOR ACTION
Ν	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N1	De alian DUD system for re-ainsylation

- Re-align RHR system for re-circulation Ν
- Ν Un-isolate the available CCW Heat Exchanger
- Isolate the CVCS letdown path and transfer charging suction to RWST Ν
- Ν Cooldown the RCS and depressurize the system
- Ν Isolate the affected Steam Generator that has the tube rupture(s)
- Ν Early depressurize the RCS
- Ν Initiate feed and bleed

Complete this evaluation form for each ESG.

pendix E)		Scenario Outline	Form ES	
Facility: _ Examiner	SALEM <u>1 &</u>	2	Scenario No.: ESG-2 Op-Test No.: <u>09-01 N</u> Operators:	<u>RC</u>	
Initial Cor Turnover	nditions: 85% : Raise power	power, MOL. 24	5 Service Water pump is C/T for strainer work. per hour.		
Event No.	Malf. No.	Event Type*	Event Description		
1		N ALL	Raise Power		
2	O/R AG04	C CRS/PO	In service ABV Exhaust fan trip (TS)		
3	NI0193B	l ALL	PR NI Channel II fails (TS)		
4	BF0105A	С	21 SGFP oil leak		
5	EH0327 O/R B433	R ALL	21 SGFP trip, MT fails to auto runback (PO manu initiates turbine runback, RO uses manual rod con boration)	ually ntrol or	
6	SG0078B	M ALL	22 SG Tube leak / tube rupture		
7	RP0058 RP0059A RP0059B O/R B440 O/R B441 O/R C310 O/R C510	C ALL	ATWT/FRSM		
8	CN0086 MS0093	C CRS/PO	Loss of condenser vacuum during SGTR cooldov	vn	
			3 CT, insert neg reactivity, isolate rupt SG, cooldo	own to	

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SIMULATOR **EXAMINATION SCENARIO GUIDE**

SCENARIO TITLE:	SGFP trip, ATWT/FRSM, SGTR
SCENARIO NUMBER:	09-01 NRC ESG-2 (Modified ESG-905)
EFFECTIVE DATE:	See Approval Date
EXPECTED DURATION:	75 minutes
REVISION NUMBER:	01
PROGRAM:	L.O. REQUAL
[X INITIAL LICENSE
[STA
[OTHER
Revision Summary	

Revision Summary Modified ESG-0905 as follows: Initial power level is now 69.5% vs. 90%. Changed initial conditions so that only 22 Condensate pump is O/S. Added additional Tech Spec component failure. Added Main turbine runback failure. Added 25 SW C/T.

PREPARED BY:	G Gauding	07-04-11
-	Lead Regulatory Exam Author	Date
APPROVED BY:	A SCary	8-2-11
-	Operations Training Manager	Date
APPROVED BY:	Bund	8/1/11

Date

Facility Representative

OBJECTIVES

١.

- 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 with multiple OHAs in alarm, the crew will prioritize, validate and then determine a course of action when provided with additional information, IAW approved station procedures.
- C. Given the unit at power with the generator synchronized to the grid, the crew will perform a power increase to 100% at 10%/hr, IAW S2.OP-IO.ZZ-0004(Q).
- D. Given a failure of a power range detector, take corrective action for a power range instrument failure IAW AB.NIS-0001.
- E. Given the unit at power and a trip of an operating main feedwater pump, take corrective action IAW AB.CN-0001.
- 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 steam generator tube leak, take corrective action, IAW S2.OP-AB.SG-0001.
- 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.
- J. 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.
- K. Given the order or indications of an anticipated transient without trip (ATWT), complete actions as the nuclear control operator to PERFORM the immediate response to the ATWT in accordance with the approved station procedures.
- L. Given indication of an anticipated transient without trip (ATWT), DIRECT the immediate response to the ATWT in accordance with the approved station procedures.
- M. 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. Given indication of a steam generator tube rupture (SGTR), DIRECT the response to the SGTR in accordance with the approved station procedures.
- N. 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.
- O. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- P. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

II. MAJOR EVENTS

- A. 22 ABV fan trips
- B. Raise power
- C. PRNI fails high
- D. 21 SGFP oil leak/ trip
- E. MT fails to auto runback
- F. 22 SG Tube leak / rupture
- G. ATWT/FRSM
- H. Loss of Condenser vacuum during cooldown

III. SCENARIO SUMMARY

- A. The crew takes the watch with the unit at 85% power, MOL. 25 SW pump is C/T for strainer work. A Tech Spec 3.0.3 required power reduction was in progress due to declaring both ECCS trains inoperable based on discovery of non 1E rated bearings installed on both Safety Injection pumps during the last refueling outage. The correct documentation paperwork showing that the bearings were actually qualified was found, and the load reduction stopped at 85%.
- B. The crew will perform a power ascension at 10% per hour.
- C. After the crew performs sufficient power ascension for evaluation, 22 Auxiliary Building Exhaust fan will trip. The crew will start the standby exhaust fan, and the CRS will identify the appropriate Tech Spec.
- D. Power Range Nuclear Instrument 2N42 fails high. The crew will determine a load rejection has not occurred and place rod control in manual. The crew will perform actions to remove the failed channel from service. The CRS will identify the appropriate Tech Specs.
- E. After the PRNI failure has been addressed, 21 SGFP will develop an oil leak which will lead to its tripping. The Main Turbine will fail to automatically runback, and the crew will manually lower Main Turbine load.
- F. A large SGTR will ramp in over 10 minutes following a six minute delay from 21 SGFP trip. The crew will diagnose the tube rupture, and the CRS will order a Rx trip and Safety Injection.
- G. The Rx will not trip from the control room, and the crew will enter and perform 2-EOPFRSM-1, response to Nuclear Power Generation. The crew will establish rapid boration and the Rx will be tripped locally.
- H. The crew will transition to 2-EOP-TRIP-1, and initiate a Safety Injection if an automatic SI has not yet occurred. The crew will transition to 2-EOP-SGTR-1, Steam Generator Tube Rupture.
- I. The crew will identify and isolate the 22 SG. The crew will perform a cooldown to target temperature. During the cooldown, Main Condenser vacuum will be lost, and steam dumping will be shifted from the Main Steam Dumps to the intact SG MS10's.
- J. The scenario will be terminated when the crew has demonstrated the ability to maintain RCS temperature below the target temperature.

IV. INITIAL CONDITIONS

IC-242 85.2% power, MOL

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	25 SW pump C/T
11	IOP-4 out and marked up to 5.1.26

12 Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

NOTE for simulator setup: Minimize time simulator is in RUN during setup. Xenon is building in and temperature is lowering. Excessive Tavg – Tref deviation will make scenario run longer if dilution is initiated and then the crew waits for substantial temperature rise before beginning load ascension

	EVE	NT TRIGGERS:	
Initial	ET #	Description	
		EVENT ACTION:	monp187 < 540 // HOTTEST INCORE T/C TEMP.0
	4	COMMAND: PURPOSE:	<update as="" needed=""></update>
	6	EVENT ACTION:	monp187 < 518 // HOTTEST INCORE T/C TEMP.0
	0	COMMAND: PURPOSE:	<update as="" needed=""></update>
	7	EVENT ACTION:	monp299 < 2500 // 21 SGFP SPEED
		COMMAND: PURPOSE:	<update as="" needed=""></update>
	10	EVENT ACTION:	kck23bt6 // TURBINE TRIP-TRIP
	10	COMMAND: PURPOSE:	<update as="" needed=""></update>

Note: Tables with blue headings may be populated by external program, do not change column name without consulting Simulator Support group

MALFUNCTIONS:						Anne a sugar
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	RP318G4 22 Aux Bldg Exhaust Fan Fails to Start on SEC	N/A	N/A	N/A	N/A	
02	BF0105A 21 STM GEN FEED PUMP TRIP	N/A	N/A	N/A	RT-5	CONTROL OIL PRESSURE LOW
03	EH0327 TURBINE FAILS TO RUNBACK ON SGFP TRIP	N/A	N/A	N/A	N/A	
04	SG0078B 22 STEAM GENERATOR TUBE RUPTURE	00:06:00	0	00:10:00	ET-7	900
05	AN3735 AAS 735 FAILS - :21 TGA SUMP LEVEL HIGH	N/A	N/A	N/A	RT-10	AAS POINT FAILS/OVRD TO ON
06	AN3736 AAS 736 FAILS - :22 TGA SUMP LEVEL HIGH	00:00:10	N/A	N/A	RT-10	AAS POINT FAILS/OVRD TO ON
07	AN3737 AAS 737 FAILS - :23 TGA SUMP LEVEL HIGH	00:00:17	N/A	N/A	RT-10	AAS POINT FAILS/OVRD TO ON

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08	AN3738 AAS 738 FAILS - :24 TGA SUMP LEVEL HIGH	00:00:27	N/A	N/A	RT-10	AAS POINT FAILS/OVRD TO ON
09	AN3739 AAS 739 FAILS - :25 TGA SUMP LEVEL HIGH	00:00:35	N/A	N/A	RT-10	AAS POINT FAILS/OVRD TO ON
10	MS0093 LOSS OF STM DMP VAC PERMISSIVE	N/A	N/A	N/A	ET-6	
11	CN0086 LOSS OF MAIN CONDENSER VACUUM	N/A	N/A	N/A	ET-4	100
12	RP0058 FAILURE OF AUTOMATIC RX TRIP	N/A	N/A	N/A	N/A	
13	RP0059A FAILURE OF MANUAL RX TRIP	N/A ·	N/A	N/A	N/A	
14	RP0059B FAILURE OF MANUAL SI/RX TRIP	N/A	N/A	N/A	N/A	
15	NI0193B PR CH N42 FAILS HI/LO	N/A	N/A	N/A	RT-3	200

REMOTES:						
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	RP07D 21 MG SET MOTOR BKR	N/A	N/A	N/A	RT-13	STOP
02	RP08D 22 MG SET MOTOR BKR	N/A	N/A	N/A	RT-13	STOP
03	SW39D 25 SW PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
04	SW40D 25 SW PUMP RACK OUT	N/A	N/A	N/A	N/A	TAGGED
05	RC05A RCS SYSTEM, BORON CONC RESET	N/A	N/A	N/A	N/A	919

OVERRIDES:

0	/ERRIDES:					
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
01	AG04 F DI 22 AUX BLDG EXHAUST FAN STOP	N/A	N/A	N/A	RT-1	ON
02	B440 F DI REACTOR TRIP BREAKER 'A'-TRIP	N/A	N/A	N/A	N/A	OFF
03	B441 F DI REACTOR TRIP BREAKER 'B'-TRIP	N/A	N/A	N/A	N/A	OFF
04	C310 F DI 2E6D PRESSURE HEATER BUS 480V- OPEN	N/A	N/A	N/A	N/A	OFF
05	C510 F DI 2G6D PRESSURE HEATER BUS 480V- OPEN	N/A	N/A	N/A	N/A	OFF
06	B433 5 DI ROD BANK SELECTOR SW-AUTO	N/A	N/A	N/A	ET-10	OFF

го	THER CONDITIONS:
	Description
1.	

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V. SEQUENCE OF EVENTS

- A. State shift job assignments and review scenario objectives.
- 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.

Comment

SBT

LOG

Note: RCS Tavg-Tref when simulator is taken out of freeze is ~+0.75 degrees. The rate at which Tavg is lowering is .07°F/min.

Note: ~ 60 pcm will be added per 700 gallons of dilution. Xenon is building in at 60 pcm/hr. An additional 1,185 gallons is required for 10% per hour load ascension, assuming $\frac{1}{2}$ from dilution and $\frac{1}{2}$ from control rods. CRS briefs crew on power ascension.

RO initiates a 900 gallon dilution.

RO reports console alarm VCT Pressure Hi-Lo when it alarms.

RO operates 2CV243 DEGAS as necessary to lower VCT pressure < 50 psig and maintain < 50 psig.

PO sets up Digital EHC for 10% per hour load change.

PO initiates turbine load ascension and verifies turbine load rises.

RO monitors Tavg and announces expected control rod movement when it occurs

Comment

2. 22 ABV Exhaust Fan stops

Simulator Operator: Insert <u>RT-1</u> on direction from Lead Evaluator during power change. OVERRIDE: AG04 F DI 22 AUX BLDG EXHAUST FAN STOP

RO reports AIR FLOW LO for 22 ABV Exhaust fan.

RO reports 22 ABV Exhaust fan was running, but is now stopped.

CRS dispatches an operator to check the status of 22 ABV Exhaust Fan breaker 2BX1AX12X.

Role Play: 2 minutes after being dispatched, report as the NEO that breaker 2BX1AX12X is open, and there is nothing abnormal with the breaker, and there is no indication that the breaker tripped.

Note: CRS may direct PO to attempt to restart 22 ABV Exhaust Fan since no apparent reason for it to stop running is present, but it will not start. CRS directs PO to start 23 ABV Exhaust Fan IAW S2.OP-SO.ABV-0001, Auxiliary Building Ventilation System Operation.

Note: P&L 3.6 identifies that TSAS 3.7.7 is applicable.

RO starts 23 ABV Exhaust fan and ensures AIR FLOW LO alarm clears.

CRS enters TSAS 3.7.7 action a for not having all three ABV exhaust fans operable.

Proceed to next event on direction from Lead Evaluator.

3. PRNI Channel II fails

Simulator Operator: Insert <u>RT-3</u> on direction from Lead Evaluator. MALF: NI0193B PR CH II FAILS HI/LO Final Value: 200

> RO announces control rods inserting at 72 steps per minute with no load rejection in progress, requests permission and places Rod Control in manual, and reports rod motion stopped.

CRS directs PO to place the load ascension on hold.

PO depresses Hold PB on digital EHC and ensures the load ascension stops.

RO announces OHA E-28 PZR HTRS ON PRESS LO (if it alarms depending on how much rod insertion) as expected due to rod insertion and acknowledges bezel indication of 22 B/U htr group energizing in auto.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment	
		LOG		
Direct entry into S2.OP-AB.NIS- 0001 may be performed. Steps are below.	CRS enters S2.OP-AB.ROD-0003, Continuous Rod Motion or S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction.			
	CRS verifies with RO that placing rod control in manual stopped rod movement.			
	RO reports PRNI channel II has failed high.			
Note: There is no direction in S2.OP-AB.ROD-0003 to lower turbine load to restore Tavg.	RO reports outward rod motion is blocked by the Overpower Rod Stop.			
	RO reports rod motion was in the inward direction.			
	RO reports PRNI channel II has failed high.			
S2.OP-AB.NIS-0001 steps	CRS enters S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction.			
	CRS ensures rod control is in manual.			
	If not performed earlier, CRS directs PO to place the turbine load change on hold.			
	RO reports indications of 2N42 PRNI failed high.			
	CRS directs PO to remove failed channel from service IAW S2.OP-SO.RPS-0001, Nuclear Instrumentation Channel Trip/Restoration.			
S2.OP-SO.RPS-0001 Steps	PO verifies tripping of associated bistables will not result in an ESF or RPS actuation.			

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	PO ensures 2N42 is not selected on 2N45 recorder.		
	CRS enters 3.3.1.1, Actions 2 and 6 if not entered previously.		
	PO informs crew prior to taking any action that will cause alarm status change.		
	PO places Detector Current Comparator, Upper Section switch in PRN42 and ensures the Channel Defeat light illuminates and OHA E-38 is clear.		
	PO places Detector Current Comparator, Lower Section switch in PRN42 position and verifies Channel Defeat light illuminates and OHA E-46 is clear.		
	PO places Power Mismatch Bypass switch in Bypass PRN42.		
	PO places Rod Stop Bypass switch in Bypass PRN42 and ensures the overpower rod stop for channel I on 2RP4 is illuminated and OHA E-31 is clear.		
	PO places Comparator Channel Defeat switch in N42 and ensures the Comparator Defeat lamp illuminates and OHA E-39 is clear.		
	PO reports to CRS that S2.OP-SO.RPS-001 is complete with the exception of actions required to be taken by I&C technician to trip the associated bistables.		
PSEG	Restricted - Possession Requires Specific Permiss	sion from Nuclear Training	

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Evaluator/Instructor Activity	Expected Plant/Student Response SBT Comment
Note : CRS may elect to leave rods in manual due to step 3.6 of S2.OP-AB.NIS-0001 not being complete until I&C trips bistables. Continue to next event if this is the case.	CRS directs RO to withdraw control rods to restore Tavg to within +/- 1.5 degrees of Tref.
	RO withdraws control bank D rods in a slow and deliberate manner, and places rod control in Auto when Tavg is within +/- 1.5 degrees of Tref.
Proceed to next event after rods are restored to auto or at direction of Lead Evaluator.	Crew updates AFD penalty minutes acquired if AFD went out of target band.

4. 21 SGFP Trip on Low Control Oil Pressure

Simulator Operator: Insert <u>RT-5</u> on cue from the Lead Evaluator. MALF: BF0105A 21 SGFP trip Final Val = 4 (It will take ~ 90 seconds for reservoir lo level alarm to come in)

No report from the field will be made prior to 21 SGFP trip.

PO announces unexpected 21 SGFP Turb Oil Res Lvl HI-LO alarm and refers to ARP.

CRS dispatches an NEO to investigate the SGFP low oil pressure.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	CRS briefs crew on required actions for a SGFP trip if Rods are in manual.		
Note: This alarm will occur approx 5 min after RT-5 insertion.	PO reports OHA G-23, 21/22 SGFP Deviation and 21 SGFP speed decreasing		
	CRS directs trip of 21 SGFP to initiate auto runback.		
Simulator Operator: Ensure <u>ET-7</u> is true when 21 SGFP speed lowers to <2500 rpm. This inserts the SGTR on a 10 minute ramp after a 6 minute delay. Note: If Crew trips Reactor proceed to Event 7. It would take over 4 minutes until the trip requirement CAS at 16% NR level would occur if NO operator action to initiate the runback were taken.	PO trips 21 SGFP.		
	CRS enters S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality.		
	PO reports the automatic Main Turbine runback has not occurred.		
	PO performs immediate actions by initiating Main Turbine runback by: - Adjusting ramp rate to ≤15%/MIN - Adjusting SETTER-SETTER: ≤66% - Selecting SETTER GO		
PSEG	Restricted - Possession Requires Specific Permissi	on from Nuclear Training	

			TQ-AA-106-0204 Page 17 of 36
Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO performs immediate actions by ensuring control rods insert if in auto when required, or manually inserts rods to maintain Tavg on program IAW Attachment 2, Section 3.0.		
	CRS initiates Attachment 1, Continuous Action Summary for S2.OP-AB.CN-0001.		
	PO reports 21 SGFP tripped.		
	RO reports power is > P-10.		
	RO initiates boration as required to maintain control rods above the RIL and restore AFD.		
	PO verifies 22 SGFP speed has risen and is maintaining SG levels.		
	PO reports the Polisher Bypass valves, 21- 23CN108s, are open.		
	PO opens the CN47, Heater String Bypass Valve, opens, and shuts 21-24GB4 SG Blowdown Isolation Valves, and 21-24GB185 Blowdown Throttle Valves.		
	PO presses 21 SGFP trip PB if not performed previously and ensures AFP AUTO ARMED bezel lit for 21 SGFP.		
	RO energizes PZR heaters.		
Note: Proceed to next event on RMS alarm for 22 Steam Generator Tube Leak.			

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Comment

SBT

LOG

6. 22 Steam Generator Tube Leak

RO reports 2R53B for 22 SG in warning,
followed shortly by 2R15 alarm.

Note: CRS will order Rx trip and SI when it is apparent that the tube leak is larger than the capacity of the RCS makeup system.

CRS enters S2.OP-AB.SG-0001, Steam Generator Tube Leak.

CRS initiates Attachment 1, Continuous Action Summary.

RO reports 2R19B when it alarms.

Simulator Operator: 3 minutes after being dispatched, insert RT-10 to deenergize TGA sumps. CRS directs NEO to deenergize the Turbine-Generator Area and Condensate Polishing Sumps.

CRS directs swapping to a centrifugal charging pump, but orders Manual Rx Trip and SI when PZR level cannot be maintained IAW CAS.

Note: Proceed to next event when CRS orders a reactor trip. CRS direct RO to trip the Rx, confirm the Rx trip, then initiate SI IAW CAS of S2.OP-AB.SG-0001.
Comment

SBT

LOG

7. ATWT / FRSM

	RO attempts to trip the Rx and reports the Rx did not trip.
	Crew identifies ATWT.
	RO attempts to trip the Rx with the other trip handle and reports the Rx did not trip.
	RO attempts to trip the Rx by opening both Rx trip breaker PBs and reports the Rx did not trip.
	RO attempts to trip the Rx by opening PZR heater bus infeed breakers and reports the Rx did not trip.
	RO reports trip not confirmed.
Simulator Operator: Ensure <u>ET-10</u> is TRUE when the turbine is tripped. This fails auto rod control.	RO trips the Main Turbine.
s – kon na sena Sena Kistan en en en samenta segundo en engendo segundo (en segundo segundo segundo segundo se	RO identifies rods not inserting in auto and

initiates rod insertion in manual.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS/RO verify immediate actions of EOP- TRIP-1 are complete.		
CT #1 (FR-S.1-C) Insert negative reactivity into to the core by at least one of the following methods prior to completing step 4 of FRSM-1:	CRS enters EOP-FRSM-1, Response to Nuclear Power Generation.		
 Insert control rods Initiate Emergency Boration 			
SAT UNSAT			

PO starts/ensures 21 and 22 AFW Pumps running.

PO reports AFW flow <44E04 lb/hr.

Note: The earliest AFW should be

isolated to 22 SG is at Step 10 of FRSM-1, and then only if at least 1

SG NR level is >9%.

PO starts 23 AFW pump. RO starts 21 and 22 charging pumps.

RO reports no SI has occurred.

RO initiates Rapid Boration by :

- Starting both Boric Acid Pumps in Fast

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Simulator Operator: Open the reactor trip breakers 3 minutes after the order is given but no sooner than completion of the Rapid Boration decision step in FRSM-1.

CRS sends NEO to open RTBs, Rod Drive MG Motor and Generator breakers.

Evaluator/Instructor Activity	Page 22 of 36 Expected Plant/Student Response SBT Comment
Delete MALFs: RP0058, RP0059A, and RP0059B. Modify I/O Overrides B440 and B441 to ON (opens RTBs)	LOG
De-energize Rod Drive MG Sets using <u>RT-13</u> :	
RP07D = Stop RP08D = Stop	

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PO reports all Turbine Stop Valves closed.

RO reports when the Reactor is tripped.

PO maintains AFW flow >44E4 lbm/hr until at least one SG NR level is > 9%, then throttle AFW flow to maintain SG NR levels 9-33%.

CRS sends NEO to isolate dilution paths and PO checks no primary water flow on FI111A.

PO reports no faulted SG or uncontrolled cooldown.

RO reports no CETs are >1200°F.

RO confirms reactor trip by 3 PRNIs <5% and IRNIs SUR negative.

CRS directs Chemistry to sample RCS for boron.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	CRS directs performance of Shutdown Margin.	-05	
	CRS transitions back to TRIP-1 after completing FRSM-1.		
Note: Proceed to next event after transition back to TRIP-1			
5. Steam Generator Tube Rupture			
Evaluators : Log reentry time into TRIP-1 to start clock for critical tasks:	RO verifies reactor and turbine trip.		
TIME:::			
	RO reports all 4kV Vital Buses energized.		
	RO reports either: - SI has actuated OR		
	- SI has not actuated, and SI is required by plant conditions.		
	RO initiates SI if auto SI has not occurred.		
	RO announces Unit 2 Reactor Trip, Safety Injection (twice) on PA.		
CT #2 (E-3-A): Isolate AFW to the ruptured SG within 10 minutes of reentry into TRIP-1 and	PO closes 22AF11 and 22AF21 to isolate AFW flow into 22 SG.		

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Evaluator/Instructor Activity

Expected Plant/Student Response

Comment

SBT

LOG

subsequently close 22MS167, 22MS18, 22MS7 AND 22GB4 to isolate the ruptured SG prior to initiation of cooldown in SGTR-1.

UNSAT

TIME: :

SAT

PO identifies all SG NR levels >9% and throttles AFW to SGs.

PO verifies SEC loading complete for all available equipment on energized 4kV Vital Buses.

PO reports proper safeguards valve alignments.

PO reports MSLI not required.

PO reports all 4KV vital buses are energized.

RO reports Control Room Ventilation in Accident Pressurized Mode.

RO runs 2 Switchgear Room Supply fans and one exhaust fan.

RO reports 2 CCW pumps running.

RO reports cold leg recirc has not been established.

TQ Expected Plant/Student Response SBT Comment	-AA-106-0204 Page 25 of 36
RO reports greater than 100 gpm charging flow SI systems charging flowmeter.	
RO reports RCS pressure is >1540 psig.	
RO/PO verifies AFW flow >22E04 lb/hr or SG level > 9%.	

RO reports all RCPs are running.

Evaluator/Instructor Activity

RO reports RCS Tavg is stable at or trending to 547°F.

RO reports both reactor trip breakers are open.

RO reports both PZR PORVs are shut and PORV block valves status.

RO reports all RCPs running and spray valves shut.

IF RCS pressure is < 1350 psig and ECCS flow is established, then RO stops all RCPs.

RO maintains seal injection flow to all RCPs.

RO reports no faulted SGs.

PO reports 22 SG NR level is rising in an uncontrolled manner.

CRS transitions to EOP-SGTR-1, Steam Generator Tube Rupture.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	PO reports 22 SG NR level is rising in an uncontrolled manner.	LUG	
	PO sets 22MS10 to 1045 psig, and reports 22MS10 is shut.		
SEE CT#2 PREVIOUS PAGE	PO shuts 22MS167, and reports 22MS18, 22MS7, and 22GB4 are shut		
	PO reports 21 or 23 is not the ruptured SG.		
Role Play: 5 minutes after	CRS dispatches an operator to close 2SS327.		
requested, report 255527 closed.	PO reports 22 SG is isolated from intact SGs.		
	PO reports 22 SG NR level >9% and that all feedwater flow is isolated to 22 SG.		
	RO reports power is available to both PORV Block valves		
	RO verifies PORV status is correct for current RCS pressure.		
	RO reports both PORV Block valves are open.		
	PO reports no SGs are faulted.		
	PO adjusts AFW flow to maintain at least 1 SG NR level > 9%, and all SG NR levels 9-33%.		
	 RO/PO reset Safeguards Actuations: Resets SI Resets Phase A 		
	 Opens 21 & 22CA330 		
PSEG	Restricted - Possession Requires Specific Permission	on from Nuclear Training	

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Evaluator/Instructor Activity	Expected Plant/Student Response Resets each SEC 	SBT LOG	Comment
	Resets each 230V Control Center. RO stops 21 & 22 RHR pumps		
	PO reports 22 SG is isolated and >375 psig.		
	CRS dispatches NEO to shift Gland Sealing Steam to Unit 1.		
	PO notifies CRS when 22MS10 starts to open.		
Simulator Operator: Ensure <u>ET-4</u> inserts when highest incore thermocouple is less than 540°. MALF: CN0086 Loss Of Cond Vacuum	CREW commences RCS cooldown with the Steam Dumps using intact SGs to value determined from Table D (503 deg)		
	PO places Steam Dumps in manual.		
	PO adjusts steam pressure valve demand to zero.		
	PO places steam dumps to MS Pressure Control. PO adjusts steam pressure valve demand to 25%.		
Proceed to next event when highest incore thermocouple is less than 540°.	When Tavg low-low is reached, PO bypasses Tavg and verifies steam dumps reopen.		

Comment

SBT LOG

8. Loss of Condenser Vacuum/ Steam Dumps

Vac Permissive

	RO reports "DO HI" in alarm as not expected.
Note: Crew should monitor steam dumps but not swap to MS10s early as this is an increased release to the public.	PO reports OHA G-5 Condenser Vac Lo.
Note: CRS may implement S2.OP- AB-COND-1 for loss of vacuum.	CRS briefs crew on potential loss of steam dumps with degrading vacuum.
	CRS dispatches an NEO to look for vacuum leaks.
 Simulator Operator: Insure ET-6 inserts when CET is <518	PO reports Steam Dump valves have closed.
MALF: MS0093 Loss of Stm Dump	

CRS returns to step 15.2 and answers "Steam Dumps not available"

PO re-commences cooldown by fully opening 21,23, and 24MS10.

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Evaluator/Instructor Activity	Expected Plant/Student Response SBT Comment LOG
CT #3 (E-3-B): Establish/ maintain BCS temperature to	RO reports hottest CET is < 503°F.
maintain minimum required	PO stops the cooldown and dumps steam as
subcooling.	temperature.
UNSAI	

Terminate scenario when crew has demonstrated the ability to maintain temperature at target temperature.

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.ROD-0001, Continuous Rod Motion
- F. S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction
- G. S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality
- H. 2-EOP-TRIP-1, Rx Trip or Safety Injection
- I. 2-EOP-FRSM-1, Response to Nuclear Power Generation
- J. 2-EOP-SGTR-1, Steam Generator Tube Rupture

TQ-AA-106-0204 Revision 2 Page 31 of 36 ATTACHMENT 1 UNIT TWO PLANT STATUS TODAY MODE: 1 POWER: 85.2% RCS BORON: 920 MWe 1050 SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

REACTIVITY PARAMETERS

Power reduction from 100% to 85% at 1% per minute was completed 30 minutes ago due to TS 3.0.3 for both SI pumps being declared inoperable due to possible unqualified bearings installed. TS 3.0.3 was exited when proper documentation was found for bearing qualification.

A Power ascension to 100% power will be performed at 10% per hour. Xenon is building in at 60 pcm per hour.

Reactivity plan for the power ascension is to perform 900 gallon batch dilutions every 30 minutes, while using rod control to maintain AFD and Tavg on program.

Rx fuel is conditioned to 100% power.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS: IOP-4, Power Operation Step 5.1.25 is complete.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power. No penalty minutes in the last 24 hrs. PRIMARY:

SECONDARY:

RADWASTE:

No discharges in progress CIRCULATING WATER/SERVICE WATER:

25 SW pump C/T for strainer work.

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

- Verify simulator is in "TRAIN" Load
- 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.

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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: 09-01 NRC ESG-2

REVIEWER:

Initials Qualitative Attributes

- The scenario has clearly stated objectives in the scenario. 1.
- 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.
- The scenario consists mostly of related events.
 - 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
- 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. 6.
 - The events are valid with regard to physics and thermodynamics.
- 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
- 8. The simulator modeling is not altered.
- 9, All crew competencies can be evaluated.
- 10. The scenario has been validated.
- 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.
- 12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

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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)
M	7	Total malfunctions inserted: 5-8
Ŋ	1	Malfunctions that occur after EOP entry: 1-2
M	2	Abnormal Events: 2-4
Ŋ	1	Major Transients: 1-2
N	2	EOPs entered/requiring substantive actions: 1-2
Z	1	EOP contingencies requiring substantive actions: 0-2
A	3	Crew Critical Tasks: 2-3

COMMENTS:

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09-01 NRC ESG-2

CT #1: (FR-S.1-C) Insert negative reactivity into the core by at least one of the following methods prior to completing the immediate actions of FR-S.1 (FRSM)

BASIS: Failure to insert negative reactivity under the postulated plant conditions, results in an unnecessary situation in which the reactor remains critical or returns to a critical condition. Performance of this critical task would make the reactor subcritical and provide sufficient shutdown margin to prevent (or at least minimize the power excursion associated with) any subsequent return to criticality. Since Salem employs flow charts vice the standard Westinghouse two-column format, there are no immediate actions associated with FRSM. The immediate actions of FRSM are contained in step 2 of EOP-TRIP-1 and steps 1-4 of FRSM. Thus the time limit of this critical task is extended to step 4 of FRSM to maintain alignment.

CT #2: (E-3-A) Isolate AFW to the ruptured SG within 10 minutes of entry into TRIP-1 and subsequently close 22MS167, 22MS18, 22MS7 and 22GB4 prior to initiating cooldown 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 #3: (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…"

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ATTACHMENT 6

ESG-PSA RELATIONSHIP EVALUATION

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	Event	Y/N	Event
Ν	TRANSIENTS with PCS Unavailable	Ν	Loss of Service Water
Y	Steam Generator Tube Rupture	N	Loss of CCW
Ν	Loss of Offsite Power	Ν	Loss of Control Air
Ν	Loss of Switchgear and Pen Area Ventilation	Ν	Station Black Out
Ν	LOCA		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
Ν	Containment Sump Strainers	N	Gas Turbine
Ν	SSWS Valves to Turbine Generator Area	N	Any Diesel Generator
Ν	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
- 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

Complete this evaluation form for each ESG.

ppendix	D		Scenario Outline Form ES-I		
Facility: Examine	SALEM 1 &	2	Scenario No.: ESG-3 Op-Test No.: <u>09-01 NRC</u> Operators:		
Initial Co Turnove	onditions: 100% r: Secure the C	, EOL. 21 CFC ontainment Pres	 CU is C/T. ssure Relief in progress. Maintain current power.		
Event No.	Malf. No.	Event Type*	Event Description		
1	CC0172B	N CRS/PO	2VC5 (CIV) fails to shut when securing containment pressure relief. (TS)		
2	O/R C808 O/R C805	C ALL	Loss of 2B 4KV bus (TS) and subsequent failure of 22 AFW pump to stop.		
3		R ALL	Power reduction to <100%.		
4	MS0088Cr	М	Steam Leak in containment.		
5	RP0058	C RO	ATWT, (auto demand-no trip-manual trip works)		
6	MS0090Cr VL0420- 423	M ALL	MSLI fails, Multiple SG depressurization,		
7	RP0276A,B RP0277A,B	C CRS RO	Auto CS & Phase B isolation fails.		
			Recovery of single SG in LOSC-2.		
			CTs man init trip, man inti phase B, lower AFW flow to nlt 1E4 lbm/hr		

10-10-06-08

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SIMULATOR **EXAMINATION SCENARIO GUIDE**

SCENARIO TITLE:	Loss of 2B 4KV/460V, Steam leak in containment
SCENARIO NUMBER:	09-01 NRC ESG-3
EFFECTIVE DATE:	See Approval Date
EXPECTED DURATION:	80 minutes
REVISION NUMBER:	00
PROGRAM:	L.O. REQUAL
	X INITIAL LICENSE
	STA
	OTHER
Revision Summary	

New Issue for 09-01 NRC Exam

PREPARED BY:

G Gauding Lead Regulatory Exam Author 07-10-11 Date

APPROVED BY:

Operations Training Manager

APPROVED BY:

Representative

8-2-4 Date

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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 with multiple OHAs in alarm, the crew will prioritize, validate and then determine a course of action when provided with additional information, IAW approved station procedures.
- C. Given a loss of a 4 Kv vital bus, take corrective action, IAW S2.OP-AB.4KV-0002.
- D. Given the order or indications of a loss or malfunction of a safety related electrical distribution system, perform actions as the nuclear control operator to RESPOND to the loss or malfunction in accordance with the approved station procedures.
- E. Given indications of a loss or malfunction of a safety related electrical distribution system, DIRECT the response to the loss or malfunction in accordance with the approved station procedures.
- F. Given the unit at 100% power with a steam leak, the crew will take corrective action for a steam leak, IAW S2.OP-AB.STM-0001
- G. Given the indication of excessive steam flow, perform actions as the nuclear control operator to RESPOND to excessive flow in accordance with the approved station procedures.
- H. Given the indication of excessive steam flow, DIRECT the response to excessive flow in accordance with the approved station procedures.
- 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 safety injection perform actions as the nuclear control operator to RESPOND to the safety injection in accordance with the approved station procedures.
- L. Given indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.
- M. Given the order or indications of a loss of secondary coolant, perform actions as the nuclear control operator to RESPOND to the coolant loss in accordance with the approved station procedures.
- N. Given indication of a loss of secondary coolant, DIRECT the response to the loss of secondary coolant, in accordance with the approved station procedures.
- O. Given the order or indications of a multiple steam generator depressurization, perform actions as the nuclear control operator to RESPOND to the generator depressurization in accordance with the approved station procedures.
- P. Given indication of a multiple steam generator depressurization, DIRECT the response to the generator depressurization in accordance with the approved station procedures.

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- Q. 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.
- R. Given indication of excessive containment pressure, DIRECT the response to the excessive pressure in accordance with the approved station procedures.
- S. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

MAJOR EVENTS

11.

- A. 2VC5 cannot be shut securing from Containment Pressure Relief.
- B. Loss of 2B 4KV/460V bus (EDG energizes)
- C. Steam leak in containment
- D. Steam rupture in containment with failure of MSLI.
- E. Recovery of single SG in LOSC-2

III. SCENARIO SUMMARY

- A. The crew takes the watch with the unit at 100% power, EOL. 21 CFCU is C/T after it tripped two hours ago. A normal Containment Pressure Relief was initiated 1 hour ago IAW S2.OP-SO.CBV-0002, Containment Pressure-Vacuum Relief System Operation. Orders for the shift are to maintain 100% power and to secure the Containment Pressure Relief in progress.
- B. After assuming the watch, the crew will secure the Containment Pressure relief in progress. Containment Isolation Valve (CIV) 2VC5 (outside containment) will fail to shut after the Pressure Relief Damper and 2VC6 (inside containment) have been shut. The CRS will enter TSAS 3.6.3 Action 1.
- C. Once the CIV Tech Spec has been identified, 2B 4KV vital bus infeed breakers will open, along with the 4KV-460V tie breaker. 2B EDG will start and load 2B Vital bus in SEC MODE II*, Single Vital Bus Undervoltage. The crew will respond to stabilize the plant IAW S2.OP-AB.4KV-0002, Loss of 2B 4KV Vital Bus. 22 AFW pump will start, and Rx power will rise above 100% power. 22 AFW pump will not be able to be stopped from the control room, nor will the 21 or 22 AF21 valves respond if AFW flow from 22 AFW pump is attempted to be lowered. The crew will perform a power reduction to less than 100% power. The CRS will identify the appropriate Tech Spec.
- D. Once power has been reduced to < 100% power, a small steam leak in containment will ramp in over 5 minutes. The crew will identify changing containment conditions, and respond IAW S2.OP-AB.STM-0001, Excessive Steam Flow. Once the need for a unit shutdown is made, the steam line will rupture in containment.
- E. The Rx will not automatically trip, and will be tripped by the crew. Auto and manual MSLI fails to shut the MSIV's. Containment Spray and Phase B isolation fail to actuate and will be manually initiated.
- F. The crew will transition to 2-EOP-LOSC-1, Steam Generator Depressurization, then 2-EOP-LOSC-2 for Multiple Steam Generator Depressurization.
- G. The crew will perform 2-EOP-FRCE-1, Response to Excessive Containment Pressure to ensure containment cooling systems are in correct lineup.
- H. While in 2-EOP-LOSC-2, a single SG MS167 will be locally shut, and the crew will take the CAS action to transition to EOP-LOSC-1.
- I. The scenario will be terminated when the crew has transitioned back to 2-EOP-LOSC-1.

IV. INITIAL CONDITIONS

IC-243 100% power, EOL

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 21 CFCU C/T.

¹¹ 2VC5, 2VC6, and Pressure Relief Damper open, with marked up S2.OP-SO.CBV-0002 provided to crew with turnover sheet.

12 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

	EVE	NT TRIGGERS:	
Initial	ET#	Description	
,		EVENT	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP)
		ACTION:	DOR KB515LCP -1 0
	9	COMMAND:	<update as="" needed=""></update>
	Į	PURPOSE:	
		EVENT	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP)
		ACTION:	DOR KB515PNP
	11	COMMAND:	<update as="" needed=""></update>
		PURPOSE:	

MALFUNCTIONS:						
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	EL0156 LOSS OF 460/230V INFD BKR 2B4D	N/A	N/A	N/A	RT-3	
02	MS0088Cr 23 Main Steam Line Leak Inside Cont BEFORE orifice	N/A	0	00:05:00	RT-5	1.5
03	MS0090Cr 23 Main Steam Line Leak Inside Cont AFTER orifice	N/A	N/A	N/A	RT-7	80
04	RP0058 FAILURE OF AUTOMATIC RX TRIP	N/A	N/A	N/A	N/A	
05	VL0420 21MS167 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	95.211
06	VL0421 22MS167 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	95.211
07	VL0422 23MS167 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	95.211
08	VL0423 24MS167 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	95.211
09	RP0276A AUTO PHASE B FAILS TO ACT, TRN	N/A	N/A	N/A	_N/A	
10	RP0276B AUTO PHASE B FAILS TO ACT, TRN	N/A	N/A	N/A	N/A	
11	RP0277A AUTO CNT SPRY FAILS TO ACT,TRN	N/A	N/A	N/A	N/A	
12	RP0277B AUTO CNT SPRY FAILS TO ACT, TRN	N/A	N/A	N/A	N/A	
13	AF0181B 22 AUX FEEDWATER PUMP TRIP	N/A	N/A	N/A	ET-9	

RE	MOTES:		and the second s			
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	CT191-1D 21 CFCU BKR #1 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF
02	CT191-2D 21 CFCU BKR #2 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF
03	CT191-3D 21 CFCU BKR #3 Low Speed 125VDC	N/A	N/A	N/A	N/A	OFF

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OVERRIDES:						
SELF- CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
01	C808 F DI 24BSD 2B VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	RT-3	ON
02	C805 F DI 23BSD 2B VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	RT-3	ON
03	B512 F DI 22 AUX FEED PUMP-STOP	N/A	N/A	N/A	N/A	OFF
04	B515 D DI 21AF21 CLOSE	N/A	N/A	N/A	N/A	OFF
05	B515 F DI 22AF21 CLOSE	N/A	N/A	N/A	N/A	OFF
06	AB14 F DI 2VC5 CNTMNT PZR VAC RELIEF VLV CLOSE	N/A	N/A	N/A	N/A	OFF

OTHER CONDITIONS:

Description

1. None

V. SEQUENCE OF EVENTS

- A. State shift job assignments and review scenario objectives.
- 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.

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
1. Containment Isolation Valve 2VC5 fails to shut			
	PO shuts Containment Pressure Relief damper.		
	PO shuts Containment Isolation valve 2VC6.		
	PO attempts to shut Containment Isolation valve 2VC5, and reports 2VC5 remains open.		
Note: PO may swap bezel control units to determine if the close PB is what is keeping the 2VC5 from			
closing.	CRS contacts personnel to investigate 2VC5 failure.		
	CRS enters TSAS 3.6.3 Action 1.		
Continue to next event on direction from Lead Evaluator.			

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2. UV on 2B 4KV vital bus with loss of 2B 460/230V vital bus.

Simulator Operator: Insert <u>RT-3</u> on direction from Lead Evaluator.

MALF: EL0156 Loss of 460/230V Infeed Bkr 2B4D

O/R: C808 OVDI 24BSD 2B Vital Bus Feeder-Open Final Value: ON

O/R: C805 OVDI 23BSD 2B Vital Bus Feeder-Open Final Value: ON

RO/PO announce multiple OHA and Console alarms.

Note: The Full Core Display Rod Bottom lights will all illuminate and IRPI indication will go to zero.

Crew diagnoses the loss of 2B 4KV vital bus, and 2B EDG is loading in MODE II* (Single Vital Bus UV).

Note: The 2B4D 460V breaker open bezel will flash continuously, and is unable to be silenced until control power is removed from the breaker.

Note: The 2B4D 460V breaker should have remained shut during the SEC loading sequence, but has

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Expected Plant/Student Response

Comment

SBT

tripped open.

CRS enters S2.OP-AB.4KV-0002, Loss of 2B 4KV Vital Bus.

Note: Rx power rises above 100% with the addition of cold AFW. When the crew determines a power reduction must be performed, go to steps on page 16 of this guide.

CRS directs initiation of Attachment 1, Continuous Action Summary.

CRS dispatches an operator to monitor 2B EDG.

RO reports 2SW26 is open based on having no power to close it, and Main Turbine and TGA parameters related to SW cooling water are stable, and dispatches an operator to locally check position.

IF dispatched to remove control power from breaker 2B4D, call control room 2 minutes after being dispatched for a first check, then use REMOTE ED53D to OFF to deenergize breaker 2B4D control power.

RO reports 21 charging pump was not supplying seal injection and charging flow.

RO reports 22 RHR pump was not providing core cooling.

PO reports 2B vital bus is energized from 2B

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	EDG.		
	RO reports OHA E-20 PZR HTR ON LVL HI when it annunciates due to 21 charging pump running.		
	PO resets emergency loading for 2B EDG.		
	PO resets 2B 230V control center.		
	PO reports 2SW26 is open based on having no power to close it, and Main Turbine and TGA parameters related to SW cooling water are stable.		
	CRS directs stopping of loads being powered from 2B EDG:		
	PO stops 24 SW pump based on 4 SW pumps in service.		
	RO stops 21 charging pump based on 23 charging pump in service.		
Note: Charging flow will lower to ~ 65 gpm when 21 charging pump is secured.	RO adjusts charging flow as required to maintain 6-12 gpm seal injection flow to each RCP, and not exceed 40 gpm total seal injection flow.		
	RO reports letdown did not isolate.		
	PO reports stable SG levels.		
	PO depresses 22 AFW pump start PB.		
	RO opens 21-24SS94s.		
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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS determines if SGBD is to be restored.		
	PO restores SGBD to service if required.		
	RO/PO depresses 22 AFW pump stop PB and reports 22 AFW pump remains in service.		
	If CRS directs PO to close 21AF21 and 22AF22, PO reports 21AF21 and 22AF22 remain open.		
 IF directed to locally open 22 AFW pump breaker, do NOT open it unless the power reduction has been performed. IF power reduction to < 100% power has been performed, <u>AND</u> direction to locally open breaker has been given, then: 1. Delete I/O B512 for 22 AFW pump Stop PB. 2. Open 22 AFW pump breaker with REMOTE AF28D to TRIP. 	CRS dispatches personnel to 22 AFW pump breaker.		
3. Power Reduction to less than	CRS directs PO to initiate a power reduction.		
	RO calculates boration required for power reduction, and initiates boration.		
	PO initiate turbine load reduction to power specified by CRS at directed rate, and ensures load reduction starts.		
	PO ensures load reduction stops at the		
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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
and a sense and a sense of the sense of the sense the sense the sense of the	specified level, and sets digital EHC up for the SGFP runback (66% @15%/minute).	n andere and	n na hanna n
Note: Time considerations may preclude identification of all Tech Specs associated with the B Bus probable. Post scenario query may be necessary for all Tech Spec identifications. Action times for each Tech Spec listed in bold .	CRS enters TSAS 3.6.2.3 action b for 3 CFCUs inoperable (21 C/T, 22 and 24 have no power.) 1 hour CRS enters TSAS 3.6.1.1 for Containment Integrity based on 2SW26 being inoperable. 1 hour CRS enters TSAS 3.8.1.1 for off-site power to 4KV vital bus. 1 hour CRS enters TSAS 3.8.2.1 for loss of power to 4KV/460V vital buses. 8 hour CRS enters TSAS 3.4.5 for loss of power to PORV Block valve 2PR7. 1 hour CRS enters 3.8.2.3 and 3.8.2.5 for 125V and 28VDC battery chargers. 2 hours		

Continue to next event at lead Evaluators direction.

4. Steam Leak in Containment

Simulator Operator: Insert <u>RT-5</u> on direction from Lead Evaluator. MALF: MS0088Cr Main Steam Line Leak Inside Containment Ramp: 5 minutes Final Value: 1.5

RO reports CFCU leak detection HI, as unexpected.

RO reports rising level on 23 and 25 CFCU

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	leak detection.		
	RO reports rising containment pressure, and Containment Pressure High console alarm.		
	PO determines no rise in CNTMT radiation and that a steam leak is inside containment based on rising containment pressure.		
	CRS enters S2.OP.AB.STM-0001, Excessive Steam Flow.		
Simulator Operator: Based on rate of containment pressure rise CRS may decide to trip reactor. IF CRS announces his intention of tripping the Rx, insert <u>RT-7</u> prior to trip direction with concurrence of Lead Evaluator.	CRS directs initiation of Attachment 1 Continuous Action summary.		
Line Leak Final Value: 80			
	PO verifies EHC system operating correctly, and MS10s and Steam Dumps are closed.		
Simulator Operator: Once a rate and plan is determined by the CRS, or at Lead Evaluators	CRS determines a shutdown is required and plans rate and reactivity management.		
direction, then enter <u>RT-7</u> .	RO calculates boration required.		
Malf: MS0090Cr 23 Main Stm Line Leak			

Final Value: 80

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Evaluator/Instructor Activity

e SBT LOG Comment

Note: It takes ~ 8 seconds from the insertion of RT-7 for the automatic Rx trip signal to be generated.



RO reports demand for RX trip F Window annunciates, and initiates a manual reactor trip and informs CRS of ATWT.

CRS directs MSLI and verification of Safety Injection when RX trip is confirmed.

RO reports MSLI failed and reports SI has auto initiated, and backs up SI initiation.

RO continues with Immediate Actions of EOP-TRIP-1, Rx Trip or Safety Injection:

- Trips Turbine
- Reports all Vital AC buses energized
- Reports SI actuated

After Immediate Actions of EOP-TRIP-1 are completed, CRS may order PO to attempt MSLI isolation at 2CC3 and 2CC2 controls (fast and slow close).

CRS/RO verify immediate actions of EOP-TRIP-1 are complete by performing
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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT Comment
	verification of immediate action steps.	LOG
Note: STA will arrive in the control room 10 minutes after being called to initiate monitoring of CFSTs.	RO announces Rx trip and Safety injection.	
Note: With <u>all</u> SGs faulted, AFW flow should not be isolated to <u>any</u> SG.	PO throttles AFW flow to no less than 22E4 lbm/hr with CRS concurrence.	
	PO reports SEC loading is not complete for A and B vital bus. 21 CFCU is C/T. Reports B bus is 2B4D breaker and 22 ABV Supply fan.	
	PO reports all available equipment started.	
	PO reports 21 and 23 AFW pumps are operating.	
	RO reports numerous safeguards valves have failed to realign due to no power available from 2B 460/230V buses, but reports that all valves have a redundant valve in the flowpath that has shut.	
	CRS dispatches personnel to realign safeguards valves which have not aligned to their safeguards positions.	
	RO reports 21 and 22CA330s are shut.	

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
CT#2 (E-0-E) Manually initiate Phase B and Spray Actuation before transition from Step 11 of	RO reports containment pressure is > 15 psig.	400	
2-EOP-TRIP-1.	RO reports Phase B and Containment Spray have not automatically initiated.		
SATUNSAT	RO manually initiates CS and Phase B, stops RCPs, and verifies Phase B valve alignments.		
	RO reports High Steam Flow SI status and failure of MSLI to shut MS167s.		
Role Play: Respond when contacted that you will assemble a team of operators and mechanics and attempt to shut the valves you were directed to shut. If CRS dispatches an NEO directly to attempt closure of any MS167, state that you will report to the WCC to pick up a Safety Man.	CRS contacts WCC to assist in closing MS167s locally.		
	PO reports all 4KV vital busses are energized.		
	RO reports CAV is in Accident Pressurized mode.		
Note: The 2C SEC must be blocked and reset to allow start of 23 switchgear supply fan	RO runs 2 switchgear room supply fans and 1 exhaust fan.		
or 20 switchgear supply ran.	RO reports 2 CCW pumps are running.		
	RO reports correct ECCS pump alignment and		

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
	expected flows for RCS conditions.	LUG	
Note: PO should have lowered AFW flow to as close to 22E4	PO reports AFW flow is >22E4 lbm/hr, and maintains total AFW flow >22E4 lbm/hr.		
ionnii as possible.	RO reports all RCPs are stopped.		
	PO reports RCS temperature is not being controlled, and MSLI has failed to close any MS167.		
	RO reports both reactor trip breakers are open.		
	RO reports both PZR PORVs are shut and both Block valves are open.		
	PO reports all SG pressures lowering in an uncontrolled manner or completely depressurized.		
	CRS transitions to EOP-LOSC-1, Loss of Secondary Coolant.		
Timing of scenario will determine when FRCE Red or Purple path is reported by the STA. When FRCE transition is made, go to FRCE steps on page 24.	STA reports Red or Purple path on Containment environment.		
	CRS transitions to EOP-FRCE-1, Response to Excessive Containment Pressure.		
LOSC-1 steps begin here.	PO reports all MS167s are open.		
Role Play if not previously	CRS dispatches personnel to shut 21-		
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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
performed: Respond when contacted that you will assemble a team of operators and mechanics and attempt to shut the valves you were directed to shut. <u>If</u> CRS dispatches an NEO directly to attempt closure of any MS167, state that you will report to the WCC to pick up a Safety Man.	24MS167s if not previously performed.		
	PO reports all SG pressures lowering in an uncontrolled manner or completely depressurized.		
	CRS transitions to EOP-LOSC-2, Multiple Steam Generator Depressurization.		
LOSC-2 steps begin here	PO ensures all BF19s, BF40s, BF13s, MS10's, MS7s, MS18s, and GB4s are shut, and reports all MS167s remain open.		
	CRS dispatches operators to close MS167s one loop at a time if not previously dispatched.		
Note: When SGs are completely depressurized, 23 AFW pump will slow down due to inadequate steam supply. If 23AF21 and 24AF21 were shut earlier in scenario, they will have to be opened to establish AFW flow.	CRS determines 23 AFW pump is needed to maintain SG levels.		
	CRS directs performance of Shutdown Margin monitoring.		
	RO reports RCS cooldown rate is > 100°F/hr.		

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
CT#3 (FRCE Bases) Reduce AFW to no less than 1E4 lbm/hr per SG prior to exiting FRCE-1.	PO minimizes AFW flow to all SGs while maintaining a minimum of 1E4 lbm/hr to each SG.	ningangan karang kar	sannan tanna ann an ann an ann an ann ann
Note: Can be performed in LOSC- 2 or FRCE-1, but must be completed prior to exiting FRCE-1.			
SAT UNSAT	Do rea este DOC That status		
	RO reports RCS Thot status.		
Note: Once the SGs have completely depressurized, RCS pressure will rapidly rise to the PZR PORV setpoint.	RO reports all RCPs stopped.		
	RO reports when RCS pressure is being		
Simulator Operator: Modify the MALF associated with the MS167 the CRS has directed be closed first from 95.1 to 0, or if no specific loop has been selected, delete the MALF associated with the loop which has the highest SG pressure. MALFS: VL0420 21MS167 fails to position VL0421 22MS167 fails to position VL0422 23MS167 fails to position VL0423 24MS167 fails to position	controlled by automatic r 21x1 orxy cycling.		
	PO reports selected MS167 valve is shut.		
Note: IF step 8 is reached prior to	PO reports selected SG pressure is rising.		

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
identification of MS167 shut and SG pressure rising, the crew will perform SI reduction steps 8-20 before transitioning to LOSC-1.		100	
	CRS transitions to LOSC-1 based on a single SG pressure rise.		
FRCE-1 Steps begin here.	PO verifies Phase A isolation valves shut with 2VC5 open and 2VC6 shut.		
	 RO reports: Containment pressure > 15 psig LOCA-5 not in effect Containment Spray in service Phase B isolation valves shut RCPs stopped. 		
	RO reports CFCU status:		
	 21 CFCU C/T. 22 and 24 CFCU have no power to fans, but SEC shut the respective 460V Low Speed breakers, and SW is being supplied to CFCUs. 23 and 25 CFCU running normally in Low Speed. 		
	RO reports MSIVs remain open.		
	PO minimizes AFW to all SGs while maintaining at least 1E4 lbm/hr per SG.		
Simulator Operator: Once AFW flow has been minimized, Modify the MALF associated with the	PO verifies all BF19s, BF40s, and BF13s are shut or dispatches operators to locally shut them.		

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Evaluator/Instructor Activity	Expected Plant/Student Response	SBT	Comment
MS167 the CRS has directed be		LOG	
closed first from 95.1 to 0, or if no			
specific loop has been selected,			
delete the MALF associated with			
the loop which has the highest SG			
pressure,			
MALES:			
VL0420 21MS167 fails to position			
VL0421 ZZMS167 fails to position			
VI 0423 24MS167 fails to position			

PO reports selected MS167 valve is shut.

PO reports selected SG pressure is rising.

PO maintains at least 1E4 lbm/hr to each SG.

CRS transitions to procedure in effect (LOSC-1 or 2)

STA reports RED path on Heat Sink CSF after PO reduces AFW flow.

CRS transitions to EOP-FRHS-1, Response to Loss of Secondary Heat Sink, and verifies it was operator action that lowered AFW flow less than 22E4 lbm/hr, and returns to procedure in effect (LOSC-1 or LOSC-2).

Terminate scenario after the transition to LOSC-1 on rising SG pressure has been made.

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Evaluator/instructor Activity Expected Plant/Student Response 561	nment	A STATISTICS AND A STATIST	A CONTRACTOR NO.
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VI. SCENARIO REFERENCES

- A. Alarm Response Procedures (Various)
- B. Technical Specifications
- C. Emergency Plan (ECG)
- D. Salem FSAR
- E. OP-AA-101-111-1003, Use of Procedures
- F. S2.OP-SO.CBV-0002, Containment Pressure-Vacuum Relief System Operation
- G. S2.OP-AB.4KV-0002, Loss of 2B 4KV Vital Bus
- H. S2.OP-AB.STM-0001, Excessive Steam Flow
- I. 2-EOP-TRIP-1, Rx Trip or Safety Injection
- J. 2-EOP-LOSC-1, Loss of Secondary Coolant
- K. 2-EOP-LOSC-2, Multiple Steam Generator Depressurization
- L. 2-EOP-FRCE-1, Response to Excessive Containment Pressure
- M. 2-EOP-FRHS-1, Loss of Secondary Heat Sink
- N. 205338-2, Reactor Containment Ventilation.

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 MODE:
 1
 POWER:
 100%
 RCS BORON:
 19
 MWe
 1230

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA [·]

REACTIVITY PARAMETERS

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION: 21 CFCU C/T after its high speed breakers tripped 2 hours ago. TSAS 3.6.2.3 action a.

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Containment Pressure Relief in progress IAW S2.OP-SO.CBV-0002, Containment Pressure-Vacuum Relief System Operation. Terminate the pressure relief IAW S2.OP-SO.CBV-0002 upon assuming the watch.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power. No penalty minutes in the last 24 hrs.

PRIMARY:

SECONDARY:

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

None

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SIMULATOR READY FOR TRAINING CHECKLIST

ATTACHMENT 2

- 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.

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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:

09-01 NRC ESG-3

non Robert Bloss **REVIEWER:**

Initials

Qualitative Attributes

- The scenario has clearly stated objectives in the scenario.
- 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. The scenario consists mostly of related events.
- 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

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.

The events are valid with regard to physics and thermodynamics.

Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives. The simulator modeling is not altered.

All crew competencies can be evaluated.

The scenario has been validated.

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.

ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

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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)
Ŋ	6	Total malfunctions inserted: 5-8
N	1	Malfunctions that occur after EOP entry: 1-2
لر	3	Abnormal Events: 2-4
لمر	2	Major Transients: 1-2
Y	1	EOPs entered/requiring substantive actions: 1-2
A	1	EOP contingencies requiring substantive actions: 0-2
A	3	Crew Critical Tasks: 2-3

COMMENTS:



09-01 NRC ESG-3

CT#1 (E-0-A) Manually trip the reactor from the control room prior to SG dryout

Basis: Failure to manually trip the reactor causes a challenge to the subcriticality CSF beyond that irreparably introduced by the postulated conditions. Additionally, it constitutes an "incorrect performance that necessitates the crew taking compensating action which complicates the event mitigation strategy and demonstrates the inability of the crew to recognize a failure of the automatic actuation of the RPS."

For a specific scenario, select a parameter that is related to the initial trip initiation signal and that is supported by analysis as being safety significant... a candidate for a safety-significant parameter that can be developed into a performance standard is SG wide-range water level. (Footnote 3.d)

CT#2 (E-0-E) Manually initiate Phase B and Spray Actuation before transition from Step 11 of 2-EOP-TRIP-1.

Basis: Failure to 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 EFS system or component." In this case, the minimum required complement of containment cooling equipment can be manually actuated from the control room. Therefore, failure to manually actuate the minimum required complement of containment cooling equipment also represents a "demonstrated inability by the crew to effectively direct/manipulate ESF controls that would lead to violation of the facility license condition."

Note: There is no time limit associated with this critical task (specifically stopping RCPs on isolation of CCW cooling)other than performing it before finishing step 11 in EOP-TRIP-1. If an automatic Phase B and Spray initiation occurred, there is no time limit associated with getting to Step 11 performance in TRIp-1 bases, so no time limit can be imposed if the operator manually initiates Phase B and Spray when auto Spray fails to initiate.

CT#3 (FRCE Basis) Reduce AFW to no less than 1E4 lbm/hr per SG prior to exiting FRCE-1.

Basis: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable severe challenge to the integrity CSF. Also failure to perform the critical task increases the challenges to the subcriticality and the containment CSFs beyond those irreparably introduced by the postulated plant conditions. Thus, failure to perform the critical task constitutes "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety" (con't next page)

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The standard which has been applied to this CT in this scenario encompasses the reason for minimizing AFW flow to 1E4 lbm/hr in FRCE with multiple faulted SGs. The reason this is done is to prevent thermal shock conditions to SG components if the SG was allowed to dry out, and then subsequently have AFW flow reinitiated. This meets the definition given on Attachment 2 of Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...

• degradation of any barrier to fission product release.

Not maintaining verifiable minimum AFW flow (1E4th) when it is possible to do so could result in a SGTR when cold feedwater is subsequently reinitiated.

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ATTACHMENT 6

ESG-PSA RELATIONSHIP EVALUATION

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	Event	′ <u>Y/N</u>	Event
Ν	TRANSIENTS with PCS Unavailable	Ν	Loss of Service Water
N	Steam Generator Tube Rupture	N	Loss of CCW
N	Loss of Offsite Power	Ν	Loss of Control Air
N	Loss of Switchgear and Pen Area Ventilation	Ν	Station Black Out
N	LOCA		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	COMPONENT, SYSTEM, OR TRAIN	Y/N	COMPONENT, SYSTEM, OR TRAIN
Ν	Containment Sump Strainers	N	Gas Turbine
Ν	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
- N Initiate feed and bleed

Complete this evaluation form for each ESG.