
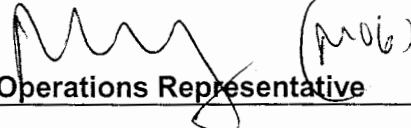


**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM		
SYSTEM:	Reactor Coolant System		
TASK:	Measure Leakage to the Containment Sump		
TASK NUMBER:	N0020080101		
JPM NUMBER:	13-01 NRC RO A1-1		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.25
APPLICABILITY:	IMPORTANCE FACTOR:		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
		3.9	4.2
		RO	SRO
EVALUATION SETTING/METHOD:	Simulator		
REFERENCES:	S2.OP-AR.ZZ-0003, Overhead Annunciators Window C, Rev. 17 S2.OP-SO.RC-0004, Identifying and Measuring Leakage, Rev. 15 (Both Rev checked 9-26-14)		
TOOLS AND EQUIPMENT:	Calculator		
VALIDATED JPM COMPLETION TIME:	15 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-26-14
Validated By:	D Tait SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Representative	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant System

TASK: Measure Leakage to the Containment Sump

TASK NUMBER: N0020080101

SIMULATOR SETUP IC-241, 100% power MOL. RT-1 is MALF SW0218 Severity 1
Replace normal copy of S2.OP-SO.RC-0004, Identifying and
Measuring Leakage, Attachment 1, Pump Data, located next to Aux
Alarm Typewriter with Att. 1 from this JPM showing:
Stop time 1510 yesterday, leak rate <.28, elapsed run time 13568

INITIAL CONDITIONS:

Unit 2 is operating at 100% power, steady state, BOL.

INITIATING CUE:

You are the RO.

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 calculates leakage into Containment Sump of 0.3 gpm.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Reactor Coolant System

TASK: Measure Leakage to the Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Simulator Operator insert RT-1 on direction from Evaluator.		
			Announces OHA C-2 CNTMT SUMP PMP START as unexpected.		
			Refers to ARP for OHA C-2.		
	ARP OHA C-2 3.1	<u>IF</u> any indication of an RCS leak or an interconnecting ECCS leak affecting RCS inventory, THEN GO TO S2.OP-AB.RC-0001(Q), Reactor Coolant System Leak.	Scans board parameters and determines there are no indications of an RCS leak or an interconnecting ECCS leak affecting RCS inventory.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant System

TASK: Measure Leakage to the Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	ARP OHA C-2 3.1	DETERMINE a leakrate IAW S2.OP-SO.RC-0004(Q), Identifying and Measuring Leakage.	<p>Determines containment sump leak rate as follows:</p> <p>Note: Operator may perform section 5.1, Locating RCS leakage, but it is not directed because it is not known what the reason for the containment sump pump run is.</p> <p>Section 5.3 Measuring Leakage to Containment Sump should be performed.</p>		
	SO.RC-4 5.3.1	<p>Each time a Containment Sump Pump starts, RECORD the following on Attachment 1, Section 2.0:</p> <ul style="list-style-type: none"> • Operating Containment Sump Pump Number • Time of pump start 	<p>Records "21 cont sump".</p> <p>Records time of pump start</p> <p>Cue: When determining pump start time from Aux Typewriter or OHA CRT, then state: 21 containment sump pump started at 0800.</p>		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant System

TASK: Measure Leakage to the Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	SO.RC-4 5.3.2	CALCULATE elapsed time in minutes between start time and previous Containment Sump Pump stop time AND RECORD on Attachment 1, Section 2.0.	Calculates elapsed time in minutes between start time and previous Containment Sump Pump stop time and records on Attachment 1, Section 2.0. by using previous stop time of 1510 yesterday , and with cue of 0800 today determines elapsed time is 1,000 minutes .		
	SO.RC-4 5.3.3	ENSURE no draining, sampling, or liquid additions to Containment Sump have occurred during selected time frame.	Cue: No draining, sampling, or liquid additions to Containment Sump have occurred during selected time frame.		
*	SO.RC-4 5.3.4	CALCULATE Containment Sump Leak Rate using Attachment 3.	Calculates Containment Sump Leak Rate using Attachment 3 by using page 1 of 2 of Att. 3, and determines the 1,000 minute line crosses the 0.3 gpm leak rate line.		
	SO.RC-4 5.3.5	RECORD calculated Containment Sump leak rate on Attachment 1, Section 2.0.	Records calculated Containment Sump leak rate on Attachment 1, Section 2.0. as 0.3 gpm.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Reactor Coolant System

TASK: Measure Leakage to the Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	SO.RC-4 5.3.6	Direct a second Operator to PERFORM Independent Verification of the calculation(s) performed in Attachment 1, Section 2.0.	Directs a second Operator to perform Independent Verification of the calculation(s) performed in Attachment 1, Section 2.0.. Cue: IV is complete SAT.		
	SO.RC-4 5.3.7	RECORD Containment Sump Pump stop time and date on Attachment 1, Section 2.0.	Records Containment Sump Pump stop time and date on Attachment 1, Section 2.0. Records stop time.		
	SO.RC-4 5.3.8	<u>IF</u> leakage to Containment Sump exceeds 1.0 gpm <u>AND</u> Unit in Modes 1-4, <u>THEN</u> : A. INITIATE S2.OP-ST.RC-0008(Q), Reactor Coolant Water Inventory Balance. B. REFER to Technical Specification 3.4.7.2.	Determines leakage to Containment Sump does not exceed 1.0 gpm		
	SO.RC-4 5.3.9	<u>IF</u> leakage to Containment Sump exceeds 0.85 gpm, <u>THEN</u> INITIATE Section 5.6 of this procedure.	Determines leakage to Containment Sump does not exceed 0.85 gpm.		
			Cue: JPM is complete.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- ☒ 1. Task description and number, JPM description and number are identified.
- ☒ 2. Knowledge and Abilities (K/A) references are included.
- ☒ 3. Performance location specified. (in-plant, control room, or simulator)
- ☒ 4. Initial setup conditions are identified.
- ☒ 5. Initiating and terminating Cues are properly identified.
- ☒ 6. Task standards identified and verified by SME review.
- ☒ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- ☒ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 15 Date 10/15/14
- ☒ 9. Pilot test the JPM:
 - a. verify Cues both verbal and visual are free of conflict, and
 - b. ensure performance time is accurate.
- ☐ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- ☐ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: 

Date: 10/15/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

**INITIAL
CONDITIONS:**

Unit 2 is operating at 100% power, steady state, BOL.

INITIATING CUE:

You are the RO.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Excore NIS		
TASK:	Perform a QPTR		
TASK NUMBER:	N0150020201		
JPM NUMBER:	13-01 NRC RO Admin A1-2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.43
		IMPORTANCE FACTOR:	4.1
APPLICABILITY:		RO	SRO
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S1.OP-ST.NIS-0002 Rev. 15 S1.RE-RA.ZZ-0011 Rev. 383 Tech Spec 3.2.4		
TOOLS AND EQUIPMENT:	Calculator		
VALIDATED JPM COMPLETION TIME:	30 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	09-24-14
Validated By:	E Bak SME or Instructor	Date:	10-14-14
Approved By:	Training Department	Date:	
Approved By:	Operations Representative	Date:	
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
		GRADE:	<input type="checkbox"/> SAT <input type="checkbox"/> UNSAT
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Excore NIS

TASK: Perform a QPTR

TASK NUMBER: N0150020201

INITIAL CONDITIONS:

Unit 1 was operating at 100% power when rod 2D4 dropped fully into the core. OHA E-46, LOWER SECT DEV ABV 50% PWR annunciated and remains locked in.

Operators have not yet started reducing power to 74% to comply with TSAS 3.1.3.1.c.3.d IAW S1.OP-AB.ROD-002, Dropped Rod.

INITIATING CUE:

The CRS has directed you to perform a QPTR using Manual Calculation IAW S1.OP-ST.NIS-0002. NI currents are:

	<u>Upper Detectors</u>	<u>Lower Detectors</u>
N41	190	200
N42	200	215
N43	180	175
N44	200	205

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Perform the QPTR and calculate the highest QPTR as SAT.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Excore NIS

TASK: Perform a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide blank copy of S1.OP-ST.NIS-0002, Rev.15, Power Distribution - Quadrant Power Tilt Ratio, a copy of S1.RE-RA.ZZ-0011, Rev. 383, Tables, and a copy of Tech Spec 3.2.4.			
	2.1	IDENTIFY sections of this procedure that are <u>NOT</u> to be performed with "N/A".	N/A's Section 5.2, Attachment 1 Section 3.0, and Attachment 3.		
	3.0	<u>PRECAUTIONS AND LIMITATIONS</u>	Reads and initials PRECAUTIONS AND LIMITATIONS 3.1-3.5		
	5.1.1	IF one PR channel is inoperable, <u>AND</u> RTP is >75%, THEN...	Determines all PR channel are operable and step is NA.		
	5.1.2	RECORD the following data on Attachment 2 <ul style="list-style-type: none"> • Date • Time • Reactor Power • Reason for performing QPTR Calculation 	Records current date, current time, 100% reactor power and checks OHA E-46 as reason for performance in Attachment 2.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Excore NIS

TASK: Perform a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.3	RECORD the following data on Attachment 1: <ul style="list-style-type: none"> • NI Channels N-41, N-42, N43 and N-44 Upper Detector current readings • NI Channels N-41, N-42, N43 and N-44 Lower Detector current readings • Respective 100% NI Current Values for Channels N-41, N-42, N43 and N-44 Detectors from S1.RE-RA.ZZ-0011, Table 2 	Records on Attachment 1: (From initial conditions) <ul style="list-style-type: none"> • NI channels N41-44 Upper Detector Current Readings • NI channels N41-44 Lower Detector Current Readings • 100% NI Current Values from S1.RE-RA.ZZ-0011, TABLES <p>NOTE: Attachment 1, Section 3 is NOT required to be performed to determine detector currents. It was added at Rev. 12 to use "when any NIS meter is suspect." If asked, CUE that all Power Range Detectors are Operable.</p>		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Excore NIS

TASK: Perform a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.4	COMPLETE Attachment 1 calculations.	<p>For Top and Bottom Detectors: (numbers as per key for evaluator)</p> <ul style="list-style-type: none"> • Calculates Detector Ratio for each top and bottom detector. • Adds detector ratios to get Sum of detector ratios. • Divides Sum by number of operable detectors (4) to get Average Detector Ratios. • Places Average Detector Ratios in 4th column of Att. 1 • Divides each detector ratio by the average ratio to get the power tilt for each detector. <p>Cue: <u>IV is complete</u> when asked for IV of calculations</p>		
*	5.1.5	<p>RECORD the following on Attachment 2</p> <ol style="list-style-type: none"> 1. "Power Tilt" for each detector. 2. "Maximum Power Tilt" and applicable detector identification information. 3. Test Results by initialing SAT or UNSAT column IAW stated Acceptance Criteria. 	<p>Records information on Attachment 2 (as per key for evaluator)</p> <p>Maximum Power Tilt for Top and Bottom will be <1.02 and marked SAT</p>		
	5.1.6	DIRECT a second Operator to perform Independent Verification of calculations in Attachment 1, Sections 1.0, 2.0 and 3.0 as applicable.	Cue: IV is complete SAT.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Excore NIS

TASK: Perform a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.7	<u>IF</u> the Maximum Power Tilt for <u>any</u> detector exceeds 1.02, <u>THEN REFER</u> to T/S 3.2.4 for corrective actions.	Determines no tilt exceeds 1.02.		
	5.3.1	This surveillance is satisfactory when Attachment 2 or 3 is completed with the Test Data meeting the Acceptance Criteria stated.	Determines surveillance is SAT.		
	5.4.1	COMPLETE Attachment 4, Sections 1.0 and 2.0, AND FORWARD completed procedure to SM/CRS for review.			
			JPM is terminated when candidate returns all JPM paperwork to evaluator.		

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

INITIAL CONDITIONS:

Unit 1 was operating at 100% power when rod 2D4 dropped fully into the core. OHA E-46, LOWER SECT DEV ABV 50% PWR annunciated and remains locked in.

Operators have not yet started reducing power to 74% to comply with TSAS 3.1.3.1.c.3.d IAW S1.OP-AB.ROD-002, Dropped Rod.


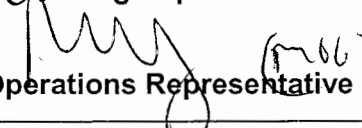
INITIATING CUE:

The CRS has directed you to perform a QPTR using Manual Calculation IAW S1.OP-ST.NIS-0002.

NI currents are:

	<u>Upper Detectors</u>	<u>Lower Detectors</u>
N41	190	200
N42	200	215
N43	180	175
N44	200	205

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM		
SYSTEM:	Admin		
TASK:	Prepare a Manual Tagout		
TASK NUMBER:	N3130060301		
JPM NUMBER:	13-01 NRC RO Admin A2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.2.13
APPLICABILITY:	IMPORTANCE FACTOR:		
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input type="checkbox"/>
		4.1	
		RO	SRO
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	OP-AA-109-115, Rev. 7, Safety Tagging Operations (rev checked 9-26-14) Various drawings		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	30 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	09-26-14
Validated By:	S Bickhart SME or Instructor	Date:	10-14-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Representative	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: 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.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

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.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM Admin

TASK: Prepare a Manual Tagout

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT
			<p>Notes for Evaluators: Attachment 2, Component Tagging Rules, contains information which allows for the following:</p> <ol style="list-style-type: none"> 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. 		
			<p>Note for Evaluators: The electrical power to a component <u>must</u> be cleared and tagged before that components manual operator is tagged, but may be sequenced within the tagout after other manual valves have been tagged.</p>		
			<p>Note: Actual WCD 4278552 (CRTE) used as the bases for the blocking points in JPM, with addition of vents and drains.</p>		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

Date: 10/14/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

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.

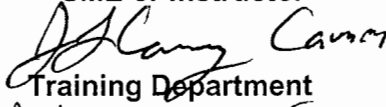

INITIATING CUE:

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE		
TASK:	Perform Duties of Secondary Communicator During an Alert		
TASK NUMBER:	N1240100501		
JPM NUMBER:	13-01 NRC RO Admin A4		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.4.39
		IMPORTANCE FACTOR:	3.9
APPLICABILITY:		RO	SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator		
REFERENCES:	EP-SA-111-F8, Attachment 8 Secondary Communicator Log, Rev. 02 (checked 9-26-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	8 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-26-14
Validated By:	S Bickhart SME or Instructor	Date:	10-14-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Representative	Date:	10-27-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Perform Duties of Secondary Communicator During an Alert.

TASK NUMBER: N1240100501

SIMULATOR OPERATOR CALL THE ERDS HELP DESK ON LAND LINE 1-301-415-0467 OR CELL PHONE 1-240-731-2581 BEFORE STARTING JPMS TO INFORM THEM ERDS WILL BE ACTIVATED DURING EXAM. PLACE FOLLOWUP CALL AFTER LAST RO HAS PERFORMED JPM.

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.

The Emergency News Center (ENC) has not activated yet.

INITIATING CUE: You are the Secondary Communicator. You are directed to perform EP-SA-111-F8, Attachment 8 Secondary Communicator Log

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

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

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)
		Provide a copy of ECG Attachment 8.			
			Fills out ECG Attachment 8 by: 1. Printing name 2. 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	<u>IF</u> in an UNUSUAL EVENT Only, <u>THEN</u> , within approximately 30 minutes, FAX a copy of the ICMF to the NEI Duty Manager at FAX # 9-1-202-785-4113 (backup Fax # 9-1-202-533-0180).	Determines not in an Unusual Event.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

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)
	A.4	<u>For an ALERT or higher emergency:</u> 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.		
	A.4	b. Within 60 minutes, ACTIVATE ERDS from a LAN computer .	Cue if needed: The SM directs you to activate ERDS now.		
*	A.4. b.1	PROCEED to a computer with its monitor labeled " ERDS XXX " (XXX is the computers asset tag number) in the Salem Control Room and START the program by SELECTING the ERDS_Salem desktop icon.	Proceeds to a computer with its monitor labeled "ERDS XXX" (XXX is the computers asset tag number) in the Salem Control Room and starts the program by selecting the ERDS_Salem desktop icon.		
*	A.4. b.2	On the "Login For ERDS Display" popup window ENTER the PASSWORD and SELECT "Login" to proceed. (The Username will be displayed and the password is the same as the Username)	On the "Login For ERDS Display" popup window enters the PASSWORD and selects "Login" to proceed. (The Username will be displayed and the password is the same as the Username)		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

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)
*	A.4. b.3	SELECT the Action button labeled <CONNECT> on the appropriate Salem 1 or Salem 2 "ERDS Link Control and Status Display Screen".	Selects the Action button labeled <CONNECT> on the Salem 2 "ERDS Link Control and Status Display Screen".		
*	A.4. b.4	SELECT the <YES> button in the "Current Link Control State is Disconnect. Do You Want To Connect?" box.	Selects the <YES> button in the "Current Link Control State is Disconnect. Do You Want To Connect?" box.		
	A.4. b.5	OBSERVE that Status changes to "Transmitting Data."	Observes that Status changes to "Transmitting Data."		
	A.4. b.6	VERIFY successful communications status by observing that the "Messages Sent" value is increasing from zero "0" to some positive integer > "0".	Verifies successful communications status by observing that the "Messages Sent" value is increasing from zero "0" to some positive integer > "0".		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

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)
A.4. b.7	INFORM the CRS of successful ERDS activation status.	<p>Informs the CRS of successful ERDS activation status.</p> <p>Cue: Steps A4 through A7 are complete. Steps A8 through A10 are not required to be completed at this time. Section B is not required to be completed at this time.</p>		
*	<p>Simulator Operator: After the previous step cue has been repeated back, call the desk phone and say the following:</p> <p>"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?"</p>	<p>Does NOT give plant information to caller.</p> <p>Attachment 8, Section C, INCOMING CALLS, MEDIA, CAUTION, states, "Communicators are <u>NOT</u> authorized to release any information to the News Media."</p> <p>May read either Attachment 8, section C, Incoming Calls, 3.C, OR tell them he cannot provide any information.</p>		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

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)
			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."		
	C.4.a	When directed by the NRC, TERMINATE Emergency Response Data System (ERDS) transmission as follows:			
	C.4.b	RETURN to the computer labeled "ERDS XXX" used to activate ERDS in the Control Room. <u>IF</u> the "ERDS Link Control and Status Display Screen" was "MINIMIZED" <u>THEN</u> , MAXIMIZE it.	Returns to the computer labeled "ERDS XXX" used to activate ERDS in the Control Room. <u>IF</u> the "ERDS Link Control and Status Display Screen" was "MINIMIZED" <u>THEN</u> , maximizes it.		
*	C.4.c	SELECT the appropriate (Salem Unit 1 or Salem Unit 2) Action Button marked < DISCONNECT > on the "ERDS Link Control and Status Display" Screen.	Selects the Salem Unit 2 Action Button marked <DISCONNECT> on the "ERDS Link Control and Status Display" Screen.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

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.d	SELECT the <YES> button in the "Current Link Control State is Connect. Do You Want To Disconnect?" box.	Selects the <YES> button in the "Current Link Control State is Connect. Do You Want To Disconnect?" box.		
			Terminate JPM.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- 5 1. Task description and number, JPM description and number are identified.
- 5 2. Knowledge and Abilities (K/A) references are included.
- 5 3. Performance location specified. (in-plant, control room, or simulator)
- 5 4. Initial setup conditions are identified.
- 5 5. Initiating and terminating Cues are properly identified.
- 5 6. Task standards identified and verified by SME review.
- 5 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- 5 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 2 Date 10/14/14
- _____ 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:  - BILL HACKETT

Date: 10/14/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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.

The Emergency News Center (ENC) has not activated yet.

INITIATING CUE:

You are the Secondary Communicator. You are directed to perform EP-SA-111-F8, Attachment 8 Secondary Communicator Log

JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Administrative		
TASK:	Identify and Isolate Non-Essential Chilled Water Loads		
TASK NUMBER:	0980020202		
JPM NUMBER:	13-01 NRC SRO Admin A1-1		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.25
APPLICABILITY:	IMPORTANCE FACTOR:		4.2
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S2.OP-SO.CH-0001 Rev. 30 (checked 9-25-14)		
TOOLS AND EQUIPMENT:	Calculator		
VALIDATED JPM COMPLETION TIME:	8 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-3-14
Validated By:	N Salam SME or Instructor	Date:	10-16-14
Approved By:	<i>[Signature]</i> Training Department	Date:	10-23-14
Approved By:	<i>[Signature]</i> Operations Representative (MOL)	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Chilled Water

TASK: Identify and Isolate Non-Essential Chilled Water Loads

TASK NUMBER: 0980020202

INITIAL CONDITIONS:

1. Salem Unit 2 is at 100% power during a summer heat wave.
2. At 1300, 22 Chiller trips on freeze protection followed shortly by 21 chiller, and neither can be reset.
3. Technical Specification LCO 3.7.10.a Action b.1. is in effect and non-essential heat loads need to be removed from the chilled water system.
4. Inlet Water Temperature Readings from SC.OP-DL.ZZ-0008(Q), Circulating / Service Water Log at 0800:
2TL3756 = 73.4°F
2TL3757 = 73.5°F
5. Outside air temperature has risen from 81°F to 99°F during this watch.

INITIATING CUE:

Identify non-essential heat loads to be removed from service in order to comply with TS 3.7.10. a Action b.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:

Identify combination of heat loads which will remove at least 999.1 kBTU/hr from chilled water system.

JOB PERFORMANCE MEASURE

System: Chilled Water

Task: Identify and Isolate Non-Essential Heat Loads

Name:

Date:

* STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
		Provide blank copies of TS 3.7.10, Chilled Water System – Auxiliary Building Subsystem and S2.OP-SO.CH-0001(Q), Chilled Water System Operation.		
	SO.CH-1 5.6.2	IF two Chillers are inoperable, THEN SELECT components for isolation IAW Attachment 2.		
* *	Att 2 1.0	<p>RECORD the following data for use in Table A: 1.1 Inlet Water Temperature from SC.OP-DL.ZZ-0008(Q), Circulating / Service Water Log:</p> <p>2TL3756= ____ °F 2TL3757= ____ °F</p> <p>From the above indicated 2TL3756/2TL3757 temperatures, RECORD the highest temperature AND ADD 1.5°F to account for instrument uncertainty. Utilize this temperature when referring to Table A</p> <p>____ °F + 1.5°F = ____ °F (highest temp)</p> <p>1.2 Number of inoperable Chiller Units: __</p>	<p>Enters temperatures from cue sheet onto Attachment 2 form. Adds 1.5 deg. to highest temp (73.5) and enters 75.0 deg.</p> <p>Lists 2 chillers out of service.</p>	

JOB PERFORMANCE MEASURE

System: Chilled Water

Task: Identify and Isolate Non-Essential Heat Loads

Name:

Date:

*	STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	Att 2 NOTE	Conservative decision making should be used when determining the appropriate non-essential heat loads to be isolated. If inlet water temperature is anticipated to exceed the selected inlet water temperature values, then heat loads should be removed for the next higher inlet water temperature values.	Based on the rise in outside air temperature between the 0800 inlet temperature reading and now (1300), and that the 75°F temp used for calculation is right at the limit to go up one category, determines heat loads for inlet temp >75°F should be used.		
*	2.0	RECORD the TOTAL HEAT LOAD ISOLATION from Table A: <u> </u> kBTU/hr	Enters 999.1 kBTU/hr.		
	3.0	IDENTIFY the components to be isolated in Table B as follows: 3.1 RECORD the value from the HEAT LOAD column into the Isolation column for the components selected for isolation.	Records values from HEAT LOAD into Isolation column in Table B for following components: Any combination of components may be selected as long as the total heat load selected is > 999.1 kBTU/hr.		
*	4.0	ADD the values recorded in the Isolation column AND RECORD the Total Isolation value in Table B	Adds values in ISOLATION column. Verifies total is greater than 999.1 kBTU/hr.		

JOB PERFORMANCE MEASURE

System: Chilled Water

Task: Identify and Isolate Non-Essential Heat Loads

Name:

Date:

*	STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	5.0	ENSURE that the Total Isolation value recorded in Table B is \geq the Total Heat Load Isolation recorded in Step 2.0 of this attachment.	Verifies Total Isolation value recorded in Table B is \geq the Total Heat Load Isolation recorded in Step 2.0 of this attachment. Terminate JPM when procedure SO.CH-0001(Q), Chilled Water System Operation is returned to evaluator.		

page intentionally blank

10/21/14

[Signature]

JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- VM 1. Task description and number, JPM description and number are identified.
- VM 2. Knowledge and Abilities (K/A) references are included.
- VM 3. Performance location specified. (in-plant, control room, or simulator)
- VM 4. Initial setup conditions are identified.
- VM 5. Initiating and terminating Cues are properly identified.
- VM 6. Task standards identified and verified by SME review.
- VM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- VM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 30 Date 5/19/2011
- VM 9. Pilot test the JPM:
a. verify Cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate. @ 8 min
- N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- N/A 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: Maossal Salam

Date: 10/16/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Salem Unit 2 is at 100% power.
2. Control Room ventilation is aligned in the Maintenance Mode with Unit 1 EACS O/S and unavailable.
3. 22 Chiller trips on freeze protection and cannot be reset.
4. Technical Specification LCO 3.7.10.a Action a.1. is in effect and non-essential heat loads need to be removed from the chilled water system.
5. Inlet Water Temperature Readings from SC.OP-DL.ZZ-0008(Q), Circulating / Service Water Log:
2TL3756 = 73.4°F
2TL3757 = 74.0°F

INITIATING CUE:

Identify non-essential heat loads to be removed from service in order to comply with TS 3.7.10. a Action a.1.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Administrative - Review Calculations that Determine Plant Status		
TASK:	Review a QPTR		
TASK NUMBER:	N1200170105		
JPM NUMBER:	13-01 NRC SRO Admin A1-2		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.1.18
APPLICABILITY:	IMPORTANCE FACTOR:		
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S1.OP-ST.NIS-0002 Rev. 15 S1.RE-RA.ZZ-0011 Rev. 383 Tech Spec 3.2.4		
TOOLS AND EQUIPMENT:	Calculator		
VALIDATED JPM COMPLETION TIME:	30 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-24-14
Validated By:	N Salam SME or Instructor	Date:	10-16-14
Approved By:	Training Department	Date:	
Approved By:	Facility Representative	Date:	
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			
DATE:			

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative - Review Calculations that Determine Plant Status

TASK: Review a QPTR

TASK NUMBER: N1200170105

INITIAL CONDITIONS:

Unit 1 was operating at 100% power when rod 2D4 dropped fully into the core. OHA E-46, LOWER SECT DEV ABV 50% PWR annunciated and remains locked in. Operators have not yet started reducing power to 74% to comply with TSAS 3.1.3.1.c.3.d IAW S1.OP-AB.ROD-002, Dropped Rod.

INITIATING CUE:

Review the completed S1.OP-ST.NIS-0002, Power Distribution - Quadrant Power Tilt Ratio for completeness and accuracy.

Note any discrepancies, if any, and required actions, if any, on Attachment 4.

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. Review the QPTR and determine it has been performed correctly, with SAT results.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Admin
TASK: Review a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide Candidate with completed copy of S1.OP-ST.NIS-0002, Rev. 15, Power Distribution - Quadrant Power Tilt Ratio, a copy of S1.RE-RA.ZZ-0011, Rev. 383, Tables, and a copy of Tech Spec 3.2.4.			
	2.1	IDENTIFY sections of this procedure that are <u>NOT</u> to be performed with "N/A".	Verifies proper section of procedure used and Section 5.2, Attachment 1 Section 3.0, and Attachment 3 are N/A.		
	3.0	<u>PRECAUTIONS AND LIMITATIONS</u>	Verifies PRECAUTIONS AND LIMITATIONS 3.1-3.5 initialed.		
	5.1.1	IF one PR channel is inoperable, <u>AND</u> RTP is >75%, THEN...	Verifies all PR channel are operable and step is marked NA.		
	5.1.2	RECORD the following data on Attachment 2 <ul style="list-style-type: none"> • Date • Time • Reactor Power • Reason for performing QPTR Calculation 	Verifies current date, current time, 100% reactor power and that OHA E-46 as reason for performance in Attachment 2 is checked		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Admin
TASK: Review a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.3	RECORD the following data on Attachment 1: <ul style="list-style-type: none"> NI Channels N-41, N-42, N43 and N-44 Upper Detector current readings NI Channels N-41, N-42, N43 and N-44 Lower Detector current readings Respective 100% NI Current Values for Channels N-41, N-42, N43 and N-44 Detectors from S1.RE-RA.ZZ-0011, Table 2 	Verifies data completed on Attachment 1: <ul style="list-style-type: none"> NI channels N41-44 Upper Detector Current Readings NI channels N41-44 Lower Detector Current Readings 100% NI Current Values from S1.RE-RA.ZZ-0011, TABLES <p>Note: Attachment 1, Section 3 was NOT required to be performed to determine detector currents. It was added at Rev. 12 to use "when any NIS meter is suspect." If asked, Cue that all Power Range Detectors are/were Operable.</p>		
*	5.1.4	COMPLETE Attachment 1 calculations.	Verifies calculations for Top and Bottom Detectors Verifies IV is complete.		
*	5.1.7	<u>IF</u> the Maximum Power Tilt for <u>any</u> detector exceeds 1.02, <u>THEN REFER</u> to T/S 3.2.4 for corrective actions.	Determines no power tilt exceeds 1.02.		
*	5.3.1	This surveillance is satisfactory when Attachment 2 or 3 is completed with the Test Data meeting the Acceptance Criteria stated.	Determines surveillance is SAT.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Admin
TASK: Review a QPTR

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.4.1	COMPLETE Attachment 4, Sections 1.0 and 2.0, <u>AND</u> FORWARD completed procedure to SM/CRS for review.	Completes Attachment 4, Section 3.		
			JPM is terminated when candidate returns all JPM paperwork to evaluator.		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

INITIAL CONDITIONS:


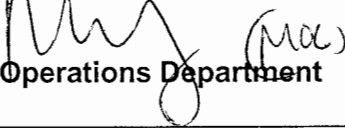
Unit 1 was operating at 100% power when rod 1D3 dropped fully into the core. OHA E-46, LOWER SECT DEV ABV 50% PWR annunciated and remains locked in. Operators have not yet started reducing power to 74% to comply with TSAS 3.1.3.1.c.3.d IAW S1.OP-AB.ROD-002, Dropped Rod.

INITIATING CUE:

Review the completed S1.OP-ST.NIS-0002, Power Distribution - Quadrant Power Tilt Ratio for completeness and accuracy.

Note any discrepancies, if any, and required actions, if any, on Attachment 4.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	ADMINISTRATIVE (TAGGING)		
TASK:	Review a Tagging List for correct blocking points		
TASK NUMBER:	1220050302		
JPM NUMBER:	13-01 NRC SRO Admin A2		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	2.2.13
APPLICABILITY:		IMPORTANCE FACTOR:	4.3
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Perform (In-Plant or Classroom)		
REFERENCES:	OP-AA-109 Rev. 2, Safety Tagging Program OP-AA-109-115 Rev. 7, Safety Tagging Operations P&IDs 205334-2 (Rev. 55), 203061-1 (Rev. 34), 205334-1 (Rev. 60)		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	35 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-18-14
Validated By:	N Salam SME or Instructor	Date:	10-16-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:	DATE:		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE (TAGGING)

TASK: Review a Tagging List for correct blocking points

TASK NUMBER: 1220050302

INITIAL CONDITIONS:

1. Unit 2 is at 100% power.
2. A small leak has developed on an instrument connection for 21 SI Pump. The leak location is just upstream of 21SJ92, SI PUMP DISCH PRESS TAP.
3. No other ECCS-related technical specification action statements are in effect.

INITIATING CUE:

You are an extra SRO on shift. A newly licensed NCO has asked you to review this Tagging List for your input. You are **NOT** the Approving Supervisor. If there is any enhancement or correction required to WCD, record it on your Tear-Off Sheet.

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. Identify improper blocking points of :
 - a. 2SJ30 which should be 21SJ33
 - b. 21SJ64 check valve as boundary, should be 21SJ65
 - c. 21 and 22SJ113 not included in WCD.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE (TAGGING)

TASK: Review a Tagging List for correct blocking points

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Prove candidate with "Tear-off Sheet" Tagging Request, and marked up drawings.			
		START TIME: _____			
	1	Refers to OP-AA-109 Rev. 2, Safety Tagging Program and OP-AA-109-115 Rev. 7, Safety Tagging Operations, as necessary.	Provide a copy of OP-AA-109 Rev. 2, Safety Tagging Program and OP-AA-109-115 Rev. 7, Safety Tagging Operations if requested.		
*	2	Reviews tagging request against P&ID blocking points.	Notes that: 1. 2SJ30, RWST to SI Pump Stop Valve, is listed as a blocking point. Closing 2SJ30 would render both 21 and 22 SI Pumps inoperable. The proper blocking point should be 21SJ33 instead of 2SJ30.		
*	2 (cont)		2. 21 SI pump Recirculation Line is not isolated from a potential energy source. Check valves are NOT relied upon for personnel protection. Isolation valve 21SJ65 should be tagged in the closed position.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: **ADMINISTRATIVE (TAGGING)**

TASK: **Review a Tagging List for correct blocking points**

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	2 (cont)		<p>3. ECCS cross-connect line going from pump suction to the 21SJ113 and 22SJ113 is not tagged.</p> <p>NOTE: These valves are located on a different print that has NOT been provided to the candidate. The candidate may request drawing 205334 Sheet 1 to determine which valves need to be added OR the applicant may state the 21/22SJ113s from memory.</p>		
*	2 (cont)		<p>4. Returns Tagging Request to WCC, with changes requested.</p> <p>NOTE: If candidate identifies vent or drain valves as required for maintenance, these valves could be tagged (not incorrect), but are not required for a full correct answer.</p>		
			Terminate JPM when tear off sheet, procedures, and drawings are returned.		
		STOP TIME: _____			

Terminating Cue:

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.

- VM 1. Task description and number, JPM description and number are identified.
- M 2. Knowledge and Abilities (K/A) references are included.
- VM 3. Performance location specified. (in-plant, control room, or simulator)
- VM 4. Initial setup conditions are identified.
- VM 5. Initiating and terminating Cues are properly identified.
- M 6. Task standards identified and verified by SME review.
- M 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- VM 8. Verify the procedure referenced by this JPM matches the most current
revision of DWG 205334-1, 203061
7 6 Aug, 2014 OP-AA-109-115
that procedure: Procedure Rev. 2 Date June 27, 2013 - OP-AA-109
- M 9. Pilot test the JPM:
a. verify Cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.
- N/A 10. If the JPM cannot be performed as written with proper responses, then
revise the JPM.
- N/A 11. When JPM is revalidated, SME or Instructor sign and date JPM cover
page.

SME/Instructor: Wassil

Date: 10/16/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

INITIAL CONDITIONS:

1. Unit 2 is at 100% power.
2. A small leak has developed on an instrument connection for 21 SI Pump. The leak location is just upstream of 21SJ92, SI PUMP DISCH PRESS TAP.
3. No other ECCS-related technical specification action statements are in effect.

INITIATING CUE:

You are an extra SRO on shift. A newly licensed NCO has asked you to review this Tagging List for your input. You are **NOT** the Approving Supervisor. If there is any enhancement or correction required to WCD, record it on your Tear-Off Sheet.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Waste Gas		
TASK:	Authorize a Radioactive Gas Release Form		
TASK NUMBER:	N1120650302		
JPM NUMBER:	13-01 NRC SRO Admin A3		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	2.3.6
APPLICABILITY:		IMPORTANCE FACTOR:	
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	S1.OP-SO.WG-0010 Rev. 31 (Rev checked 9/22/14)		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	20 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-22-14
Validated By:	N Salam SME or Instructor	Date:	10-16-14
Approved By:	Training Department	Date:	
Approved By:	Operations Department	Date:	
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Waste Gas

TASK: Authorize a Radioactive Gas Release Form

TASK NUMBER: N1120650302

INITIAL CONDITIONS: 13 GDT is in holdup in preparation for performing a gas release. Chemistry has performed all required sampling and authorized the gas release. The release procedure, S1.OP-SO.WG-0010, Discharge of 13 Gas Decay Tank to Plant Vent has just been handed to you by the Unit 1 PO, who informs you the release is ready for CRS approval.

INITIATING CUE: Review the entire S1.OP-SO.WG-0010 procedure for completeness, accuracy, and release approval. Approve the release or provide justification for NOT approving the release, and also note any discrepancies found in the procedure, in the comments section of the procedure.

Note to Evaluator: A cue directing the performer to review the entire procedure is embedded several places in body of JPM, based on previous performance of this JPM where an operator will find the first flaw and discontinue reviewing the remainder of the procedure. If required, stress during initiating cue that the entire procedure is to be reviewed.

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. Review Gas Release and identify that:
 - a. Pre-release verification has not been performed at step 5.2.8
 - b. Attachment 2, Step 4.1, second bullet, calculated Maximum Allowable Release rate from Section 3.4 has been entered as 32 SCFM instead of the correct value of 100 scfm.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

System: ADMINISTRATIVE

Task: Authorize a Radioactive Gas Release Form

* STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Provide marked up S1.OP-SO.WG-0010 to operator.			
		<p>Operator reviews procedure.</p> <p>Possible Cue Required: On page 17, the Estimated Total Volume of Waste Gas to be released is entered by Chemistry during performance of Attachment 2, section 3.0, DOSE, VOLUME ESTIMATES AND APPROVAL.</p> <p>IF a candidate requests the Release Permit, or questions the estimated release volume or ANY aspect of Section 3.0, THEN provide the following cue:</p> <p>Cue: The data provided in Section 3 of Attachment 2 can be assumed to be correct.</p>		
*		<p>The first error in the procedure is that the performance of the pre-release valve position verification in Attachment 1, has not been performed at step 5.2.8., prior to the procedure being given to the CRS for release approval.</p> <p>Possible Cue Required: If candidate identifies that Step 5.2.8 has not been performed and does not go any further to see if the rest of the procedure is correct, then a cue stating that the candidate needs to review the entire procedure will need to be given.</p>		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

System: ADMINISTRATIVE

Task: Authorize a Radioactive Gas Release Form

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*			<p>The second error is that the release rate which was calculated as 100 scfm and entered on Att. 2 page 2 of 6, Step 3.4 second bullet, has been incorrectly entered as 32 scfm on Att. 2, page 4 of 6, step 4.1 1st bullet. (The release rate entered here must be >32 scfm in order to sign off the next bullet).</p> <p>Possible Cue Required: If candidate identifies that the release rate has been entered incorrectly and does not go any further to see if the rest of the procedure is correct, then a cue stating that the candidate needs to review the entire procedure will need to be given.</p>		
		Operator identifies and records discrepancies.	When operator records discrepancies and has reviewed the entire procedure, then terminate JPM.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

SME/Instructor: _____	Date: _____
SME/Instructor: _____	Date: _____
SME/Instructor: _____	Date: _____



INITIAL CONDITIONS:

13 GDT is in holdup in preparation for performing a gas release. Chemistry has performed all required sampling and authorized the gas release. The release procedure, S1.OP-SO.WG-0010, Discharge of 13 Gas Decay Tank to Plant Vent has just been handed to you by the Unit 1 PO, who informs you the release is ready for CRS approval.

INITIATING CUE:

Review the **entire** S1.OP-SO.WG-0010 procedure for completeness, accuracy, and release approval. Approve the release or provide justification for NOT approving the release, and also note any discrepancies found in the procedure, in the comments section of the procedure.

JOB PERFORMANCE MEASURE

STATION:	SALEM		
SYSTEM:	Administrative		
TASK:	Classify Emergency/Non-Emergency Events - Make a General Emergency Protective Action Recommendation		
TASK NUMBER:	N1240010502		
JPM NUMBER:	13-01 NRC SRO Admin A4		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	2.4.44
		IMPORTANCE FACTOR:	4.4
APPLICABILITY:		RO	SRO
EO <input type="checkbox"/>	RO <input type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Classroom		
REFERENCES:	Salem ECG		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	10 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	15 minutes		
Developed By:	G Gauding Instructor	Date:	9-19-14
Validated By:	N Salam SME or Instructor	Date:	10-16-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Representative	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Classify Emergency/Non-Emergency Events - Make a General Emergency Protective Action Recommendation

TASK NUMBER: N1240010502

INITIAL CONDITIONS:

A severe accident has occurred at Salem Unit 2. You have declared a 13 point General Emergency in the Control Room at 1535 hrs for loss of all three fission product barriers under EAL's FB3.L, RB2.L, and CB.1.L

The weather conditions are as follows:

- Wind direction is from 050 degrees at 15 mph.
- Overcast skies with rain showers.
- Ambient temp = 62°F
- 2R41D is reading 2.5 E3 uCi/sec

INITIATING CUE:

Continue performing the provided Salem ECG Attachment 4, General Emergency.

I am 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. Determine correct PAR.
2. Complete ICMF within 15 minutes.

JOB PERFORMANCE MEASURE

System: Administrative

Name:

Task: Classify Emergency/Non-Emergency Events - Make a General Emergency Protective Action Recommendation

*	STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
		Provide marked up EP-SA-111-F4, Attachment 4, General Emergency, and a blank copy of EP-SA-111-102, Salem Emergency Classification Description Table.			
	Att. 4 B	<u>CAUTION</u> A Protective Action Recommendation (PAR) SHALL be made on the Initial Contact Message Form (ICMF).			
*	Att. 4 B.2	MAKE a PAR as follows: a. REFER to Predetermined PAR Flowchart on Pg. 3 and DETERMINE the appropriate PAR.	Refers to Predetermined PAR Flowchart on Pg. 3 and determines the appropriate PAR is to: Evacuate All sectors 0-5 miles, Evacuate downwind sectors +/- 1 sector. SSW, SW, WSW 5-10 MILES (Shelter) All remaining sectors. Note: Wind is from 050 (NE), and the +/-1 sector is included in sectors for NE wind direction.		

JOB PERFORMANCE MEASURE

System: Administrative

Name:

Task: Classify Emergency/Non-Emergency Events - Make a General Emergency Protective Action Recommendation

*	STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	Att. 4 B.2	b. <u>IF</u> a Radiological Based PAR is <u>IMMEDIATELY</u> available, <u>THEN</u> COMPARE the two PARs and CHOOSE the most appropriate for inclusion on the ICMF.	Cue: A radiological PAR is not immediately available.		
*	Att. 4 B.3	COMPLETE/APPROVE the ICMF (last page of this attachment).	Completes the GE ICMF by filling in: <ul style="list-style-type: none"> • Name • Checking "Control Room" • Time/Date • EALs FB3.L, RB2.L, and CB.1.L • Loss of the Fuel Clad Barrier, Loss of the Reactor Coolant System Barrier, Loss of the Containment Barrier • NOT checking Box IIb for PAR Upgrade. • Checking no radiological release in progress based on 2R41D reading • Filling in Section V with conditions determined in B.2 above. • Initialing the ICMF 		

JOB PERFORMANCE MEASURE

System: Administrative

Name:

Task: Classify Emergency/Non-Emergency Events - Make a General Emergency Protective Action Recommendation

*	STEP NO.	STEP (* = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	Att. 4 B.4	IF time allows, OBTAIN an accuracy peer check of the completed ICMF.	Cue: A peer check will not be provided.		
	Att. 4 B.5	PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement ECG Attachment 6.	Provides ICMF to evaluator.		
			State JPM is complete, and mark Stop Time: _____		

page intentionally blank

J 10/23/14

JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- YM 1. Task description and number, JPM description and number are identified.
- YM 2. Knowledge and Abilities (K/A) references are included.
- YM 3. Performance location specified. (in-plant, control room, or simulator)
- YM 4. Initial setup conditions are identified.
- YM 5. Initiating and terminating Cues are properly identified.
- YM 6. Task standards identified and verified by SME review.
- YM 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- YM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 1 Date 10/24/2012
- YM 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: Wassie

Date: 10/16/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

A severe accident has occurred at Salem Unit 2. You have declared a 13 point General Emergency in the Control Room at 1535 hrs for loss of all three fission product barriers under EAL's FB3.L, RB2.L, and CB.1.L.


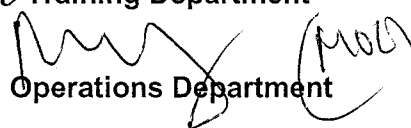
The weather conditions are as follows:

- Wind direction is from 050 degrees at 15 mph.
- Overcast skies with rain showers.
- Ambient temp = 62°F
- 2R41D is reading 2.5 E3 uCi/sec

INITIATING CUE:

Continue performing the provided Salem ECG Attachment 4, General Emergency.
I am the Primary Communicator
This is a time critical JPM.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM 1 & 2		
SYSTEM:	Chemical and Volume Control		
TASK:	Perform a Boration Flow Capability to the RCS Surveillance Test		
TASK NUMBER:	N0040430201		
JPM NUMBER:	13-01 NRC Sim a		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	004 A4.18
APPLICABILITY:	EO <input type="checkbox"/>	IMPORTANCE FACTOR:	4.3 RO 4.4 SRO
	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator - Perform		
REFERENCES:	S2.OP-ST.CVC-0011, Rev. 7 (checked 10-7-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	8 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	D Tait SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

TASK NUMBER: N0040430201

SIMULATOR SETUP: **IC-251**

MODE 3

ET-1

KB127PNB 2CV175 open pushbutton-OPEN

ET-3

KB127TCB 2CV175 close PB(deletes B128)

I/O

OVAO B128 2FI-113A Rapid Borate Flow

Initial 0 Final 33 Ramp 6 seconds

Tied to ET-1

MALF: VL0095 2CV175 fails to 0% open ties to ET-3 with 11 sec TD.

(This prevents reopening valve after it is shut after original IO is deleted when 2CV175 close PB is depressed.

INITIAL CONDITIONS:

Unit 2 is in MODE 3 @ NOP, NOT

INITIATING CUE:

You are the Reactor Operator. Perform S2.OP-ST.CVC-0011, Boration Flow Rate Test

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 S2.OP-ST.CVC-0011 and determine 2CV172 test is SAT and 2CV175 test is UNSAT.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide marked up copy of S2.OP-ST.CVC-0011, Boration Flow Rate Test.			
	2.1	IDENTIFY sections of this procedure that are not required to be performed with "N/A".	Determines all sections are to be performed.		
	2.2	REVIEW Components "Off Normal and Off Normal Tagged" List(s) for system and support system(s) associated with evolution to be performed in this procedure.	Determines from initial conditions that Components "Off Normal and Off-Normal Tagged" List(s) review has been performed SAT.		
	2.3	ENSURE one of the following: <ul style="list-style-type: none"> The Reactor is in Modes 3-6, or Defueled. <u>OR</u> <ul style="list-style-type: none"> The procedure may be performed for Refueling Outages in Modes 1 and 2 <u>provided</u> the rapid boration is started immediately prior to the Reactor Trip. 	Determines the Reactor is in Mode 3.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	2.4	ENSURE the Charging System is in service IAW S2.OP-SO.CVC-0001(Q), Charging, Letdown, and Seal Injection.	Determines Charging System is in service.		
	2.5	ENSURE calibration data for the instruments listed in Attachment 1, as applicable, is obtained.	Determines calibration data for the instruments listed in Attachment 1 has been obtained.		
	3.1	Steps identified with dollar signs (\$) are those items required to meet Technical Specification acceptance criteria. Such steps, if not satisfactorily completed, may have reportability requirements and shall be brought to the immediate attention of the SM/CRS.	Reads and initials step.		
	3.2	Due to system limitations, boron addition rate is essentially the same whether one or both Boric Acid Transfer Pumps are operating.	Reads and initials step.		
	3.3	Allow 2CV175, RAPID BORATE STOP VALVE, to full stroke prior to reversing direction.	Reads and initials step.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.4	The ≥ 36 gpm Boric Acid Flow value specified throughout this procedure satisfies the 33 gpm requirement of Technical Specification 4.1.2.2.d plus 3 gpm for instrument uncertainty associated with instrument loops 2FT110 and 2FT113 IAW PR #971016106.	Reads and initials step.		
*	5.1.1	SELECT MAKEUP CONTROL MODE SELECT, STOP.	Selects MAKEUP CONTROL MODE SELECT, STOP.		
*	5.1.2	SELECT 2CV172, BA FLOW CONTROL TO BLENDER, MANUAL.	Selects 2CV172, BA FLOW CONTROL TO BLENDER, MANUAL.		
	5.1.3	OPEN 2CV172.	Determines 2CV172 is open.		
*	5.1.4	On the in service Boric Acid Pump: A. SELECT MANUAL. B. SELECT FAST START.	On the in service Boric Acid Pump selects MANUAL, then FAST START.		
*	5.1.5	SELECT 2CV185, MAKEUP FLOWPATH, MANUAL.	Selects 2CV185, MAKEUP FLOWPATH, MANUAL.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.6	OPEN 2CV185	Opens 2CV185.		
	5.1.7	CLOSE 21CV160, RECIRC VALVE.	Closes 21CV160, RECIRC VALVE.		
	5.1.8	CLOSE 22CV160, RECIRC VALVE.	Closes 22CV160, RECIRC VALVE.		
*	5.1.9	RECORD test results in Attachment 1, Section 2.0.	Initials SAT after verifying 2FI110A indicates ≥ 36 gpm.		
	5.1.10	On the in service Boric Acid Pump, SELECT SLOW START.	Selects SLOW START on in service Boric Acid Pump.		
*	5.1.11	CLOSE 2CV185	Closes 2CV185.		
	5.1.12	PRESS the following RECIRC VLV OPEN (INC FLOW) pushbuttons until the valves are sufficiently OPEN to support BAST level control: A. 21CV160, RECIRC VALVE B. 22CV160, RECIRC VALVE	Throttles open: A. 21CV160, RECIRC VALVE B. 22CV160, RECIRC VALVE		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.13	PLACE the following valves in AUTO: • 2CV185 • 2CV172	Places 2CV185 and 2CV172 in AUTO.		
*	5.2.1	On the in service Boric Acid Pump: C. SELECT MANUAL. D. SELECT FAST START.	On the in service Boric Acid Pump selects MANUAL, then FAST START.		
*	5.2.2	OPEN 2CV175, RAPID BORATE STOP VALVE.	Simulator Operator: Ensure ET-1 is TRUE when 2CV175 OPEN PB is depressed. This inserts the 33 gpm rapid borate flow on 2FI113A. Opens 2CV175, RAPID BORATE STOP VALVE.		
	5.2.3	CLOSE 21CV160, RECIRC VALVE.	Closes 21CV160, RECIRC VALVE.		
	5.2.4	CLOSE 22CV160, RECIRC VALVE.	Closes 22CV160, RECIRC VALVE.		
*	5.2.5	RECORD test results in Attachment 1, Section 3.0.	Initial UNSAT for 2FI113A flow.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Chemical and Volume Control

TASK: Perform a Boration Flow Capability to the RCS Surveillance Test

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2.6	On the in service Boric Acid Pump, SELECT SLOW START.	Selects SLOW START on in service Boric Acid Pump.		
*	5.2.7	CLOSE 2CV175, RAPID BORATE STOP VALVE.	Closes 2CV175, RAPID BORATE STOP VALVE.		
	5.2.8	PRESS the following RECIRC VLV OPEN (INC FLOW) pushbuttons until the valves are sufficiently OPEN to support BAST level control: A. 21CV160, RECIRC VALVE B. 22CV160, RECIRC VALVE	Throttles open: A. 21CV160, RECIRC VALVE B. 22CV160, RECIRC VALVE		
			Terminate JPM when 21 and 22CV160 have been throttled open.		

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.

- 0 1. Task description and number, JPM description and number are identified.
- 0 2. Knowledge and Abilities (K/A) references are included.
- 0 3. Performance location specified. (in-plant, control room, or simulator)
- 0 4. Initial setup conditions are identified.
- 0 5. Initiating and terminating Cues are properly identified.
- 0 6. Task standards identified and verified by SME review.
- 0 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- 0 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 7 Date 10/15/14
- 0 9. Pilot test the JPM:
 - a. verify Cues both verbal and visual are free of conflict, and
 - b. ensure performance time is accurate.
10. If the JPM cannot be performed as written with proper responses, then revise the JPM.
11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: 

Date: 10/15/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

INITIAL CONDITIONS:

- Unit 2 is in MODE 3 @ NOP, NOT

INITIATING CUE:

You are the Reactor Operator. Perform S2.OP-ST.CVC-0011, Boration Flow Rate Test

TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

STATION:	SALEM		
SYSTEM:	Emergency Operating Procedures		
TASK:	Perform Actions For A Transfer To Cold Leg Recirculation		
TASK NUMBER:	1150030501		
JPM NUMBER:	13-01 NRC Sim b		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	E011 EA1.11
APPLICABILITY:		IMPORTANCE FACTOR:	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator		
REFERENCES:	2-EOP-LOCA-3 Rev. 29 (Rev. checked 10-7-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	12 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:			
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	D Tait SME or Instructor	Date:	10-15-14
Approved By:	Training Department	Date:	
Approved By:	Operations Department	Date:	
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

NAME: _____

DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Perform Actions For A Transfer To Cold Leg Recirculation

TASK NUMBER: 115 010 05 01

SIMULATOR SETUP: IC- 252
MALF: VL0121 22SJ44 fails to 0% open
REMOTES: SW27D 22 SW pump control power OFF
SW43D 26 SW pump control power OFF
I/O: A908 OVDI 24 SW pump start PB OFF
A909 OVDI 25 SW pump start PB OFF
A403 OVDI 22 CS pump stop PB OFF
A614 OVAO 22 CCHX Outlet Temperature 200

- Place Bezel Cover on 22 SW pump

INITIAL CONDITIONS:

- A LBLOCA has occurred on 22 RC Loop.
- All Vital Buses are energized from off-site power.
- Operators are performing actions in 2-EOP-LOCA-1, Loss of Reactor Coolant.
- 22 SW pump is C/T.
- 26 SW pump tripped 2 minutes ago.
- RWST lo level alarm has just annunciated.

INITIATING CUE:

You are the RO. Perform 2-EOP-LOCA-3, Transfer to Cold Leg Recirculation, beginning with 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. Transfer to CL recirc with single train operation.

**TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Residual Heat Removal**TASK:** Align RHR Suction to Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME: _____			
	1	Do not implement any FRPs until directed by this EOP.	Reads step.		
	2	Is "Cont Sump Ch A(B) Level >62%" lit	Checks Cont Sump Ch A(B) Level >62% lights and answers YES.		
*	3	Depress "SUMP AUTO ARMED" pushbuttons on 21 and 22 SJ44 bezels	Depresses "SUMP AUTO ARMED" pushbuttons on 21 and 22 SJ44 bezels.		
*	4	Remove lockouts for the following: <ul style="list-style-type: none"> • 2SJ67 (SI Pumps Miniflow) • 2SJ68 (SI Pumps Miniflow) • 2SJ69 (Common Suction) 	Rotates lockout switches on 2RP4 to the VALVE OPERABLE position for: <ul style="list-style-type: none"> • 2SJ67 (SI Pumps Miniflow) • 2SJ68 (SI Pumps Miniflow) • 2SJ69 (Common Suction) 		
	5	Are 21 and 22 SJ44 (Sump Valves) open?	Determines Sump Valve 21SJ44 is open and Sump Valve 22SJ44 is shut.		
	5.1	Reset SI	Determines SI is reset.		
	5.1	Reset Emergency Loading for each SEC	Determines Emergency Loading for each SEC is reset.		
	5.2	Is 21SJ44 open	Determines 21SJ44 is open.		
*	5.2	Stop 22 RHR pump	Depresses stop PB for 22 RHR pump.		

TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heat Removal

TASK: Align RHR Suction to Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2	Close 2SJ69 (Common Suction)	Depresses close PB for Close 2SJ69 (Common Suction) and verifies green close light illuminates.		
	5.2	Start 21 RHR pump.	Determines 21 RHR pump is running.		
	5.2	Initiate close on 22RH4 (Pump Suction) and continue.	Depresses close PB for 22RH4 (Pump Suction) and continues.		
	5.2	Initiate open on 22SJ44 and continue.	Depresses open PB for 22SJ44 and continues.		
	5.3	<u>When</u> 22SJ44 opens, <u>Then</u> start 22 RHR pump.	Does not start 22 RHR pump Note: 22SJ44 will not open.		
	6	<u>IF</u> Blackout loading occurs on <u>any</u> vital bus after SI reset, <u>then</u> perform actions per Table A.	Reads step.		
	7	Reset SI	Determines SI is reset on Trains A and B.		
		Reset Emergency loading for each SEC.	Determines Emergency Loading is Reset for each SEC.		
		Are <u>all</u> SECs reset?	Determines all SECs are reset.		
		Reset 230V control centers.	Determines all 230V control centers are reset.		
	8	Are <u>both</u> CS pumps running	Determines both CS pumps are running.		

TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Residual Heat Removal

TASK: Align RHR Suction to Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Stop 22 CS pump	Depresses stop PB for 22 CS pump and determines pump does not stop. Note: May dispatch an operator to locally open or standby to open 22 CS pump breaker.		
		Is 22 CS pump stopped	Determines 22 CS pump is not stopped.		
*		Stop 21 CS pump	Depresses stop PB for 21 CS pump and Determines pump has stopped.		
*	9	Close 21 and 22RH19 (RHR HX Disch x-conn valves)	Depresses close PB for 21 and 22RH19 (RHR HX Disch x-conn valves) and verifies shut lights illuminate.		
		Stop 23 charging pump	Depresses stop PB for 23 charging pump and verifies it stops.		
	10	Select appropriate flowpath transition step from Table B Go to selected step	Selects flowpath transition step 11 with all vital buses energized. Goes to Step 11.		
	11	Is <u>Any</u> 4KV vital bus energized by DG	Determines no 4KV vital bus energized by DG.		
	11.1	Are <u>at least three</u> SW pumps running	Determines only 2 SW pumps are running. Note: If operator attempts to start 24 or 25 SW pumps they will not start.		
*		Stop 2 CFCUs	Depresses stop PBs for 2 running CFCUs and verifies they stop.		

TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heat Removal

TASK: Align RHR Suction to Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Go to Step 118	Goes to Step 118.		
*	118	Stop the following pumps: <ul style="list-style-type: none"> • 22 SI pump • 21 Charging pump • 22 AFW pump 	Depresses stop PBs for: <ul style="list-style-type: none"> • 22 SI pump • 21 Charging pump • 22 AFW pump and verifies they stop. Note: If SG lo lvl is present 22 AFW pp will not stop.		
		Is 22 CCW HX in service	Determines that 22 CCW HX is not available, nor being returned to service, based on high temperature on 2CC2. (Temp is ~196°F)		
		Open 21CC16 (CC Supply to RHR HX Valve)	Determines 21CC16 (CC Supply to RHR HX Valve) is open.		
		Start 21 RHR pump	Determines 21 RHR pump is in service		
		Stop 22 RHR pump	Determines 22 RHR pump is stopped.		

**TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Residual Heat Removal

TASK: Align RHR Suction to Containment Sump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		Close 22CC16 (CC Supply to RHR HX Valve)	Depresses 22CC16 (CC Supply to RHR HX Valve) close PB and verifies it shuts.		
		Close 2SJ68 and 2SJ67(SI Pumps Miniflow Valves)	Depresses close PB for Close 2SJ68 and 2SJ67(SI Pumps Miniflow Valves) and verifies they shut.		
		Close 2RH1 <u>AND</u> 2RH2 (Common Suction Valves)	Determines 2RH1 <u>AND</u> 2RH2 (Common Suction Valves) are shut.		
	119	Is 21 RHR pump running	Determines 21 RHR pump is running.		
	120	Open 21SJ45 (RHR Discharge to SI pump valve)	Depresses open PB for 21SJ45 (RHR Discharge to SI pump valve) and verifies it opens.		
		Terminate JPM			

JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

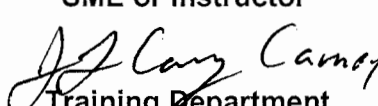

INITIAL CONDITIONS:

- A LBLOCA has occurred on 22 RC Loop.
- All Vital Buses are energized from off-site power.
- Operators are performing actions in 2-EOP-LOCA-1, Loss of Reactor Coolant.
- 22 SW pump is C/T.
- 26 SW pump tripped 2 minutes ago.
- RWST lo level alarm has just annunciated.

INITIATING CUE:

You are the RO. Perform 2-EOP-LOCA-3, Transfer to Cold Leg Recirculation, beginning with Step 1.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM		
SYSTEM:	Abnormal Operating Procedures		
TASK:	TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)		
TASK NUMBER:	N1140240401		
JPM NUMBER:	13-01 NRC Sim c		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	APE 027 AA1.01
APPLICABILITY:		IMPORTANCE FACTOR:	4.0 3.9
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:		Simulator - Perform	
REFERENCES: S2.OP-AB.RC-0001, Rev. 11 Reactor Coolant System Leak (rev checked 10-7-14) S2.OP-AB.PZR-0001, Rev. 18 Pressurizer Pressure Malfunction (rev checked 10-7-14)			
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	4 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	NA		
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	D Tait SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-27-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM:

TASK: N1140240401

TASK NUMBER:

INITIAL CONDITIONS: The unit is operating in a steady state condition at 100% power with all systems in automatic.

SIMULATOR SETUP: IC-253

The simulator setup is:

RT-1

MALF: PR0018B 2PR2 Develops Leak

Severity: 5000

- **Ensure a centrifugal charging pump is in service.**

INITIATING CUE:

You are the Reactor Operator.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Determine that 2PR2 PZR PORV is leaking and close 2PR7 Block Valve.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Abnormal Operating Procedures

TASK: TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Simulator Operator: Insert RT-1		
			Operator either: Identifies PORV tailpipe temperature has risen from normal to ~227°F OR Identifies rising charging flow THEN enters S2.OP-AB.RC-0001, Reactor Coolant system Leak <u>or</u> S2.OP-AB.PZR-0001, Pressurizer Pressure Control Malfunction		
	AB.RC 3.1	INITIATE Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary. Note: CAS Item 3.0 directs entry into S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction. When PORV leakage is identified, operator initiates S2.OP-AB.PZR-0001.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormal Operating Procedures

TASK: TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.2	Is RCS temperature <350°F? (Mode 4, 5, or 6 LOCA)	Answers NO and goes to Step 3.8 (Mode 1, 2, or 3 LOCA)		
	3.8	Is the Unit in Mode 3 after the accumulators are isolated?	Answers NO and goes to Step 3.12 (Mode 1, 2 or 3 RCS LEAK)		
	3.12	Is PZR level being maintained stable or rising?	Answers YES and goes to Step 3.18 Note: If operator is unsure if PZR level is lowering, then they may adjust charging flow to stabilize PZL level.		
	3.18	PLACE CVC Makeup Control System in service as necessary to control VCT level.	Operator determines Makeup Control System is in automatic.		
	3.19	INITIATE S2.OP-ST.RC-0008(Q), Reactor Coolant System Water Inventory Balance.	Cue: A second operator will initiate the RCS Water Inventory Balance.		
	3.20	IF recommended by Rad Pro OR desired to reduce containment radiation levels THEN PLACE 2 CFCUs in slow speed AND 2 CFCUs in fast speed.	Determines no recommendation by Rad Pro has been made, and containment pressure has remained stable.		
	3.21	PERFORM the following to identify location of leak:			

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormal Operating Procedures

TASK: TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.21.1	INITIATE actions to locate and isolate the leak IAW Attachment 2, Guidelines for Locating An RCS Leak.	Initiates actions to locate and isolate the leak IAW Attachment 2, Guidelines for Locating An RCS Leak.		
	Att. 2 1.0	MONITOR indicators on the left side of Table 1 for high or rising readings.	Monitors indicators on the left side of Table 1 for high or rising readings, and determines PORV tailpipe temperature is elevated.		
	CAS 3.0	IF AT ANY TIME , the leak is determined to be from a PORV, OR a Pressurizer Code Safety Valve, THEN INITIATE S2.OP-AB.PZR-0001(Q), Pressurizer Pressure Malfunction.	Determines leak is from a PZR PORV, and initiates S2.OP-AB.PZR-0001(Q), Pressurizer Pressure Malfunction.		
	AB.PZR 3.1	INITIATE Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	3.2	Is POPS in service?	Determines POPS is not in service.		
	3.3	Is the controlling Pressurizer Pressure Control Channel (I or III) failed?	Determines the controlling Pressurizer Pressure Control Channel (I or III) has not failed, and goes to Step 3.11.		
	3.11	Is the Master Pressure Controller failed? (Refer to Attachment 2 for guidance)	Determines the Master Pressure Controller has not failed, and goes to Step 3.17		
	3.17	Is a Spray Valve(s) failed? (Refer to Attachment 2 for guidance)	Determines a Spray Valve has not failed and goes to Step 3.39.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormal Operating Procedures

TASK: TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.39	Is a PORV(s) failed? (Refer to Attachment 2 for guidance)	Determines a PORV has not failed based on closed indication and goes to Step 3.46.		
	3.46	Are PORV tailpipe temperatures elevated?	Determines PORV tailpipe temperatures are elevated.		
*	3.47	CLOSE 2PR6 AND 2PR7, Pressurizer Relief Stop Valves.	Closes 2PR6 AND 2PR7, Pressurizer Relief Stop Valves.		
	3.48	IF PORV tailpipe temperature does NOT lower sufficiently to allow a temperature rise to be seen when the leaking PORV is unisolated, THEN:...	Determines PORV tailpipe temperatures are lowering sufficiently.		
*	3.49	When pressure stabilizes, OPEN 2PR6, Pressurizer Relief Stop Valve.	Determines pressure is stable, and opens 2PR6, Pressurizer Relief Stop Valve.		
	3.50	Is tailpipe temperature rising?	Determines tailpipe temp is not rising and goes to Step 3.53.		
*	3.53	OPEN 2PR7.	Opens 2PR7.		
	3.54	Is tailpipe temperature rising?	Determines tailpipe temperature rising.		
*	3.55	CLOSE 2PR7.	Closes 2PR7.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormal Operating Procedures

TASK: TCAF PZR Pressure Malfunction (Isolate leaking PZR PORV)

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.56	NOTIFY the SM/CRS to refer to Technical Specification 3.4.5 and the Event Classification Guide for Primary Leakage.	Terminate JPM.		

TERMINATING CUE:

JOB PERFORMANCE MEASURE

TQ-AA-106-0303

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.

- 0 1. Task description and number, JPM description and number are identified.
- 0 2. Knowledge and Abilities (K/A) references are included.
- 0 3. Performance location specified. (in-plant, control room, or simulator)
- 0 4. Initial setup conditions are identified.
- 0 5. Initiating and terminating Cues are properly identified.
- 0 6. Task standards identified and verified by SME review.
- 0 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- 0 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 12 Date 10/15/14
" "
- 0 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: [Signature]

Date: 10/15/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

The unit is operating in a steady state condition at 100% power with all systems in automatic.

INITIATING CUE:

You are the Reactor Operator.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM 1 & 2		
SYSTEM:	Emergency Operating Procedures		
TASK:	Respond to a Loss of Heat Sink (Initiate Bleed and Feed with SI pumps and Rx Head Vents)		
TASK NUMBER:	N1150290501		
JPM NUMBER:	13-01 NRC Sim d		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	EPE E05 EA1.1
APPLICABILITY:		IMPORTANCE FACTOR:	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:		Simulator - Perform	
REFERENCES:		2-EOP-FRHS-1, Loss of Secondary Heat Sink, Rev. 24	
TOOLS AND EQUIPMENT:		None	
VALIDATED JPM COMPLETION TIME:		6 minutes	
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:		N/A	
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	C Omlor SME or Instructor	Date:	10-15-14
Approved By:	Training Department	Date:	
Approved By:	Operations Department	Date:	
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency 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: RX HEAD VENT KEYS ARE LOCATED IN SIM BOOTH

IC-254 developed by : MSL rupture (10%) downstream of MSIVs. Fail all MSIVs open. All AFW pumps failed. Fail 2PR2 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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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)
			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	<u>IF AT LEAST ONE INTACT OR RUPTURED SG IS AVAILABLE, THEN DO NOT FEED A FAULTED SG</u>	Recognizes ALL SGs are faulted.		
	3	IS RCS PRESSURE GREATER THAN <u>ANY INTACT OR RUPTURED SG PRESSURE</u>	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.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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	<u>CAUTION</u> 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)		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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)
			<u>Table B Valves (con't):</u> 21-24SJ54 OPEN ACCUMULATOR OUTLET 2SJ1 OPEN RWST TO CHARGING 2SJ2 OPEN RWST TO CHARGING 2CV40 CLOSED DISCHARGE STOP 2CV41 CLOSED 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 <u>ANY</u> 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.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

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.

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

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____


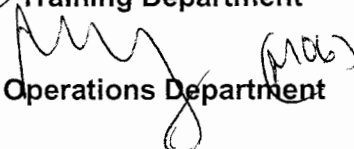
INITIAL CONDITIONS:

- Unit 2 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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM 1 & 2		
SYSTEM:	Emergency Operating Procedures		
TASK:	Implement actions required for a Natural Circulation Cooldown		
TASK NUMBER:	N1150530502		
JPM NUMBER:	13-01 NRC Sim e		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	EPE E09 EA1.1
IMPORTANCE FACTOR:		3.5	3.5
APPLICABILITY:		RO	SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator - Perform		
REFERENCES:	2-EOP-TRIP-4, Natural Circulation Cooldown, Rev. 23		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	30 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	C Omlor SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Implement actions required for a Natural Circulation Cooldown

TASK NUMBER: 1150050501

Simulator Setup:

IC-255

MALF EL0134 Loss of Offsite Power

MALF RP0108 Failure of Automatic SI

Overrides B106-B108 to override 2CV3,4,5 OPEN PB's OFF, and CLOSE PBs ON ties to Event-1 which is 2CV18 AUTO PB, which will isolate letdown and prevent is being put back in service.

Overrides B201-202 which prevents closing 2PR1, 2PR2, 2PR6, and 2PR7.

INITIAL CONDITIONS:

Unit 2 tripped from 100% power when a loss of all off-site power occurred. All vital buses loaded in MODE 2 SEC operation. Operators performed TRIP-1 and TRIP-2, then transitioned to TRIP-4 to perform a Natural Circulation Cooldown. Operators are performing Step 9 to establish a 20-25°F/hr cooldown rate using 21-24MS10s. Current RCS C/D rate is 5°F/hr. Thots ~ 561°F. Letdown was unable to be placed in service when directed in TRIP-2. Control Console bezels have been swapped out, and Letdown may be placed in service when directed by procedure.

INITIATING CUE:

You are directed to raise the C/D rate to 20-25°F/hr using 21-24MS10 as directed at step 9.1 of TRIP-4, then continue with remainder of TRIP-4.

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. Raise C/D rate to 20-25°F per hour.
2. Depressurize the RCS by opening ONE PORV.
3. Initiate Safety Injection after PORV fails to close prior to the loss of RCS subcooling (~ 3 minutes after PORV is opened, based on CT Book, Appendix B.2, page 2, italicized text)

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Raise C/D rate and Lower RCS Pressure during a natural circulation cooldown IAW EOP-TRIP-4

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with the "Tear Off Sheet"	Reviews the conditions and marked up EOP		
		START TIME:			
	9.1	CONTROL STEAM FLOW TO MINIMIZE SG DELTA-P			
*		DUMP STEAM USING <u>INTACT</u> SG MS10S (RELIEF VALVES)	Adjusts 21-24MS10s to raise cooldown rate while minimizing SG Delta-P.		
		MAINTAIN SG NR LEVEL BETWEEN 9-33%	Maintains SG NR level between 9-33% by adjusting 21-24AF21 valves		
	10	WAIT UNTIL ALL RCS THOTS ARE LESS THAN 543°F	Monitors RCS Thots while raising cooldown rate Cue when RCS <u>Tavg</u> is <543°F: "All RCS Thots are now <543°F."		
*	11	BLOCK HI STEAM LINE FLOW SI	Blocks HI STEAM LINE FLOW SI on both trains		
*	12	OPEN CV2 AND CV277 (LETDOWN CONTROL VALVES) AND PLACE IN "AUTO"	Opens CV2 and CV277 (LETDOWN CONTROL VALVES) and selects AUTO for each valve		
		OPEN CV7 (LETDOWN CONTROL VALVE)	Opens CV7(LETDOWN CONTROL VALVE)		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Raise C/D rate and Lower RCS Pressure during a natural circulation cooldown IAW EOP-TRIP-4

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		ADJUST CV55 (CHARGING FLOW CONTROL VALVE) TO RAISE CHARGING FLOW TO <u>AT LEAST</u> 87 GPM	Adjusts CV55 (CHARGING FLOW CONTROL VALVE) to obtain no less than 87 gpm on the charging flow indicator.		
		PERFORM THE FOLLOWING ACTIONS SIMULTANEOUSLY: <ul style="list-style-type: none"> • OPEN <u>ONLY ONE</u> ORIFICE ISOLATION VALVE • ADJUST CV18 (LETDOWN PRESSURE CONTROL VALVE) TO MAINTAIN LETDOWN PRESSURE AT 300 PSIG 	<p>Cue if required: If requested, direct the operator to place a 75 gpm orifice in service (CV4 or 5).</p> <p>Opens only one (Letdown Orifice Isolation Valves) and adjusts CV18 to control letdown pressure such that the letdown line relief valve does not lift (600 psig).</p>		
*		PLACE THE FOLLOWING IN AUTO: <ul style="list-style-type: none"> • CV18 • MASTER FLOW CONTROLLER • CV55 	<ul style="list-style-type: none"> • CV18 in AUTO* • Master Flow Controller in AUTO • CV55 in AUTO <p>* When the 2CV18 is placed in auto, it will shut, along with any open orifice valve, and all orifice valves will be prevented from opening.</p>		
	13	IS LETDOWN IN SERVICE	Answers NO		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Operating Procedures

TASK: Raise C/D rate and Lower RCS Pressure during a natural circulation cooldown IAW EOP-TRIP-4

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	13.1	<u>CAUTION:</u> PZR PORV CYCLING SHOULD BE MINIMIZED	Reads statement		
*		USE <u>ONLY ONE</u> PZR PORV TO LOWER RCS PRESSURE TO 1865 PSIG	Opens only 2PR1 <u>OR</u> 2PR2		
		WAIT <u>UNTIL</u> RCS PRESSURE LESS THAN 1865	Monitors RCS pressure		
*		CLOSE <u>BOTH</u> PZR PORV's	Attempts to shut the open PORV, and determines it will not shut. Attempts to shut associated PORV Block valve, and determines it will not shut. Initiates Safety Injection based upon impending CAS action of loss of subcooling or automatic safety injection nearing/reaching setpoint. (Auto SI actuation is failed in sim setup.)		
			Terminate JPM when SI has been initiated.		
		STOP TIME:			

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- 1 1. Task description and number, JPM description and number are identified.
- 2 2. Knowledge and Abilities (K/A) references are included.
- 3 3. Performance location specified. (in-plant, control room, or simulator)
- 4 4. Initial setup conditions are identified.
- 5 5. Initiating and terminating Cues are properly identified.
- 6 6. Task standards identified and verified by SME review.
- 7 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- 8 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev 23 Date 10.15.14
- 9 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: OMLOK

Date: 10.15.14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____



INITIAL CONDITIONS:

Unit 2 tripped from 100% power when a loss of all off-site power occurred. All vital buses loaded in MODE 2 SEC operation. Operators performed TRIP-1 and TRIP-2, then transitioned to TRIP-4 to perform a Natural Circulation Cooldown. Operators are performing Step 9 to establish a 20-25°F/hr cooldown rate using 21-24MS10s. Current RCS C/D rate is 5°F/hr. Thots ~ 561°F. Letdown was unable to be placed in service when directed in TRIP-2. Control Console bezels have been swapped out, and Letdown may be placed in service when directed by procedure.

INITIATING CUE:

You are directed to raise the C/D rate to 20-25°F/hr using 21-24MS10 as directed at step 9.1 of TRIP-4, then continue with remainder of TRIP-4.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

STATION:	SALEM		
SYSTEM:	Containment Cooling		
TASK:	Perform a CFCU Operability and Service Water Flow Verification		
TASK NUMBER:	220130201		
JPM NUMBER:	13-01 NRC Sim f		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	022 A4.01
APPLICABILITY:		IMPORTANCE FACTOR:	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator		
REFERENCES:	S2.OP-ST.CBV-0003 Rev. 17 (Rev checked 9-6-14) S2.OP-SO.CBV-0001 Rev. 32 (Rev checked 9-6-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	12 min		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	9-6-14
Validated By:	D Tait SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:			DATE:

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

NAME: _____

DATE: _____

SYSTEM: Containment Cooling

TASK: Perform a CFCU Operability and Service Water Flow Verification

TASK NUMBER: 220130201

SIMULATOR SETUP: Reset Simulator to IC-256, 100% power, BOL.
ET-1, KAD18PBR 25 CFCU low speed start PB, tied to 25 CFCU SW flow of 1675, ramped in over 10 seconds with 1 second delay

INITIAL CONDITIONS:

Rx power is 100% steady state, BOL.

INITIATING CUE:

You have been directed to perform S2.OP-ST.CBV-0003, Containment Systems-Cooling Systems surveillance for **25** CFCU for monthly run.

25 CFCU is filled and vented.

Component Off Normal Report has been reviewed with no abnormalities noted.

Calibration data for required instruments has been obtained and recorded in appropriate Attachments.

The differential pressure gauge for 22 SW header has been installed.

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:

Perform S2.OP-ST.CBV-0003 for 25 CFCU and evaluate minimum SW flow as SAT, and Minimum Cooling Water Flow for SW D/P as UNSAT.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Containment Cooling

TASK: Perform a CFCU Operability and Service Water Flow Verification

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME: _____			
		Provide Operator with marked up copy of S2.OP-ST.CBV-0003, Containment Systems-Cooling Systems.	Prerequisites have been completed, but Operator should review them before proceeding.		
			Operator reviews and initials Precautions and Limitations.		
			NOTE: There is no requirement to either start additional SW pumps OR stop any running CFCUs. There is a system requirement NOT to run 5 CFCUs in HIGH speed, but that is N/A here. However, Operator MAY start another SW pump OR stop a CFCU, which is acceptable.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Containment Cooling

TASK: Perform a CFCU Operability and Service Water Flow Verification

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.1 SO.CBV -1 5.1.3	<p>PERFORM test on each CFCU required to be tested IAW the following instruction:</p> <p>A. ENSURE the CFCU to be tested is in LOW SPEED IAW S2.OP-SO.CBV-0001, Containment Ventilation Operation.</p> <p>A. ENSURE CFCU is filled and vented IAW S2.OP-SO.CBV-0003(Q), Filling and Venting Containment Fan Coil Units.</p> <p>B. ENSURE Service Water is available.</p> <p>C. PRESS FAN LOW SPEED START bezel.</p> <p>D. ENSURE following dampers are in indicated positions:</p> <ul style="list-style-type: none"> • ROUGH FLTR DAMPER CLOSED • HEPA INLET DAMPER OPEN • HEPA OUTLET DAMPER OPEN 	<p>Operator retrieves S2.OP-SO.CBV-0001, Containment Ventilation Operation, and reviews P&Ls, and Prerequisites. Operator identifies the sections of the procedure NOT to be performed (Sections 5.2-5.6) with N/A. If needed, tell Operator Components Off Normal review is complete and SAT.</p> <p>Operator starts 25 CFCU in LOW speed IAW Step 5.1.3 by:</p> <p>A. Ensuring 25 CFCU is filled and vented (Initiating Cue)</p> <p>B. Ensuring SW is available by checking SW pumps in service and adequate SW header pressure.</p> <p>C. PRESS FAN LOW SPEED START bezel for 25 CFCU.</p> <p>D. ENSURES damper alignment is correct for 25 CFCU: ROUGH FLTR DAMPER CLOSED HEPA INLET DAMPER OPEN HEPA OUTLET DAMPER OPEN</p>		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Containment Cooling.

TASK: Perform a CFCU Operability and Service Water Flow Verification

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	SO.CBV -1 5.1.3 (cont)	E. <u>IF</u> Service Water flow is <1465 gpm, <u>THEN</u> : 1. STOP the CFCU. 2. REFER to S2.OP-SO.SW-0005, Service Water System Operation, Service Water System Operability Guidelines. F. ENSURE Service Water flow \geq 1465 gpm.	Verifies SW flow >1465 gpm to 25 CFCU. Note: IF operator notices SW flow of 1675 is not like the running CFCU's and states they would stop the performance of test, THEN Cue that the CRS directs you to continue the test.		
	ST.CBV- 3 5.1.1	B. RECORD Start Time in the applicable Attachments(s), Section 3.0, for the CFCU being tested.	Operator records start time of 25 CFCU in Attachment 5.		

NAME: _____
DATE: _____

TASK: Perform a CFCU Operability and Service Water Flow Verification

	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.1.1 (cont)	C. When at least 15 minutes have elapsed, RECORD the following in the applicable Attachment(s), Section 3.0, for the CFCU being tested:	Cue: 25 CFCU has been operating for 15 minutes.		
*		<ul style="list-style-type: none"> Stop Time Cooling Water Flow Rate (gpm) <u>IF</u> testing 21 <u>OR</u> 22 CFCU, <u>THEN</u> 21 SW HDR ΔP is to be recorded. <u>IF</u> testing 23 CFCU, <u>THEN</u> both 21 SW HDR ΔP <u>AND</u> 22 SW HDR ΔP are to be recorded (Refer to Step 3.5) <u>IF</u> testing 24 <u>OR</u> 25 CFCU, <u>THEN</u> 22 SW HDR ΔP is to be recorded. Test results by initialing the SAT or UNSAT column IAW the Acceptance Criteria stated in the attachment. 	<p>Operator records 25 CFCU stop time, SW flow rate, and 22 SW header ΔP.</p> <p>Operator marks steps for 21-23 CFCU N/A.</p> <p>Cue: WHEN asked, report 22 SW header ΔP is 91 psid.</p> <p>Using Exhibit 1, determines minimum CFCU flowrate for 25 CFCU at 91 psid (required to be rounded up to 95 psid IAW P&L 3.4)</p> <p>Operator initials >1465 gpm as SAT, and Cooling Water Flow Rate as <u>UNSAT</u>.</p> <p>Terminate the JPM once the Att. 5 data in Section 3.0 is marked SAT/UNSAT.</p>		
*					
*					

JOB PERFORMANCE MEASURE

TQ-AA-106-0303
Revision 4

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- Q 1. Task description and number, JPM description and number are identified.
- Q 2. Knowledge and Abilities (K/A) references are included.
- Q 3. Performance location specified. (in-plant, control room, or simulator)
- Q 4. Initial setup conditions are identified.
- Q 5. Initiating and terminating Cues are properly identified.
- Q 6. Task standards identified and verified by SME review.
- Q 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- Q 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 17 Date 10/15/14
 32
- Q 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: [Signature]

Date: 10/15/14

SME/Instructor:

Date:

SME/Instructor:

Date:

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

Rx power is 100% steady state, BOL.

INITIATING CUE:

You have been directed to perform S2.OP-ST.CBV-0003, Containment Systems-Cooling Systems surveillance for **25** CFCU for monthly run.



25 CFCU is filled and vented.

Component Off Normal Report has been reviewed with no abnormalities noted.

Calibration data for required instruments has been obtained and recorded in appropriate Attachments.

The differential pressure gauge for 22 SW header has been installed.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

STATION:	SALEM		
SYSTEM:	Reactor Protection System		
TASK:	Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK .		
TASK NUMBER:	N1120170101		
JPM NUMBER:	13-01 NRC Sim g		
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	012 A4.03
IMPORTANCE FACTOR:		3.6	3.6
APPLICABILITY:		RO	SRO
EO	<input type="checkbox"/>	RO	<input checked="" type="checkbox"/>
STA	<input type="checkbox"/>	SRO	<input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	Simulator / Perform		
REFERENCES:	S2.OP-IO.ZZ-0003, Rev. 39 (Checked 10/7/14)		
TOOLS AND EQUIPMENT:			
VALIDATED JPM COMPLETION TIME:	20 minutes		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A		
Developed By:	G Gauding Instructor	Date:	7/8/14
Validated By:	C Omlor SME or Instructor	Date:	10/15/14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:	DATE:		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE:

NAME: _____

DATE: _____

SYSTEM: Reactor Protection System

TASK: Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK.

SIMULATOR SETUP Fill out IOP-3 up to Step 5.3.18 for a non post refueling SU

IC-256 **Override B410 OVDI** (Block Source Range B PB will not block)

Ensure AUDIO MULTIPLIER at NI racks is set at 1k

Ensure both SR channels are displayed on NR-45 and NR-45 alarms cleared.

INITIAL CONDITIONS: Salem Unit 2 is in Mode 2 performing a Rx startup by control rods IAW S2.OP-IO.ZZ-0003. The ICRR plot at the eight-fold position predicted criticality at 35 steps, which is the same as the Estimated Critical Rod Height. Rx Engineering predicts the Rx will go critical during the next rod pull of 25 steps.

Control Bank D is at 25 steps.

INITIATING CUE: You are the Reactor Operator. Continue the startup at Step 5.3.18.D by withdrawing Control Bank D 25 steps or until the Rx is critical, then continue with procedure to raise power and stabilize the Rx at 1×10^{-8} A in the Intermediate Range.

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 criticality during rod pull prior to withdrawing control bank D 25 additional steps.
2. Establishes an approximately 0.25 dpm SUR.
3. Inserts control rods to establish zero or negative SUR after determination that Source Range Channel B does not Block PRIOR to the Rx automatically tripping on High SR Flux.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide marked up copy of S2.OP-IO.ZZ-0003, Hot Standby to Minimum Load.	Reviews procedure. When ready to accept the watch, take the Simulator from FREEZE to RUN.		
*	5.3.18.D	WITHDRAW Control Banks A, B and C STOPPING at the following hold points to obtain ICRR data: <ul style="list-style-type: none"> • CBA Fully Withdrawn • RIL position • CBB Fully Withdrawn • CBD at 50 Steps OR the 8-Fold Rod Position • CBD withdrawal limited to #50 Step increments OR the 8-Fold Rod Position 	Announces withdrawing Control Bank D 25 steps or until criticality is achieved. Withdraws control rods while closely monitoring nuclear instrumentation, and stops withdrawing Control Bank D when identification of Rx criticality is observed. The Rx will be critical before Control Bank D have been withdrawn 25 steps.		
			Note: Step 5.3.18.F is the ICRR step, and has been completed. 5.3.18.E was N/A. 5.3.18.G has already occurred.		
	5.3.18.H	<u>IF</u> P-6 (Source Range Permissive) green light energizes....	Note: P-6 will not energize at this point.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.3.19	<p>When criticality is achieved:</p> <p>A. MAKE the following announcement twice on the plant PA System: "Attention all plant personnel, Unit 2 Reactor is critical."</p> <p>B. RECORD Criticality Date/Time data in Attachment 2, Section 3.0, and in the Control Room Narrative Log.</p> <p>C. RECORD Attachment 2, Section 3.0, Surveillance Results IAW the stated Acceptance Criteria.</p>	<p>Announces the Rx is critical. Makes "Attention all plant personnel, Unit 2 Reactor is critical." announcement two times on the Plant PA system. Cue: The Plant operator will annotate the Control Room Log.</p> <p>Records date/time of criticality in Attachment 2, Section 3.0 at bottom of page. Initials SAT column of section 3.0 in Attachment 2.</p>		
			<p>Cue: "The CRS directs you to continue the power ascension at Step 5.3.20 by withdrawing Control Bank D to establish and maintain a 0.25 decade per minute start up rate."</p>		
*	5.3.20	<p>CONTINUE with Reactor Power ascension, with positive stable SUR <u>NOT</u> to exceed 1.0 dpm, by adjusting Control Bank "D" as needed.</p>	<p>Withdraws Control Bank D to establish and maintain a stable positive startup rate of approximately 0.25 dpm SUR.</p>		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.3.21	OBSERVE source range and intermediate range levels on NIS for \geq one decade overlap during performance of next step.	Observes source range and intermediate range and identifies when at least 1 decade of overlap between them has occurred.		
*	5.3.22	<p>When P-6 (Source Range Permissive) green light is energized, as indicated on 2RP4 ½ IR channels at 10^{-10} amps:</p> <p>A. SELECT one pen of NR-45 to an Intermediate Range channel and the other pen to a Power Range channel.</p> <p>B. BLOCK Source Range High Flux Trip by depressing both "BLOCK SOURCE RANGE A" <u>AND</u> "BLOCK SOURCE RANGE B" pushbuttons on console.</p> <p>C. ENSURE Source Range Trains A&B TRIP BLOCKED blue light is illuminated on 2RP4 <u>AND</u> OHA E-5 SR DET VOLT TRBL alarms.</p>	<p>Selects one Intermediate Range channel and one Power Range channel on recorder NR-45.</p> <p>Depresses BLOCK SOURCE RANGE A" <u>AND</u> "BLOCK SOURCE RANGE B" pushbuttons on console, and observes BLOCK SOURCE RANGE B light does NOT illuminate.</p> <p>Inserts control bank D to stop the power ascension and establishes a zero or negative SUR.</p>		
*	5.3.22.D	<u>IF</u> Source Range Detector fails to Block, THEN INSERT Control Rods to stabilize Reactor Power:	Inserts control bank D to stop the power ascension and establishes a zero or negative SUR.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Protection System

TASK: Withdraw control rods to criticality, and TCAF Failure of Source Range Hi Flux Trip to BLOCK.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Terminate the JPM when a zero or negative SUR is established, or after the Rx trips on High Source Range Flux at $1E^5$ cpm in the Source Range.		

JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- 1 1. Task description and number, JPM description and number are identified.
- 2 2. Knowledge and Abilities (K/A) references are included.
- 3 3. Performance location specified. (in-plant, control room, or simulator)
- 4 4. Initial setup conditions are identified.
- 5 5. Initiating and terminating Cues are properly identified.
- 6 6. Task standards identified and verified by SME review.
- 7 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- 8 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 39 Date 10-15-14
- 9 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: OMLOV

Date: 10-15-14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

INITIAL CONDITIONS: Salem Unit 2 is in Mode 2 performing a Rx startup by control rods IAW S2.OP-IO.ZZ-0003. The ICRR plot at the eight-fold position predicted criticality at 35 steps, which is the same as the Estimated Critical Rod Height. Rx Engineering predicts the Rx will go critical during the next rod pull of 25 steps.

Control Bank D is at 25 steps.

INITIATING CUE

You are the Reactor Operator. Continue the startup at Step 5.3.18.D by withdrawing Control Bank D 25 steps or until the Rx is critical, then continue with procedure to raise power and stabilize the Rx at 1×10^{-8} A in the Intermediate Range.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION: SALEM

SYSTEM: Component Cooling Water (CCW)

TASK: Perform Actions for CCW Restoration (23 CCW pump)

TASK NUMBER: N1150420501

JPM NUMBER: 13-01 NRC Sim h

ALTERNATE PATH: ☒

K/A NUMBER: 008 A4.01

IMPORTANCE FACTOR:	
3.3	3.1
RO	SRO

APPLICABILITY:

EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator

REFERENCES: 2-EOP-APPX-1 Rev. 24 (rev checked 9-6-14)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 10 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding
Instructor

Date: 9-6-14

Validated By: C Omlor
SME or Instructor

Date: 10-15-14

Approved By: Training Department

Date:

Approved By: Operations Department

Date:

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE:

DATE:

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Component Cooling Water (CCW)

TASK: Perform Actions for CCW Restoration

**TASK
NUMBER:** N1150420501

SIMULATOR SETUP: IC-258, markup 2-EOP-TRIP-1 through Step 17 direction to start one CCW pump IAW APPX-1. 22 CCW pump start PB O/R off.

**INITIAL
CONDITIONS:**

The Unit 2 reactor was manually tripped and a SI initiated based on indications of a large LOCA. 2-EOP-TRIP-1 is in effect.

When the Main Generator breakers opened, all off site power was lost.

All vital buses are being powered from their respective EDGs.

NO CCW pumps are running.

INITIATING CUE:

You have been directed to start ONE CCW pump IAW 2-EOP-APPX-1.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Start 21 CCW pump IAW APPX-1.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Component Cooling Water (CCW)
TASK: Perform Actions for CCW Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Operator obtains 2-EOP-APPX-1			
	1	CHECK 4 KV vital bus status: a. CHECK AT LEAST ONE vital bus ENERGIZED by station power transformers.	Checks 4KV vital busses and determines no vital bus is being supplied from station power transformer and goes to Step 2.		
	2	CHECK ECCS pump (CVC,SI, or RHR) and AFW pump status: a. CHECK all ECCS pumps AND motor driven AFW pumps running on energized vital buses.	Checks running pumps and determines that ALL ECCS and motor driven AFW pumps are running on energized vital buses.		
	2.b.	CHECK one CCW pump running.	Checks CCW pump status and determines NO CCW pumps are running. Uses the RNO and goes to Step 3.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Component Cooling Water (CCW)

TASK: Perform Actions for CCW Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3	SELECT CCW pump start strategy: a. IF ALL 4 KV vital buses energized, THEN GO TO Step 4.	Determines ALL 4 KV vital buses energized, and GOES TO Step 4.		
	4	Start 22 CCW pump as follows:			
	4.a	CHECK 22 CCW pump AVAILABLE	Determines 22 CCW pump is AVAILABLE.		
*	4.b	BLOCK 2B and 2C SECs.	Blocks 2B and 2C SECs on 2RP1.		
*	4.c	RESET 2B and 2C SEC's	Resets 2B and 2C SEC's on 2CC3.		
	4.d	Perform the following at RP2:			
*	4.d.1	STOP 22 Switchgear Room Supply Fan.	Stops 22 Switchgear Room Supply Fan at RP2		
*	4.d.2	START 23 Switchgear Room Supply Fan.	Starts 23 Switchgear Room Supply Fan at RP2		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Component Cooling Water (CCW)

TASK: Perform Actions for CCW Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	4.e	STOP the following equipment at CC1: <ul style="list-style-type: none"> • 22 CFCU • 24 CFCU • 22 Aux Bldg Exhaust Fan 	Stops equipment at CC1: <ul style="list-style-type: none"> • 22 CFCU • 24 CFCU • 22 Aux Bldg Exhaust Fan 		
*	4.f	START 22 CCW Pump.	Depresses start PB for 22 CCW Pump and recognizes it did not start.		
*	4.f RNO	1)START 22 OR 24 CFCU 2)GO TO Step 5	Starts 22 or 24 CFCU Goes to Step 5		
	5	START 21 CCW Pump as follows:			
*	5.a	BLOCK 2A AND 2B SECs.	Blocks 2 A SEC and verifies 2B SEC previously blocked.		
*	5.b	RESET 2A AND 2B SECs.	Resets 2A SEC and verifies 2B SEC previously reset.		
	5.c	SEND an operator to 100 ft elev chiller area to lock out 21 Chiller by placing the keyswitch in OFF (LOCKOUT) position.	Sends an operator to 100 ft elev chiller area to lock out 21 Chiller by placing the keyswitch in OFF (LOCKOUT) position.		
*	5.d	PERFORM the following at RP2: <ol style="list-style-type: none"> 1) STOP 21 Switchgear Room Supply Fan. 2) START 22 Switchgear Room Supply Fan. 	At RP2, Stops 21 Switchgear Room Supply Fan and starts 22 Switchgear Room Supply Fan.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Component Cooling Water (CCW)

TASK: Perform Actions for CCW Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.e	STOP the following equipment at CC1: <ul style="list-style-type: none"> • 21 CFCU • 21 Aux Bldg Exhaust Fan 	At CC1, stops 21 CFCU and 21 Aux Bldg Exhaust Fan		
*	5.f	START the following equipment at CC1: <ul style="list-style-type: none"> • 22 OR 24 CFCU • 22 FHB Exhaust Fan 	At CC1 starts 22 or 24 CFCU and starts 22 FHB Exhaust Fan		
*	5.g	START 21 CCW Pump.	Starts 21 CCW pump.		
	6	PLACE 21 AND 22 CCW Heat Exchangers in service as follows:			
	6.a	CHECK AT LEAST THREE SW pumps running.	Determines 3 SW pumps are running.		
	6.b	SEND an operator to 84 ft elev Aux Bldg to place 21 AND 22 CCW Heat Exchangers in service IAW S2.OP-SO.CC-0002(Q), "21 & 22 Component Cooling Heat Exchanger Operation."	Sends an operator to 84 ft elev Aux Bldg to place 21 AND 22 CCW Heat Exchangers in service IAW S2.OP-SO.CC-0002(Q), "21 & 22 Component Cooling Heat Exchanger Operation."		
	6.c	RETURN TO procedure in effect.	Returns to procedure in effect.		

Terminating Cue: When operator announces returning to procedure in effect, state JPM is complete.

JOB PERFORMANCE MEASURE

TQ-AA-106-0303

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

The Unit 2 reactor was manually tripped and a SI initiated based on indications of a large LOCA. 2-EOP-TRIP-1 is in effect.

When the Main Generator breakers opened, all off site power was lost.


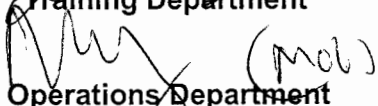
All vital buses are being powered from their respective EDGs.

NO CCW pumps are running.

INITIATING CUE:

You have been directed to start ONE CCW pump IAW 2-EOP-APPX-1.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM		
SYSTEM:	Emergency Diesel Generator		
TASK:	Unload and stop an EDG		
TASK NUMBER:	N0645060104		
JPM NUMBER:	13-01 NRC IP-i		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	064 A2.03
APPLICABILITY:		IMPORTANCE FACTOR:	3.1 3.1
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	In Plant / Simulate		
REFERENCES:	S2.OP-SO.DG-0003, Rev. 41 (checked 10-15-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	<u>10 min</u>		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	<u>N/A</u>		
Developed By:	G Gauding Instructor	Date:	9-24-14
Validated By:	S Bickhart SME or Instructor	Date:	10-15-14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE:	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT	
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

**TASK
NUMBER:** N0645060104

**INITIAL
CONDITIONS:**

2C EDG is running loaded in parallel with 2C Vital bus for maintenance. It is loaded to 2550 KW, 1500 KVAR OUT.

INITIATING CUE:

Unload and shut down the 2C EDG IAW S2.OP-SO.DG-0003, 2C Diesel Generator Operation, Sections 5.8 and 5.9

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. Lower DG real load incrementally to less than 200 KW.
2. Lower DG reactive load incrementally to 50-100 KVAR.
3. Open DG output breaker.
4. Stop DG and return Gen Loading SW to AUTO.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide candidate with marked up procedure.	Give operator marked up copy of S2.OP-SO.DG-0003, 2C Diesel Generator Operation, Rev. 41 .		
	NOTE	The GENERATOR CIRCUIT BREAKER SWITCH should be placed in the TRIP position as soon as EDG Load is reduced to 200 KW.	Ensure that operator simulates tripping the EDG breaker when cue is given later in JPM that load is <200KW.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
* *	5.8.1	<p>IF 2C EDG is paralleled on 2C 4KV Vital Bus, <u>THEN</u> concurrently PERFORM the following:</p> <ul style="list-style-type: none"> • ADJUST SPEED CONTROL SWITCH (GS) to gradually lower load to 200 KW. • ADJUST VOLTAGE CONTROL SWITCH (VCS) to gradually lower KVAR to between 50-100 KVAR OUT. 	<p>Operator locates SPEED CONTROL SWITCH (GS) and VOLTAGE CONTROL SWITCH , and simulates alternately goes to LOWER on the switches while monitoring Generator KW and KVAR.</p> <p><u>CUE:</u> Each time operator simulates going to lower on SPEED CONTROL SWITCH (GS), give operator reading which is 300KW less than previous.</p> <p><u>CUE:</u> Each time operator simulates going to lower on VOLTAGE CONTROL SWITCH (VCS), give operator reading which is 200KVAR less than previous.</p> <p><u>NOTE:</u> IF operator simulates going to RAISE on either switch, then CUE a reading that is HIGHER in the same amount as proper operation above.</p>		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.8.3	OPEN 2C DIESEL GENERATOR BREAKER by performing one of the following: <ul style="list-style-type: none"> • OPEN 2CD1AX6D, 2C DIESEL GENERATOR BREAKER. (64' Swgr Rm, or • PRESS 2C BREAKER OPEN pushbutton (2CC3), or • PLACE 2C-DF-GCP-3 GENERATOR CIRCUIT BREAKER SWITCH (BCS), to TRIP (2C D/G Control Panel). 	Simulates opening 2C DIESEL GENERATOR BREAKER by placing 2C-DF-GCP-3 (BCS) to TRIP position. CUE: Green indicating light above switch illuminates, red light extinguishes. Generator KW and KVAR indicate 0. Generator Voltage indicates 4160 VAC.		
	5.8.4	ALLOW Diesel to run unloaded for ≥ 3 minutes prior to stopping the EDG.	CUE: 3 minutes has elapsed.		
	5.8.5	<u>IF</u> diesel unloading was directed by Step 5.9.3F <u>OR</u> Step 5.10.4E, <u>THEN RETURN</u> to Step 5.9.4 OR Step 5.10.5.	Marks step N/A		
	5.9.1	<u>IF</u> Diesel Generator was operated without electrical load for <15 minutes, <u>THEN ALLOW</u> Diesel to run unloaded until total runtime is ≥ 15 minutes <u>OR</u> for a period of time specified by a pre-planned Maintenance activity, prior to stopping Diesel.	Marks step N/A		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.9.2	<u>IF</u> Diesel Generator was operated without electrical load for ≥ 2 hours, <u>AND</u> the diesel is capable of loading, <u>THEN:</u> [C0300] A. Slowly LOAD Diesel, over 15 minutes, to 1500 KW at 1125 KVAR for minimum of 1 hour IAW Section 5.4 of this procedure. B. UNLOAD Diesel IAW Section 5.8 of this procedure.	Marks step N/A		
	5.9.3	<u>IF</u> Diesel Generator was operated without electrical load for ≥ 2 hours....	Marks step N/A		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.9.4	<p><u>IF</u> 2C-DF-GCP-1 2C DIESEL GEN LOADING SW is in MANUAL (DROOP), <u>THEN</u>:</p> <p>A. ADJUST Diesel Generator speed as necessary to achieve 900 rpm using SPEED CONTROL SWITCH (GS).</p> <p>B. CHECK frequency indicated on 2CC3 bezel is 58.94-60.36 Hz.</p> <p>C. ADJUST Generator terminal voltage as necessary to achieve 4160 volts using VOLTAGE CONTROL SWITCH (VCS)</p> <p>D. CHECK voltage indicated on 2CC3 is 4.023-4.306 Kv.</p>	<p><u>CUE</u>: DG speed indicates 905 rpm. Operator simulates placing SPEED CONTROL SWITCH (GS). to lower, then <u>CUE</u>: DG speed indicates 900 rpm.</p> <p>Calls control room to check frequency. <u>CUE</u>: frequency is 60.03 HZ. <u>CUE</u>: Generator voltage is 4140.</p> <p>Simulates raising VOLTAGE CONTROL SWITCH (VCS). <u>CUE</u>: Generator voltage is 4160. Operator calls control room to check voltage on 2CC3 bezel. <u>CUE</u>: Voltage is 4200.</p>		
*	5.9.5	PLACE 2C-DF-SS, 2C DG STOP/START SWITCH in STOP.	<p>Simulates placing 2C-DF-SS 2C DG STOP/START SWITCH to STOP, and verifies speed lowering. <u>CUE</u>: Diesel is stopping.</p>		
	5.9.6	<u>IF</u> the Diesel Generator does not shutdown...	Marks NA.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generator

TASK: Unload and stop an EDG

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.9.7	IF 2C-DF-GCP-1, 2C DIESEL GEN LOADING SW is in MANUAL (DROOP), <u>THEN PLACE</u> 2C-DF-GCP-1 2C DIESEL GEN LOADING SW in AUTO (ISOCR).	Simulates placing 2C-DF-GCP-1 2C DIESEL GEN LOADING SW in AUTO. CUE: AUTO light illuminates, MANUAL light extinguishes, GENERATOR LOADING IN DROOP MODE (B-9) alarm clears.		

TERMINATION: After placing switch in AUTO, state "JPM is complete."

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

1. Task description and number, JPM description and number are identified.
2. Knowledge and Abilities (K/A) references are included.
3. Performance location specified. (in-plant, control room, or simulator)
4. Initial setup conditions are identified.
5. Initiating and terminating Cues are properly identified.
6. Task standards identified and verified by SME review.
7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 41 Date 10/15/14
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:  BICKHART

Date: 10/15/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

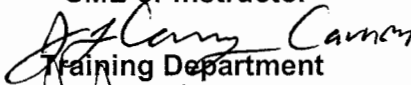
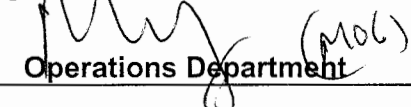
**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

**INITIAL
CONDITIONS:**

2C EDG is running loaded in parallel with 2C Vital bus for maintenance. It is loaded to 2550 KW, 1500 KVAR OUT.

INITIATING CUE: Unload and shut down the 2C EDG IAW S2.OP-SO.DG-0003, 2C Diesel Generator Operation, Sections 5.8 and 5.9

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM		
SYSTEM:	Pressurizer/Pressure Relief		
TASK:	Transfer Pressurizer 22 Backup Heaters to Emergency Power Supply		
TASK NUMBER:	115 043 05 01		
JPM NUMBER:	13-01 NRC Annual IP-j		
ALTERNATE PATH:	<input type="checkbox"/>	K/A NUMBER:	010 A4.02
APPLICABILITY:		IMPORTANCE FACTOR:	
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>
EVALUATION SETTING/METHOD:	In Plant, Simulate		
REFERENCES:	S2.OP-SO.PZR-0010 Rev. 10 (Rev. checked 10-15-14)		
TOOLS AND EQUIPMENT:	None		
VALIDATED JPM COMPLETION TIME:	<u>20 minutes</u>		
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	<u>N/A</u>		
Developed By:	G Gauding Instructor	Date:	9/2/2014
Validated By:	S Bickhart SME or Instructor	Date:	10/15/14
Approved By:	 Training Department	Date:	10-23-14
Approved By:	 Operations Department (MOL)	Date:	10-23-14
ACTUAL JPM COMPLETION TIME:			
ACTUAL TIME CRITICAL COMPLETION TIME:			
PERFORMED BY:			
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT			
REASON, IF UNSATISFACTORY:			
EVALUATOR'S SIGNATURE:		DATE:	

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

SYSTEM: Pressurizer/Pressure Relief

TASK: Transfer Pressurizer 22 Backup Heaters to Emergency Power Supply

TASK 115 043 05 01

NUMBER:

INITIAL CONDITIONS:

Due to a loss of power to the group buses it is necessary to energize the PZR Backup Heaters from their emergency power supply.

INITIATING CUE:

The CRS directs you to perform S2.OP-SO.PZR-0010(Q), Section 5.3, Transferring Pzr Htr 22 BU Group To The Emergency Power Supply.

All prerequisites and Precautions and Limitations have been reviewed and completed.

2A EDG is carrying 2A Vital Bus and is loaded to 2400 KW.

You have a JAM key.

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. Simulate opening all but one PZR heater supply breakers.
2. Simulate aligning emergency power to PZR heater bus from 2A vital bus.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

SYSTEM: Pressurizer/Pressure Relief

TASK: Transfer 22 Backup Heaters to Emergency Power Supply

NAME: _____

DATE: _____

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Operator obtains procedure S2.OP-SO.PZR-0010, Pressurizer Backup Heaters Power Supply Transfer.	Provide marked up copy of S2.OP-SO.PZR-0010, Pressurizer Backup Heaters Power Supply Transfer		
*	5.3.1	ENSURE 2AX1AX14X, 2EP PRESSURIZER HEATER BUS FEED (EMERGENCY) is OPEN (84' Swgr Rm).	Locates breaker 2AX1AX14X 2EP PRESSURIZER HEATER BUS FEED (EMERGENCY) on 2A 460V Vital Bus, Elev. 84' Swgr Rm and determines current breaker position. Cue: 2AX1AX14X Breaker indicates OPEN.		
	5.3.2	Request NCO to PERFORM the following: A. PLACE 22 Backup Group in MANUAL. B. PRESS the 22 BACKUP OFF pushbutton	Locates nearest means of communications and requests NCO to place 22 B/U Htrs in MANUAL and press the 22 BACKUP OFF pushbutton. Cue: NCO reports 22 B/U Htrs are in MANUAL and 22 BACKUP OFF pushbutton has been depressed.		
	5.3.3	ENSURE 2EX1EP2EPX, 2EP 480V PRESSURIZER HEATER BUS MAIN BREAKER is OPEN (78' Electrical Penetration).	Locates 2EX1EP2EPX, 2EP 480V PRESSURIZER HEATER BUS MAIN BREAKER on El. 78 Electrical Pen. Cue: 2EX1EP2EPX, 2EP 480V PRESSURIZER HEATER BUS MAIN BREAKER is OPEN is open.		

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

SYSTEM: Pressurizer/Pressure Relief

TASK: Transfer 22 Backup Heaters to Emergency Power Supply

NAME: _____

DATE: _____

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.3.4	REMOVE interlock key from breaker 2EX1EP2EPX.	Turns key and removes interlock key from breaker 2EX1EP2EPX.		
*	5.3.5	PLACE any eleven of the following disconnects in OFF (only three disconnects are to remain ON) <u>AND</u> MARK the remaining disconnects as N/A:	Operator locates individual heater breakers, places all but three breakers in OFF and notes breakers left ON as N/A in procedure.		
*	5.3.6	PLACE , 2AX1AX14X-1, 2EP PZR HTR BUS EMERGENCY FEED DISCONNECT SWITCH, in the ON position (Elev 78' Electrical Penetration).	Operator locates 2AX1AX14X-1, 2EP PZR HTR BUS EMERGENCY FEED DISCONNECT SWITCH, and places it in the ON position (Elev 78' Electrical Penetration).		
*	5.3.7	INSERT interlock key, <u>AND</u> UNLOCK breaker 2AX1AX14X.	Locates Corry Key Interlock on 2AX1AX14X breaker, inserts and turns key.		
	5.3.8	NOTIFY NCO that PZR Htr 22 B/U Group has been transferred to the emergency power supply (2A 460V Vital Bus).	Candidate makes report to the Control Room. Repeat back notification and state: JPM is complete.		

**OPERATIONS TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- S 1. Task description and number, JPM description and number are identified.
- S 2. Knowledge and Abilities (K/A) references are included.
- S 3. Performance location specified. (in-plant, control room, or simulator)
- S 4. Initial setup conditions are identified.
- S 5. Initiating and terminating Cues are properly identified.
- S 6. Task standards identified and verified by SME review.
- S 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- S 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 10 Date 10/15/14
- S 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: BICKHART

Date: 10/15/10

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

OPERATIONS TRAINING PROGRAM JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

Due to a loss of power to the group buses it is necessary to energize the PZR Backup Heaters from their emergency power supply.

INITIATING CUE:


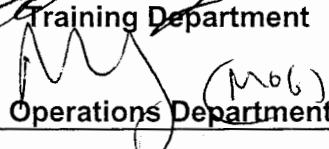
The CRS directs you to perform S2.OP-SO.PZR-0010(Q), Section 5.3, Transferring Pzr Htr 22 BU Group To The Emergency Power Supply.

All prerequisites and Precautions and Limitations have been reviewed and completed.

2A EDG is carrying 2A Vital Bus and is loaded to 2400 KW.

You have a JAM key.

**OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE**

STATION:	SALEM						
SYSTEM:	Radioactive Liquid Waste						
TASK:	Respond to High Radiation Alarm during an Authorized Release of Rad. Liquid Waste to the CIRC Water System From 21 CVCS Monitor Tank						
TASK NUMBER:	N0685140104						
JPM NUMBER:	13-01 NRC IP-k						
ALTERNATE PATH:	<input checked="" type="checkbox"/>	K/A NUMBER:	2.3.11				
		IMPORTANCE FACTOR:	<table border="1" style="width: 100%;"><tr><td>3.8</td><td>4.3</td></tr><tr><td>RO</td><td>SRO</td></tr></table>	3.8	4.3	RO	SRO
3.8	4.3						
RO	SRO						
APPLICABILITY:							
EO <input type="checkbox"/>	RO <input checked="" type="checkbox"/>	STA <input type="checkbox"/>	SRO <input checked="" type="checkbox"/>				
EVALUATION SETTING/METHOD:	In Plant/SIMULATE						
REFERENCES:	S2.OP-SO.WL-0001, Rev. 25, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank (checked 10-15-14)						
TOOLS AND EQUIPMENT:	None						
VALIDATED JPM COMPLETION TIME:	15 min.						
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A						
Developed By:	G Gauding Instructor	Date:	9-24-14				
Validated By:	S Bickhart SME or Instructor	Date:	10-15-14				
Approved By:	 Training Department	Date:	10-23-14				
Approved By:	 Operations Department	Date:	10-23-14				
ACTUAL JPM COMPLETION TIME:							
ACTUAL TIME CRITICAL COMPLETION TIME:							
PERFORMED BY:							
GRADE: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT							
REASON, IF UNSATISFACTORY:							
EVALUATOR'S SIGNATURE:		DATE:					

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Radioactive Liquid Waste

TASK: Respond to High Radiation Alarm during an Authorized Release of Rad. Liquid Waste to the CIRC Water System From 21 CVCS Monitor Tank

**TASK
NUMBER:** N0685140104

**INITIAL
CONDITIONS:**

Both Units are at 100% power.
A discharge of 21 CVCS Monitor Tank to Unit 1 Circ Water via Unit 2 SW has been directed IAW S2.OP SO.WL-0001, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank.
Recirculation and preparation for release of the Monitoring Tank have been completed.
Chemistry has authorized a maximum allowable release rate of 150 gpm.
ALL Circulators are in service.
2R18 and the Overboard Flow monitor are OPERABLE.
SW Room Cooler Headers are NOT cross-tied.
S2.OP-SO.WL-0001, Sections 5.1, 5.2, and 5.3 are complete.
21 CVCS tank initial level is 19,600 gallons.

INITIATING CUE:

Perform Section 5.5, Release of 21 CVCS Monitor Tank via SW system to CW system, of S2.OP-SO.WL-0001.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Perform normal Liquid Radwaste Release.
2. Terminate release upon receipt of high radiation alarm on release.

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

*	STEP No.	STEP	STANDARD	EVAL S/U	COMMENTS
		Provide operator with marked up copy of release procedure.	Reviews marked up procedure		
	5.5.1	<u>IF</u> 2FR1064 is INOPERABLE....	NA's step since 2FR1064 is OPERABLE.		
*	5.5.2	Direct Unit 2 NCO to OPEN 2WL51, LIQUID RELEASE STOP VALVE.	Locates plant page or phone to call control room. Cue: Unit 2 NCO reports 2WL51 has been opened.		
	5.5.3	Direct a second operator to PERFORM an Independent Verification for 2WL51 position IAW Attachment 2, Step 4.1.2 OR 4.2.2 as applicable (ODCM)	Cue: IV has been performed.		
*	5.5.4	THROTTLE OPEN 2WR59, MT PMPS OB STOP VALVE, <u>NOT</u> to exceed the Maximum Release Rate recorded in Attachment 2, Step 2.2.2	Locates 2WR59 and simulates opening valve. When operator checks flow indication on 104 panel, Cue: With the valve fully open, flow is 10 gpm. Note: Max Release Rate from Att. 2, Step 2.2.2 is 150 gpm.		
	5.5.5	Direct a second operator to PERFORM an Independent Verification for 2WR59 position IAW Attachment 2, Step 4.1.3 OR 4.2.3 as applicable (ODCM)	Cue: IV has been performed.		
*	5.5.6	<u>IF</u> the Maximum Release Rate recorded in Attachment 2, Step 2.2.2 can <u>NOT</u> be obtained, THEN THROTTLE CLOSED 21WR53 MT RECIRC V, <u>NOT</u> to exceed the Maximum Release Rate.	Locates 21WR53 and simulates throttling valve closed. When operator checks flow on 104 panel, Cue: Flow is 55 gpm.		

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE


* STEP No.	STEP	STANDARD	EVAL S/U	COMMENTS
	5.5.7	IF 2FR1064 flow monitor is OPERABLE, THEN RECORD time, date, and tank identification on recorder.		
	5.5.8	COMPLETE Attachment 2, Section 5.1		
	5.5.9	IF any of the following occur during the release THEN direct the NCO to CLOSE 2WL51, LIQUID RELEASE STOP VALVE. Loss of dilution water flow 2FR1064 becomes inoperable 2R18 Monitor ALARMS MT pump pressure falls below the MDP allowed IAW Attachment 4, as applicable	<p>Records data.</p> <p>Cue: Chemistry paperwork indicates dilution water flowrate is 200,000 gpm.</p> <p>Cue: When operator reads 21 CVCS Monitor Tank Level, state, "2-LIS-180 indicates 90%".</p> <p>Records 19,600 from either Att. 1 Section 2.0 or Att. 2 Section 1.0. If operator requests S2.OP-TM.ZZ-0002, Tank Capacity Data, tell them the procedure is not needed to determine the tank volume.</p> <p>Records Dilution Water Flowrate of 200,000 gpm.) Initial conditions stated all circulators were in service.</p> <p>Records 55 gpm for Discharge Flow Rate. (Previous cue from Step 5.5.6 can be re-stated here if asked.)</p> <p>Cue: When operator reads 2R18 indication on 104 panel, state, "2R18 reads 10⁵ counts, the RED HI RAD light is lit."</p> <p>Calls control room to inform them of HI RADIATION condition and directs NCO to shut 2WL51.</p> <p>Cue: Once operator has called control room to have the 2WL51 shut, state: "JPM is complete."</p>	

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- 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. 25 Date 10/15/14
- 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:  BICKEL

Date: 10/15/14

SME/Instructor: _____

Date: _____

SME/Instructor: _____

Date: _____

OPERATOR TRAINING PROGRAM JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

Both Units are at 100% power.

A discharge of 21 CVCS Monitor Tank to Unit 1 Circ Water via Unit 2 SW has been directed IAW S2.OP SO.WL-0001, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank.

Recirculation and preparation for release of the Monitoring Tank have been completed.

Chemistry has authorized a maximum allowable release rate of 150 gpm.

ALL Circulators are in service.

2R18 and the Overboard Flow monitor are OPERABLE.

SW Room Cooler Headers are NOT cross-tied.

S2.OP-SO.WL-0001, Sections 5.1, 5.2, and 5.3 are complete.

21 CVCS tank initial level is 19,600 gallons.

INITIATING CUE:

Perform Section 5.5, Release of 21 CVCS Monitor Tank via SW system to CW system, of S2.OP-SO.WL-0001.

Facility: SALEM 1 & 2 Scenario No.: ESG-3 Op-Test No.: 13-01 NRC

Examiners: _____ Operators: _____

Initial Conditions: 100% power, MOL.

Turnover: Maintain current power. Perform weekly Vacuum Pump swap IAW S2.OP-SO.AR-0001.

Event No.	Malf. No.	Event Type*	Event Description
1		N PO	Swap condenser vacuum pumps
2	VL0336 VL0337	C CRS/PO	Loss of condenser vacuum (recoverable)
3	EL0144	C ALL	Loss of 2A 4160 volt vital bus (TS)
4	TU0055	I ALL	Turbine Inlet steam pressure transmitter (PT-505) failure (TS)
5	MS0302	M ALL	Steam dump failure with single MSIV failing to shut
6	RP0108	C CRS/RO	Failure of automatic Safety Injection (steamline D/P)
7	AF0181B AF0183	C ALL	Loss of All AFW flow -- FRHS condensate pump recovery
			CT's: #1 Initiate manual Safety Injection #2 Establish Condensate flow in FRHS

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

Facility: SALEM 1 & 2 Scenario No.: ESG-1 Op-Test No.: 13-01 NRC

Examiners: _____ Operators: _____

Initial Conditions: 90% power, EOL.

Turnover: Raise Rx power to 98.5% @ 10% per hour IAW IOP-4, Power Operation.

Event No.	Malf. No.	Event Type*	Event Description
1		R CRS/RO N PO	Raise power
2	AN0266	C CRS	EDG Air Receiver low pressure (TS)
3	CC0172C CC0361B	C CRS/PO	CCW pump trip w / failure of standby pump to start (TS)
4	RC007D	C CRS/RO	RCP seal degradation
5	MS0092H	M ALL	Steam leak in containment
6	MS0092 E-H	C ALL	MSLI failure (Loss of Secondary Coolant)
7	RP318L1 RP318L2	C CRS/RO	Containment Spray pumps fail to start on SEC signal
			CT's: 1. Stop RCP with seal failure 2. Start minimum complement of containment cooling. 2. Minimize AFW flow

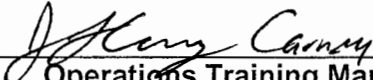
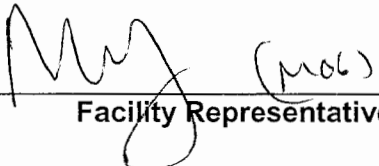
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 13-01 NRC ESG-1
SCENARIO NUMBER: 13-01 NRC ESG-1
EFFECTIVE DATE: See Approval Dates below
EXPECTED DURATION: 80 minutes
REVISION NUMBER: 00

PROGRAM: ☐ L.O. REQUAL
☒ INITIAL LICENSE
☐ STA
☐ OTHER _____

Revision Summary
New Issue for 13-01 NRC Exam

PREPARED BY:	<u>G Gauding</u> Lead Regulatory Exam Author	<u>08-7-14</u> Date
APPROVED BY:	<u></u> Operations Training Manager	<u>10-23-14</u> Date
APPROVED BY:	<u></u> Facility Representative	<u>10-23-14</u> Date

I. OBJECTIVES

- A. Given the unit at >20% reactor power with the generator synchronized to the grid, the crew will perform a power increase at 10%/hr, IAW S2.OP-IO.ZZ-0004(Q).
- B. 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.
- C. Given indication of a loss or malfunction of a safety related plant cooling water system, DIRECT the response to the loss or malfunction in accordance with the approved station procedures.
- D. Given the order or indications of a loss or malfunction of a safety related plant cooling water system, perform actions as the nuclear control operator to RESPOND to the loss or malfunction of the safety related plant cooling water system in accordance with approved station procedures.
- E. Given a RCP with various seal failures, take corrective action for RCP seal failures IAW AB.RCP-0001 and the appropriate alarm response procedures
- F. Given a failure of an RCP, perform actions as the nuclear control operator to RESPOND to the malfunction IAW approved station procedures.
- G. Given the failure of a RCP, DIRECT the response to the malfunction IAW approved station procedures.
- H. Given indication of a reactor trip, DIRECT the response to the reactor trip 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 safety injection DIRECT the response to the safety injection 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 a safety injection, START equipment that has failed to automatically start in accordance with the approved station procedures.
- M. 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 EOP-LOSC-2.
- N. Given indication of a multiple steam generator depressurization, DIRECT the response to the generator depressurization in accordance with EOP-LOSC-2
- O. Given indication of excessive containment pressure DIRECT the response to the excessive pressure in accordance with the approved station procedures.
- R. Given the order or indications of excessive containment pressure perform actions as the nuclear control operator to RESPOND to the excessive pressure in accordance with the approved station procedures.
- S. Given the unit in the EOPs and an excessive containment pressure the crew will reduce containment pressure IAW approved station procedures.

II. MAJOR EVENTS

- A. Power ascension
- B. 2C EDG air leak
- C. 23 CCW pump trip w/ failure of standby pump to auto start.
- D. 24 RCP seal degradation leading to failure.
- E. Steam rupture in containment w/ failure of MSIVs to shut.
- F. Containment Spray pump start failure.

III. SCENARIO SUMMARY

- A. The crew will take the turnover at 90% power, MOL, with direction to raise power to 98.5% @ 10% per hour. Rx Engineering is bringing updated reactivity plan to control room and crew should determine its own reactivity plan to establish ARO prior to reaching 98.5% power.
- B. After the power ascension is commenced, the crew will receive an urgent trouble alarm for 2C EDG. The CRS will determine that 2C EDG is inoperable based on lower than required Air Start Tank pressure, and enter the appropriate Tech Spec.
- C. Once the EDG Tech Spec is identified, 23 Component Cooling Water pump will trip. The standby CCW pump will not auto start. The crew will manually start the standby CCW pump to restore system pressure and clear CCW and RCP system alarms. The CRS will enter the appropriate Tech Spec.
- D. 24 RCP #1 seal will exhibit signs of degrading performance. The crew will enter S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, to address the rising seal leakoff flow. The crew will initiate a Rx trip when seal leakoff reaches the point where the RCP must be tripped. The crew will trip 24 RCP after the Rx is tripped.
- E. 3-5 minutes after the 24 RCP is tripped, the crew will isolate the seal leakoff return valve for 24 RCP, to prevent further damage and seal degradation of the 24 RCP. (CT #1).
- F. After performing Rx trip immediate actions in EOP-TRIP-1, Rx Trip or Safety Injection, the crew will transition to EOP-TRIP-2, Reactor Trip Response, when it is determined no condition exists which warrants a Safety Injection. CFST's will be active upon transition out of TRIP-1. During performance of RCS cooldown minimization steps, a steam leak will develop in containment. The crew will initiate a MSLI, then initiate a Safety Injection when all MSIVs remain open (MSLI fails).
- G. The crew will return to EOP-TRIP-1, then transition out to EOP-LOSC-1, Loss of Secondary Coolant. The crew will transition to EOP-LOSC-2, Multiple Steam Generator Depressurization due to all MSIVs being open.
- H. The crew will transition to EOP-FRCE-1 when containment pressure rises to 15 psig. The crew will diagnose no Containment Spray pumps are running and start Containment Spray pumps. (CT #3).
- I. During performance of LOSC-2 or FRCE-1 Response to Excessive Containment Pressure, the crew will reduce AFW flow to minimize the RCS cooldown. (CT#2).
- J. A single MSIV will be closed in the field during performance of LOSC-2. The crew will recognize rising pressure in the associated SG, and transition to LOSC-1.
- K. The scenario will terminate after the return to LOSC-1.

IV. INITIAL CONDITIONS

____ Pre-snapped IC-231

PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

Initial	Description
____ 1	2VC1 and 2VC4 C/T
____ 2	RCPs (SELF CHECK)
____ 3	RTBs (SELF CHECK)
____ 4	MS167s (SELF CHECK)
____ 5	500 KV SWYD (SELF CHECK)
____ 6	SGFP Trip (SELF CHECK)
____ 7	23 CV PP (SELF CHECK)
____ 8	S2.OP-IO.ZZ-0004, Power Operation, in progress and complete up to Step 5.1.26.
____ 9	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:			
Initial	ET #	Description	
	3	EVENT ACTION:	kb528ttx // 21 SG FEED PUMP TURB-TRIP
		COMMAND:	
		PURPOSE:	<update as needed>
	5	EVENT ACTION:	kc201pb3 // 2C DIESEL GEN-START
		COMMAND:	
		PURPOSE:	<update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	AN0266 SER 266 FAILS - :J20 2C DIESEL GENERATOR URGENT TROUBLE	N/A	N/A	N/A	RT-1	SER POINT FAILS/OVRD TO ON
02	RP318Q3 2C Diesel GEN Fails to Start on SEC	N/A	N/A	N/A	N/A	
03	CC0172C 23 COMPONENT COOLING PUMP TRIP	N/A	N/A	N/A	RT-3	
04	CC0361B 22 COMPONENT COOLING PUMP Fails to Start on Low Pressure	N/A	N/A	N/A	N/A	
05	RC007D 24 RC PUMP - #1 SEAL FAILS - w/ DEGRADATION	N/A	0.3	00:05:00	RT-3	0.75
06	MS0092E 21MS167 FAILS OPEN	N/A	N/A	N/A	N/A	
07	MS0092F 22MS167 FAILS OPEN	N/A	N/A	N/A	N/A	
08	MS0092G 23MS167 FAILS OPEN	N/A	N/A	N/A	N/A	
09	MS0092H 24MS167 FAILS OPEN	N/A	N/A	N/A	N/A	
10	MS0090Ar 21 Main Steam Line Leak Inside Cont AFTER orifice	00:01:00	6	00:05:00	ET-3	10
11	RP318L1 21 CS Pump Fails to Start on SEC	N/A	N/A	N/A	N/A	
12	RP318L2 22 CS Pump Fails to Start on SEC	N/A	N/A	N/A	N/A	
13	EL0163 2C EMERG DIESEL GENERATOR TRIP	00:00:10	N/A	N/A	RT-10	

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	DG27D 2C DIESEL ENGINE LOCAL START	N/A	N/A	N/A	RT-10	START

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	C201 F DI 2C DIESEL GEN-STOP	00:00:05	N/A	N/A	ET-5	ON
02	C201 C1 LO 2C DIESEL GEN-READY TO LOAD	N/A	N/A	N/A	N/A	OFF
03	C203 L AO 2C DIESEL GENERATOR - VOLTS	N/A	N/A	N/A	N/A	0
04	C203 R AO 2C DIESEL GENERATOR - FREQ	N/A	N/A	N/A	N/A	35

OTHER CONDITIONS:

Description

1. None

V. SEQUENCE OF EVENTS

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>1. Power ascension</p> <p>Note: CRS may direct rod movement only until rods are fully withdrawn. If this is the method chosen, then dilution will not be performed prior to initiating the up power.</p> <p>Note: Power defect change from 90% to 98.5% is 83.3 pcm. (Page 104/115 of S2.RE-RA.ZZ-0016 Curve Book, using 6,000 EFPH and 900 Cb RCS boron)) There is 52 pcm left in rods at 203 steps. (page 32/115). This means 31.3 pcm will have to be added via dilution.</p> <p>Note: Differential boron worth at 90% power for 6,000 EFPH is ~ -6.4846 pcm/ppm. 31.3 pcm / -6.4846 pcm/ppm = a boron concentration change of 4.8 ppm required. This can be calculated to</p>			
	CRS briefs crew on power ascension.		
	RO calculates dilution required to achieve ARO prior to 98.5% power.		
	PO sets up Main Turbine for power ascension to 98.5% at 10% per hour.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>be 353 gallons of dilution total would be required in addition to the rods. (Calc found on Figure 101 of S2.RE-RA.ZZ-0012 Figures).</p> <p>Note: If dilution is used first, the turbine up power will not be initiated until after the RO reports the effect of the dilution is being observed in the RCS.</p> <p>Note: Auto or manual rod control is at the discretion of the CRS.</p> <p>Proceed to next event on direction from Lead Evaluator.</p> <p>2. 2C EDG Air start compressor leak/failure</p> <p>Simulator Operator: Insert RT-1 on direction from Lead Evaluator.</p>			
	RO initiates dilution. (if required)		
	PO initiates power ascension to 98.5% at 10% per hour.		
	RO/PO monitor plant response to ensure power ascension is progressing as anticipated.		
	RO either announces expected and actual auto rod movement, or withdraws rods in manual with CRS concurrence to maintain Tavg on program.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
MALF: AN0266 SER 266 FAILS- :J20 2C DIESEL GENERATOR URGENT FAILURE			
	PO announces OHA J-20, 2C DG URGENT TRBL, as unexpected.		
	PO refers to ARP and reports possible causes.		
	Crew dispatches operator to 2C EDG.		
<p>Note: 2C EDG Air System is shown on drawing 205241 Sheet 6.</p> <p>Role Play: 2 minutes after being dispatched, report that when you arrived at 2C EDG control room, you could hear an air leak in the 2C EDG room. You acknowledged 2C EDG local alarm panel alarms A-4 and A-5, Air Receiver #1 Low Pressure and Air Receiver #2 Low Pressure respectively. In 2C EDG room you identified both EDG air start compressors running, and a large air leak on the starting air supply line at the connection where the single supply line from the Moisture Separator splits to go to the two Air Receiver Tanks. Current Starting Air Tank pressures are both 176 psig and dropping. If asked, report the alarm setpoint for the low air pressure is 182 psig per</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>the ARP.</p> <p>Note: If directed to isolate the air starting tanks inlet valves to isolate the leak, report back after 8 minutes that you have shut 21DA5C and 22DA5C (or the valves directed by CRS if different) to isolate the 23A and 23B Air Receiver Tanks respectively, and that both Air Start tanks are at 155 psig.</p> <p>Role Play: <u>IF</u> requested to inform CRS when air pressure reaches 160 psig, report back in 8 minutes that Air start pressure is 160 psig and lowering.</p> <p>Assuming a constant rate of pressure reduction, the Air Start tanks will reach their Tech Spec operability limit of 160 psig in 8 minutes from the initial field report.</p> <p>Note: CRS may direct starting 2C EDG to ensure it remains operable. This would preclude having to declare the EDG inoperable, and extend the amount of time until the EDG would be in a 72 hour shutdown LCO (to allow a trouble shooting plan to be developed, obtain repair parts, etc). However, running an EDG unloaded for an</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
extended period of time would require additional evaluation, and in any event the EDG will fail if it is attempted to be started.			
IF CRS orders PO to start 2C EDG from control console it will not reach proper speed, and stop shortly after the start attempt.			
IF CRS directs 2C EDG to be started locally, state you will review S2.OP-SO.DG-0003, 2C Diesel Generator Operation, ensure prerequisites are met, review the P&L's, do the pre-startup checks, and report back when you are ready to start 2C EDG.			
IF the CRS directs starting of 2C EDG without completing the step above, continue to next step.			
IF directed to locally start 2C EDG without performing normal start pre-req's, P&L's, etc., insert RT-10 to place the local start-stop switch to start, and report when 2C EDG trips 10 seconds later on over crank. (Local Alarm Panel window B-5 Failure to Start – Overcrank.)			
CRS enters TSAS 3.8.1.1.b action b and determines the remaining 2 EDGs must be			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Proceed to next event on direction from Lead Evaluator.</p> <p>3. 23 CCW pump w/failure of standby pump to start.</p>	verified operable by performing S2.OP-ST-500-1, ELECTRICAL POWER SYSTEMS AC SOURCES ALIGNMENT, within 1 hour.		
<p>Simulator Operator: Insert RT-3 on direction from Lead evaluator.</p> <p>MALFS: CC0172C 23 COMPONENT COOLING WATER PUMP TRIP</p> <p>RC007D 24 RC PUMP-#1 SEAL FAILS w/DEGRADATION Initial Value: 0.3 Severity: 0.75 Ramp: 5 minutes</p> <p>The 24 RCP high seal leakoff flow alarm will annunciate just before the 5 minute ramp is finished.</p>			
	RO reports trip of 23 CCW pump and standby pump did not auto start.		
	CRS directs RO to manually start 22 CCW pump.		
	RO manually starts 22 CCW pump and reports		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: CCW system alarms will annunciate during initial crew response, but all alarms will clear upon restoration of system pressure.</p>	clearing of all alarms associated with the CCW pump trip.		
	CRS directs RO/PO to validate alarms received with ARP guidance.		
	RO/PO report that alarms received were consistent with low CCW system pressure, and that the restoration of system pressure was expected to clear all those alarms.		
	RO verifies RCP CCW cooled parameters trending to normal values.		
	CRS may enter S2.OP-AB.CC-0001, Component Cooling Abnormality, and S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, to verify actions previously performed have corrected condition.		
<p>Note: Entry into these 2 AB's is not required because the action taken to restore CCW system pressure corrected the entry conditions for the AB's.</p>			
	CRS dispatches operators to investigate 23 CCW pump trip.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Role Play: 2 minutes after being dispatched to check 23 CCW pump breaker, report overcurrent trip is present on 23 CCW pump. If dispatched to check CCW pumps, report they look normal.</p> <p>Note: Post scenario question may need to be asked for this Tech Spec call if it is not addressed prior to RCP malfunction.</p> <p>4. 24 RCP seal degradation w/ failure</p> <p>Note: Seal inlet and outlet temps will lower, charging flow will rise, and RCDT level will rise (slightly), due to the seal leak.</p>			
	CRS enters TSAS 3.7.3 based on not having 2 operable CCW loops.		
	RO reports 24 RCP seal leakoff flow alarm current reading.		
	CRS enters S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality.		
	CRS verifies entry condition of seal leakoff flow >5 gpm is met.		
	CRS directs initiation of CAS.		
	RO uses P-250 computer to check 24 RCP		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	conditions.		
	CRS determines CCW water supply is not causing abnormal condition.		
	RO reports all RCP temperatures are normal and stable.		
	RO reports seal injection has not been lost.		
Simulator Operator: MODIFY MALF RC007D from 0.75 to 1.0 with a 5 minute ramp on direction from Lead Evaluator	RO reports seal leakoff is stable at 5.2 gpm.		
	CRS determines a unit shutdown should be performed.		
	RO reports seal leak has begun to rise towards 6 gpm.		
	CRS determines 24 RCP seal leakoff flow rising towards >6 gpm and will soon exceed 6 gpm CAS value, and goes to Attachment 2, Stopping Reactor Coolant Pumps.		
	CRS briefs Rx trip actions to be performed.		
	CRS identifies the requirement to shut 24CV104 3-5 minutes after pump shutdown.		

Note: When fully ramped in, the MALF will cause 24 RCP seal

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
leakoff to be >6 gpm. This is indicated by a console reading of "+OVER" on the hi range seal leakoff chart recorder.			
	RO trips the reactor.		
	RO stops 24 RCP, and crew recognizes 24CV104 must be shut in 3-5 minutes.		
	RO continues performing EOP-TRIP-1, Reactor Trip or Safety Injection, immediate actions from memory: <ul style="list-style-type: none"> - Reports the Rx is tripped - Confirms Rx trip - Backs up the Main Turbine trip - Reports at least one 4KV vital bus energized. - Reports Safety Injection not actuated. - Reports Safety injection not required based on board indications. 		
	CRS reads immediate action steps to RO and RO verifies performance.		
	PO receives CRS permission and throttles AFW flow to no less than 22E4 lb/hr.		
	RO shuts 24CV104 3-5 minutes after 24 RCP is tripped.		
CT#1: Close 24CV104 3-5 minutes after tripping the RCP due to Seal Leakoff > 6 gpm.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
SAT _____ UNSAT _____			
Note: STA reports to the Control Room 10 minutes after being paged to report.	CRS transitions to EOP-TRIP-2, Reactor Trip Response.		
	RO makes page announcement "Unit 2 Rx trip."		
	PO reports total AFW flow is >22E4 lbm/hr.		
Simulator Operator: Ensure ET-3 is TRUE when 21 SGFP is tripped. This inserts the steam leak after a one minute delay.			
5. Steam leak in containment			
	PO lowers 23 AFW pump speed to minimum, and throttles 21-24AF21's to maintain AFW flow ~ 22E4 lbm/hr.		
	RO reports 3 RCPs running.		
	RO reports RCS Tavg is stable at or trending to 547° F.		
	RO reports unexpected OHAs for CFCU leak detection and Containment Sump pump start		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
6. MSLI failure	when they occur.		
	RO reports no indication of RCS leak.		
	Crew diagnoses steam leak in containment.		
	CRS orders a MSLI using AB.STM-1 CAS justification.		
	RO reports MSLI has failed on both trains.		
	CRS orders a Safety Injection.		
	RO initiates Safety Injection.		
	CRS returns to TRIP-1 based on TRIP-2 CAS of Safety Injection actuation.		
	CRS/RO verify immediate actions complete.		
	CRS dispatches operators to locally shut MSIVs.		
	PO reports all available equipment started on SECs.		
	PO reports 21 and 22 AFW pumps running.		
	PO reports Table B valve groups in safeguards position.		
	RO reports 21/22CA330s are shut.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: See actions on next page for when containment pressure rises above 15 psig.</p>	RO reports containment pressure is <15 psig.		
	RO reports no high steam flow conditions on 2RP4.		
	PO reports all 4KV vital buses energized.		
	RO reports correct control room and switchgear room ventilation alignment.		
	RO reports 2 CCW pumps in service.		
	RO reports ECCS flow for current RCS pressure as expected.		
	PO reports AFW flow >22E4 lbm/hr.		
<p>7. Containment Spray pumps fail to start.</p>	RO reports RCP status, and RCS temp not stable at or trending to 547° F due to steam leak, and MSLI has failed to shut any MSIV.		
	RO reports both RTBs open.		
	RO reports both PZR PORVs shut and Block Valves open.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: Containment Spray is directed to be started in TRIP-1 and in FRCE-1 when containment pressure reaches 15 psig.</p> <p>TRIP-1 Spray initiation (FRCE-1 initiation is on page 24)</p>			
	<p>CRS refers/returns to TRIP-1 Step 11 and:</p> <ul style="list-style-type: none"> - Ensures Containment Spray by initiating Phase B and Spray actuation. <ul style="list-style-type: none"> - RO inserts BOTH keys into CS actuation and turns at same time. - RO reports spray valve realignment. - Start 21 and 22 CS pumps <ul style="list-style-type: none"> - If SECs are not reset, RO blocks and resets 2A and 2C SECs. - RO inserts key and turns for 21 and 22 CS pumps and reports both CS pumps are running. - Initiate MSLI <ul style="list-style-type: none"> - RO reports MSLI failure. - Stop 21-24 RCPs <ul style="list-style-type: none"> - RO depresses stop PB for all RCPs. - Ensure valve groups in Table D in safeguards position. <ul style="list-style-type: none"> - PO reports Table D valves position. 		
<p>CT #2 (CT-3) Manually start Containment Spray pumps prior to completion of step 3 of FRCE-1.</p> <p>SAT _____ UNSAT _____</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports RCP status, and spray valves shut if RCPs in service.		
	PO reports all SG pressures dropping in an uncontrolled manner and MSLI has failed to shut any MSIV		
	CRS transitions to LO SC-1, Loss of Secondary Coolant.		
	RO reports MSLI failed to shut any MSIV, and dispatches operators to shut MSIVs if not previously performed.		
	PO reports all SG pressures dropping in an uncontrolled manner.		
	CRS transitions to LO SC-2, Multiple Steam Generator Depressurization.		
	PO ensures valves in Table A shut, and dispatches operator to shut any open valve if not previously performed.		
	PO reports 23 AFW pump not needed for SG level control, then trips and stops 23 AFW pump.		
	CRS dispatches operators to shut 23 AFW pump steam supply valves.		
	RO reports RCS cooldown rate is > 100°F per hour.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: Step 5 asks for cooldown <u>rate</u>, not if RCS has cooled down 100°F in last hour, which would be FRTS-1 (Thermal Shock) entry.</p> <p>Note: RCS C/D rate is ~ 120°F/hr.</p>			
	PO reduces AFW flow to each SG to no less than 1.0 E4 lbm/hr.		
<p>CT#3 (CT-33) Reduce AFW flow to no less than 1.0E4 lbm/hr to each SG to minimize RCS cooldown prior to exiting FRCE-1.</p> <p>SAT _____ UNSAT _____</p>			
	STA reports valid RED path on FRHS.		
	CRS transitions to FRHS-1, verifies it was operator action which caused the RED path, and returns to procedure in effect.		
	CRS directs closure of Phase A isolation valves not needed for recovery.		
	RO reports containment pressure >15 psig.		
<p>FRCE-1 actions here</p>			
	RO reports LOCA-5 not in effect.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO starts or reports 21 and 22 CS in service.		
	RO reports 21 and 22CS2 are open.		
	RO reports 2CS14,16 and 17 are open.		
	RO stops RCPs if running.		
	RO reports all CFCUs running in slow speed with adequate SW flow.		
	RO reports MSLI valves all open, and dispatches operators to shut them if not previously performed.		
Simulator Operator: Once AFW flow has been lowered to SGs, and AFTER FRCE-1 has been performed, and BEFORE reaching step 8 of LOSC-2, THEN remove MALF from the MSIV the CRS directed to be closed first that is NOT 21 MSIV.	PO lowers AFW flow to no less than 1.0E4 lbm/hr to each SG.		
	PO reports SG isolation valve status.		
	CRS returns to procedure in effect.		
	PO reports rising pressure in affected SG.		
	CRS uses CAS action of LOSC-2 of rising pressure in any SG to return to LOSC-1.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Terminate scenario upon transition back to LOSC-1.			

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-IO.ZZ-0004, Power Operation
- F. S2.OP-SO.DG-0003, 2C EDG Operation
- G. S2.OP-AR.DG-0003, 2C Diesel Generator Alarm Response
- H. Dwg 205241, Sheet 6, Diesel Engine Auxiliaries
- I. S2.OP-AB.CC-0001, Component Cooling System Abnormality
- J. S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality
- K. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
- L. 2-EOP-TRIP-2, Reactor Trip Response
- M. 2-EOP-LOSC-1, Loss of Secondary Coolant
- N. 2-EOP-LOSC-2, Multiple Steam Generator Depressurization
- O. 2-EOP-FRCE-1, Response to Excessive Containment Pressure

**ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY**

MODE: 1 POWER: 90 RCS BORON: 895 MWe 1080

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

NA

REACTIVITY PARAMETERS

Core Burnup: 6,000 EFPH

Control Bank D is at 203 steps.

Reactivity plan for power ascension to 98.5% is to perform dilution concurrent with rod withdrawal to establish ARO prior to reaching 98.5%.

Calorimetric required prior to exceeding 90% power has been performed SAT.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

S2.OP-IO.ZZ-0004, Power Operation, in progress and complete up to Step 5.1.26.

Power was reduced 2 days ago to remove 21 and 22 Heater Drain Pumps from service due to possible damage from spraying water. Pumps have been inspected and returned to service.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.

No penalty minutes in the last 24 hrs.

PRIMARY:

SECONDARY:

Heating steam is aligned to Unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

ATTACHMENT 2**SIMULATOR READY FOR TRAINING CHECKLIST**

- ___ 1. Verify simulator is in "TRAIN" Load
- ___ 2. Simulator is in RUN
- ___ 3. Overhead Annunciator Horns ON
- ___ 4. All required computer terminals in operation
- ___ 5. Simulator clocks synchronized
- ___ 6. All tagged equipment properly secured and documented
- ___ 7. TSAS Status Board up-to-date
- ___ 8. Shift manning sheet available
- ___ 9. Procedures in progress open and signed-off to proper step
- ___ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- ___ 11. Required chart recorders advanced and ON (proper paper installed)
- ___ 12. All printers have adequate paper AND functional ribbon
- ___ 13. Required procedures clean
- ___ 14. Multiple color procedure pens available
- ___ 15. Required keys available
- ___ 16. Simulator cleared of unauthorized material/personnel
- ___ 17. All charts advanced to clean traces and chart recorders are on.
- ___ 18. Rod step counters correct (channel check) and reset as necessary
- ___ 19. Exam security set for simulator
- ___ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter
___ With Baseline Data filled out
- ___ 21. Shift logs available if required
- ___ 22. Recording Media available (if applicable)
- ___ 23. Ensure ECG classification is correct if applicable.
- ___ 24. Reference verification performed with required documents available
- ___ 25. Verify phones disconnected from plant after drill.
- ___ 26. Verify EGC paperwork is marked "Training Use Only" and is current revision.
- ___ 27. Ensure sufficient copies of ECG paperwork are available.

ATTACHMENT 3**CRITICAL TASK METHODOLOGY**

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
 - degradation of any barrier to fission product release
 - degraded emergency core cooling system (ECCS) or emergency power capacity
 - a violation of a safety limit
 - a violation of the facility license condition
 - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
 - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
 - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
 - recognize a failure or an incorrect automatic actuation of an ESF system or component.
 - take one or more actions that would prevent a challenge to plant safety.
 - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation).

ATTACHMENT 4 **SIMULATOR SCENARIO REVIEW CHECKLIST**

SCENARIO IDENTIFIER: 13-01 NRC-ESG-1 **REVIEWER:** P Williams

Initials Qualitative Attributes

- | | | |
|----|-----|---|
| PW | 1. | The scenario has clearly stated objectives in the scenario. |
| PW | 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. |
| PW | 3. | The scenario consists mostly of related events. |
| PW | 4. | Each event description consists of: <ul style="list-style-type: none"> • 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 |
| PW | 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. |
| PW | 6. | The events are valid with regard to physics and thermodynamics. |
| PW | 7. | Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives. |
| PW | 8. | The simulator modeling is not altered. |
| PW | 9. | All crew competencies can be evaluated. |
| PW | 10. | The scenario has been validated. |
| PW | 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. |
| PW | 12. | ESG-PSA Evaluation Form is completed for the scenario at the applicable facility. |

ATTACHMENT 4 **SIMULATOR SCENARIO REVIEW CHECKLIST**

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	7	Total malfunctions inserted: 5-8
GG	3	Malfunctions that occur after EOP entry: 1-2
GG	3	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	2	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	3	Crew Critical Tasks: 2-3

COMMENTS:

ATTACHMENT 5
ESG CRITICAL TASKS

13-01 NRC ESG-1

CT#1: (AB.RCP) Close 24CV104 3-5 minutes after tripping the RCP due to Seal Leakoff > 6 gpm.

BASIS: Closing the Seal Leakoff Isolation Valve 24CV104 prevents unfiltered, high temperature RCS into the #2 RCP seal, which raises the probability of #2 seal failure. The 3 minute time frame is based on expected coastdown time of the RCP since a static condition is more favorable for the #2 seal to perform its backup function to the #1 seal. The 5 minute limitation minimizes RCS leakage from the damaged seal to maintain RCS inventory. Failure to isolate within 5 minutes raises the possibility of a #2 seal failure and subsequent LOCA.

CT#2 (CT-3) Manually start Containment Spray pumps prior to completion of step 3 of FRCE-1.

BASIS: Failure to manually actuate the minimum required complement of containment cooling equipment under the postulated conditions demonstrates the inability of the crew to "recognize a failure or an incorrect automatic actuation of an ESF system or component."

CT#3 (CT-33) Reduce AFW flow to no less than 1.0E4 lbm/hr to each SG to minimize RCS cooldown prior to exiting FRCE-1.

BASIS: 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.

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	<u>Event</u>
<u>N</u>	TRANSIENTS with PCS Unavailable
<u>N</u>	Steam Generator Tube Rupture
<u>N</u>	Loss of Offsite Power
<u>N</u>	Loss of Switchgear and Pen Area Ventilation
<u>N</u>	LOCA

<u>Y/N</u>	<u>Event</u>
<u>N</u>	Loss of Service Water
<u>Y</u>	Loss of CCW
<u>N</u>	Loss of Control Air
<u>N</u>	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Containment Sump Strainers
<u>N</u>	SSWS Valves to Turbine Generator Area
<u>N</u>	RHR Suction Line valves from Hot Leg
<u>N</u>	CVCS Letdown line Control and Isolation Valves

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Gas Turbine
<u>Y</u>	Any Diesel Generator
<u>N</u>	Auxiliary Feed Pump
<u>N</u>	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>N</u>	Restore AC power during SBO
<u>N</u>	Connect to gas turbine
<u>N</u>	Trip Reactor and RCPs after loss of component cooling system
<u>N</u>	Re-align RHR system for re-circulation
<u>N</u>	Un-isolate the available CCW Heat Exchanger
<u>N</u>	Isolate the CVCS letdown path and transfer charging suction to RWST
<u>N</u>	Cooldown the RCS and depressurize the system
<u>N</u>	Isolate the affected Steam Generator that has the tube rupture(s)
<u>N</u>	Early depressurize the RCS
<u>N</u>	Initiate feed and bleed

Complete this evaluation form for each ESG.

SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 13-01 NRC ESG-3

SCENARIO NUMBER: 13-01 NRC ESG-3

EFFECTIVE DATE: See Approval Dates below

EXPECTED DURATION: 75 minutes

REVISION NUMBER: 00


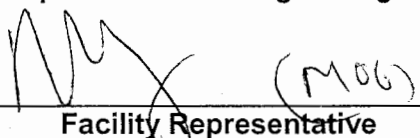
PROGRAM: ☐ L.O. REQUAL

☒ INITIAL LICENSE

☐ STA

☐ OTHER _____

Revision Summary
New Issue for 13-01 NRC Exam

PREPARED BY:	<u>G Gauding</u> Lead Regulatory Exam Author	<u>09-14-14</u> Date
APPROVED BY:	<u></u> Operations Training Manager	<u>10-23-14</u> Date
APPROVED BY:	<u> (MOG)</u> Facility Representative	<u>10-23-14</u> Date

I. OBJECTIVES

- A. Given the order or indications of a loss of vacuum, perform actions as the nuclear control operator to RESPOND to the malfunction, in accordance with S2.OP-AB.COND-0001.
- B. Given the order or indications of a loss of vacuum, DIRECT the response to the malfunction in accordance with S2.OP-AB.COND-0001
- C. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- D. Given the order or indications of a 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 S2.OP-AB.4KV-0001.
- 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 S2.OP-AB.4KV-0001.
- F. Given indication of unwarranted continuous rod motion perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with S1/S2.OP-AB.ROD-0003.
- G. Given indication of unwarranted continuous rod motion DIRECT the response to the malfunction in accordance with S2.OP-AB.ROD-0003.
- H. Given the indication of excessive steam flow, perform actions as the nuclear control operator to RESPOND to excessive flow in accordance with S1/S2.OP-AB.STM-0001
- I. Given the order or indications of a reactor trip perform actions as the nuclear control operator to RESPOND to the reactor trip in accordance with the approved station procedures.
- J. Given indication of a safety injection DIRECT the response to the safety injection 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 a safety injection has occurred and equipment has failed to START equipment that has failed to automatically start in accordance with the approved station procedures.
- M. Given indication of excessive containment pressure DIRECT the response to the excessive pressure in accordance with the approved station procedures.
- R. Given the order or indications of excessive containment pressure perform actions as the nuclear control operator to RESPOND to the excessive pressure in accordance with the approved station procedures.
- S. Given the unit in the EOPs and an excessive containment pressure the crew will reduce containment pressure IAW approved station procedures.

II. MAJOR EVENTS

- A. Swap Condenser Vacuum pumps
- B. Loss of Condenser Vacuum (recoverable)
- C. Loss of 2A 4KV vital bus on Bus Differential
- D. Turbine Steamline Inlet Pressure Transmitter PT-505 failure
- E. Steam Dump failure
- F. Loss of all AFW / FRHS / Cond pump recovery

III. SCENARIO SUMMARY

- A. The crew will take the turnover at 100% power, MOL, with direction to swap operating condenser vacuum pumps per Control Room logs weekly pump swap using S2.OP-SO.AR-0001, Condenser Air Removal System Operation.
- B. During the vacuum pump swap, the pump being secured will have its air injection suction isolation valve AR25 fail open, causing condenser vacuum to degrade if not addressed immediately. The crew will attempt to re-start the affected pump (it will not start), direct field personnel to immediately shut the affected AR25, and start the remaining vacuum pump, which will restore vacuum.
- C. Once vacuum has been restored, the 2A 4KV vital bus will lock out on bus differential. The CRS will enter S2.OP-AB.4KV-0001, Loss of 2A 4160 Volt Vital Bus. The CRS will identify Tech Specs.
- D. The Main Turbine Steamline Inlet Pressure Transmitter (PT-505) will fail low. If control rods are in auto (they may have been placed in manual due to non-urgent failure alarm present) they will insert at maximum rate. The RO will verify no load reject in progress, and place control rods in manual. The CRS will enter S2.OP-AB.ROD-0003, Continuous Rod Motion. If control rods are in manual, the crew will diagnose the failure based on alarms received and RP4 hi steam flow bistable status.
- E. The crew will swap Main Steam Dumps if in S2.OP-AB.ROD-003, or IAW SO.RPS-0006 based on TSAS 3.3.2.1 requiring placing PT-505 in the tripped condition. If the crew did not require AB.ROD-3 entry and do not swap steam dumps to MS Pressure control (the TSAS gives them 6 hours to place channel in tripped condition) the steam dump failure will be entered by the Simulator Operator. The steam dump failure will cause 21-23TB20 steam dumps to open. The steam dumps will be unable to be shut or turned off. The CRS will direct a Rx trip and MSLI.
- F. The MSLI will only shut 3 of 4 MSIV's, and the CRS will direct a Safety Injection be initiated. An auto SI signal will be generated on Steamline Delta Pressure as 23 SG blows down. Auto SI initiation is failed.
- G. 22 AFW pump will trip shortly after AFW flow reduction is performed following TRIP-1 immediate actions. 23 AFW pump will trip 5 minutes later. The crew will isolate feedwater to 23 SG. The CRS will transition to FRHS-1 when directed in TRIP-1.
- H. The crew will perform a Condensate pump recovery in FRHS-1 due to SGFPs not being available, and all AFW pumps failed.
- I. The scenario will terminate when SG WR levels are rising in FRHS-1, or when RCS Bleed and Feed is initiated.

IV. INITIAL CONDITIONS

____ Pre-snapped IC-233

PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

Initial	Description
____ 1	2VC1 and 2CV4 C/T
____ 2	RCPs (SELF CHECK)
____ 3	RTBs (SELF CHECK)
____ 4	MS167s (SELF CHECK)
____ 5	500 KV SWYD (SELF CHECK)
____ 6	SGFP Trip (SELF CHECK)
____ 7	23 CV PP (SELF CHECK)
____ 8	Provide copy of S2.OP-SO.AR-0001 with prereq 2.2 (off normal check) signed off.
____ 9	Provide blank copy of S2.OP-DL.ZZ-0003, Control Room logs Modes 1-4.
____ 10	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:

Initial	ET #	Description
	3	EVENT ACTION: kcf08dv1 // STM DUMP CONTROL MODE-MAIN STM P COMMAND: PURPOSE: <update as needed>
	5	EVENT ACTION: kb515tcp // 22AF21 CLOSE COMMAND: PURPOSE: <update as needed>
	7	EVENT ACTION: kck05anz // 25AR25 25 VACUUM PUMP-CONDENSER COMMAND: DMF VL0440 PURPOSE: <update as needed>
	9	EVENT ACTION: kck04tpz // 24 VACUUM PUMP-STOP COMMAND: PURPOSE: <update as needed>
	11	EVENT ACTION: kck02pbz // 22 VACUUM PUMP-START COMMAND: DMF CN0086B PURPOSE: <update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	VL0337 24AR25 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	100
02	EL0144 LOSS OF 2A 4160V VITAL BUS	N/A	N/A	N/A	RT-1	
03	TU0055 TURBINE INLET PRESS XMTR 505 FAILS H/	N/A	N/A	N/A	RT-3	0
04	RP0108 FAILURE OF AUTOMATIC SI	N/A	N/A	N/A	N/A	
05	AF0181B 22 AUX FEEDWATER PUMP TRIP	00:00:15	N/A	N/A	ET-5	
06	AF0183 23 AUX FW PMP OVERSPEED TRIP	00:01:00	N/A	N/A	ET-5	
07	VL0440 25AR25 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	0
08	CN0086B Loss of 22 main condenser vacuum	N/A	N/A	N/A	ET-9	4
09	MS0092G 23MS167 FAILS OPEN	N/A	N/A	N/A	N/A	
10	VL0463 21TB20 Fails to Position (0-100%)	N/A	N/A	N/A	ET-3	100
11	VL0464 22TB20 Fails to Position (0-100%)	N/A	N/A	N/A	ET-3	100
12	VL0465 23TB20 Fails to Position (0-100%)	N/A	N/A	N/A	ET-3	100

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
___ 01	CF06 F DI STM DUMP INTLK TRAIN 'A'-OFF	N/A	N/A	N/A	N/A	OFF
___ 02	CF07 F DI STM DUMP INTLK TRAIN 'B'-OFF	N/A	N/A	N/A	N/A	OFF
___ 03	CF10 F DI STM DUMP MANUAL DECREASE (CLOSE)	N/A	N/A	N/A	N/A	OFF
___ 04	CK04 E DI 24 VACUUM PUMP-START	N/A	N/A	N/A	N/A	OFF

OTHER CONDITIONS:

Description

___ 1. None

V. SEQUENCE OF EVENTS

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
1. Swap Condenser Vacuum Pumps <			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
you will check conditions and get back to them. One minute later, report 24 vacuum pump seal tank level is normal ½ way between high and low marks, Seal Water Circulator discharge pressure is 18 psig, and 25 vacuum pump suction pressure is 28" Hg.			
	PO opens 25AR25.		
	PO stops 24 vacuum pump.		
Simulator Operator: Ensure ET-9 is true when 24 vacuum pump stop PB is depressed. This inserts the loss of vacuum. 2. Loss of Main Condenser Vacuum			
	PO reports 24AR25 did not shut.		
	CRS directs start of 24 vacuum pump.		
	PO reports 24 vacuum pump will not start.		
	PO contacts NEO to isolate 24AR25 by closing 24AR23 .		
Note: If CRS directs starting the remaining vacuum pump here, then			
	PO reports slowly degrading condenser backpressure.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
vacuum will improve, and S2.OP-AB.COND-0001 may not be entered.			
Simulator Operator: Ensure ET-11 is true when 22 vacuum pump start PB is depressed. This deletes the vacuum malfunction.			
Simulator Operator: 15 seconds after 22 vacuum pump is started, delete MALF VL0337, and if previously directed to locally shut 24AR23, report as NEO that 24AR23 is shut.			
	CRS enters S2.OP-AB.COND-0001, Loss of Condenser Vacuum.		
	CRS directs initiation of Attachment 1 CAS.		
	CRS ensures local operators are addressing vacuum problem.		
	PO starts all available vacuum pumps if not previously performed.		
	PO reports condenser backpressure is improving.		
	CRS goes to Section 4.0, Completion and Review to exit procedure.		
Continue to next event on direction			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
from Lead Evaluator.			
3. Loss of 2A 4160 volt bus			
Simulator Operator: Insert RT-1 on direction from Lead evaluator. MALF: EL0144 Loss of 2A 4160V Vital Bus.			
	RO/PO announce multitude of unexpected alarms, and diagnose the loss of 2A 4KV vital bus.		
	CRS enters S2.OP-AB.4KV-0001, Loss of 2A 4KV Vital Bus.		
	CRS directs initiation of Attachment 1 CAS.		
	PO reports 2A EDG running, and dispatches an operator to 2A EDG.		
Simulator Operator: If directed to deenergize 2A SEC, use Remote DG01A to YES.			
	RO reports 23 charging pump was in service, closes 2CV55, and starts 21 charging pump.		
	RO reports 23 charging pump stopped.		
	RO ensures RCP seal injection flow.		
	RO places 22 primary water pump in auto, and reports 22 BAT pump in auto.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports 21 RHR pump was not in service and 2A vital bus is deenergized.		
	PO reports no AFW pumps in service.		
	RO reports all SW and CCW low pressure alarms clear.		
	RO restores letdown by verifying 2CV2 and 2CV277 open and in auto, ensuring charging flow ~80 gpm, opening one 75 letdown orifice, and adjusting 2CV18 to maintain letdown pressure ~300 psig, then placing 2CV18 in automatic.		
	CRS dispatches operator and Maintenance to investigate loss of 2A bus.		
	CRS determines Tech Specs applicable to loss of 2A bus.		
	CRS directs initiation of S2.OP-AB.460-0001, Loss of 2A 460/230V Vital buses.		
	Applicable tech Specs are: 3.9.12 for FHV – immediate 3.4.5 for 2PR6 loss of power – 1 hour 3.6.1.1 for 21SW20 being open w/no power – 1 hour 3.8.2.1 action a for 2A 4KV bus deenergized – 8 hours 3.8.2.3 and 3.8.2.5 for battery chargers – 2 hours 3.6.3 for CIV inoperable – 4 hours 3.7.1.2.a and b, action b for 2 AFW pumps –		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>AB.460-0001 steps start here – some action in this AB are redundant to actions taken in AB.4KV-1.</p> <p>Note: The rod control Non-urgent failure alarm will be in. The ARP states to place rod control in manual. This may or may not be identified when it is determined to proceed to next event based on the amount of alarms requiring verification.</p> <p>Continue to next event on direction from Lead Evaluator.</p>	6 hours 3.7.6.a.1 CREACS fans – 4 hours 3.3.3.1 act. b Rad monitors -		
	PO verifies centrifugal charging pp and letdown in service.		
	PO dispatches operators to swap to alternate battery chargers for 2A 125 and 28 VDC batteries.		
	PO starts 22 chilled water pump.		
	PO ensures alternate ventilation system components placed in service, and dispatches an operator to realign DFO to 22 DFO xfer pump to regular.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
4. Failure of Turbine Steamline Inlet Pressure Transmitter PT-505.			
Simulator Operator: Insert RT-3 on direction from Lead Evaluator. MALF: TU0055 Turbine Inlet Press Xmtr fails low. Severity: 0			
AB.ROD-3 steps here.	If rods are in auto, RO report insertion at 72 spm, no load reject, and places control rods in manual. If rods are in manual, RO reports OHA's and RP4 bistable indications.		
	Crew diagnoses PT-505 failed low.		
	If rods moved, CRS enters S2.OP-AB.ROD-0003, Continuous Rod Motion.		
	RO reports rods in manual and rod motion stopped , and rod motion was inward.		
	RO reports Tavg on program.		
	RO reports PT-505 failed low and rods above RIL.		
	PO aligns steam dumps by: <ul style="list-style-type: none"> - Ensuring steam pressure setpoint is 1005 psig. - Ensuring steam dumps in auto. - Depressing MS Pressure Control PB. 		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Simulator Operator: Ensure ET-3 is true when steam dumps placed in MS Pressure Control. This opens all TB20 steam dump valves.			
AB-ROD-3 NOT entered steps start here.			
Note: There is no alarm response or abnormal procedure direction to swap steam dumps to MS Pressure control mode. The CRS can use S2.OP-SO.MS-0002, Steam Dump System Operation to swap steam dumps once it is identified that the steam dumps have a 100%Tavg demand.			
IF the crew does not identify that steam dump control mode should be swapped, then Lead Evaluator direct Simulator Operator to force ET-3 TRUE to initiate the steam dump failure.			
Note: All 3 TB20's failing open will result in total steam flow rising from 100% to 107%. An auto MSLI will not reach its initiation setpoint.			
	PO reports 21-23TB20's have opened.		
	CRS directs the PO to turn off steam dumps or		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: Once the MSLI is initiated, 23 SG pressure will rapidly drop to more than 100 psig below the remaining SGs.</p>	attempt closing dump valves in manual, and PO reports valves remain open.		
	CRS directs RO to trip the Rx and initiate a MSLI IAW CAS of S2.OP-AB.STM-0001.		
	RO trips the Rx.		
	RO initiates MSLI and reports 23MS167 remains open.		
	RO initiates MSLI on other SSPS train and reports 23MSIV remains open.		
	RO attempts to FAST close 23MS167 and reports it remains open.		
<p>CT#1 (CT-2) Manually actuate SI prior to completion of TRIP-1 step 5.</p>	RO reports an automatic SI signal is present on SG D/P between 23 SG and the remaining SG's, and reports SI has not actuated.		
	RO initiates SI and completes immediate actions by backing up main turbine trip and verifying at least one 4KV vital bus is energized.		

Evaluator/Instructor Activity		Expected Plant/Student Response	SBT LOG	Comment
SAT _____ UNSAT _____ Simulator Operator: Ensure ET-5 is true when 22AF21 is throttled. This trips 22 AFW pump, then trips 23 AFW pump after a 5 minute delay.				
		RO and CRS verify immediate actions complete.		
		PO isolates AFW flow to 23 SG.		
		CRS dispatches operator to locally close 23MS167 or isolate 21-23TB20's or both.		
		While throttling AFW flow, PO reports 22 AFW pump has tripped.		
		PO adjusts 21, 22, and 24AF11's (from TDAFW pump) to control AFW flow to intact SGs.		
		PO reports no available equipment failed to start on SEC initiation.		
		PO reports 21 AFW pump has no power, 22 AFW pump has tripped, and 23 AFW pump is in service.		
		PO reports when 23 AFW pump trips.		
		PO reports 21SW20 and 21SW223 have no indication on 2RP4. (no power)		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: If the CRS arrives at step 20 with any SG NR level > 9%, then even with no AFW flow, will NOT go to FRHS-1. CRS should continue in TRIP-1 until a transition to LOCS-1 is made, at which time CFSTs would become active and the CRS could transition to FRHS-1 on RED path when it occurs. IF a transition to LOCS-1 is made, steam flow will be initiated when MS10's are adjusted to stabilize RCS temp.</p>	RO reports 21/22CA330's shut, and containment pressure normal.		
	RO reports no indications of high steam flow.		
	PO reports 2A 4KV vital bus deenergized.		
	RO reports control room ventilation status, and ensures proper swgr ventilation.		
	RO reports 2 CCW pumps in service.		
	RO reports ECCS injection flow status for current RCS pressure.		
	PO reports AFW flow and SG NR level status.		
	CRS transitions to FRHS-1 <22E4 lbm/hr AFW flow and all SG NR levels <9%.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports it was not operator action which required FRHS-1 entry.		
	RO reports RCS pressure > intact SGs and RCS Thots >350°F.		
	RO reports 21 and 22 charging pumps available.		
	CRS reads Bleed and Feed transition Continuous Action Steps.		
	PO ensures 21-24GB4 and 21-24SS94 are shut.		
	PO reports no AFW pumps running or can be started.		
	If not previously performed, crew sends operators to investigate cause of AFW pump trips.		
	RO stops all RCPs.		
	PO reports condensate system in operation, and SGFPs not available.		
	RO reports SI has occurred.		
	PO verifies SI valve alignment.		
	RO resets SI and Phase A isolation, and reports Phase B reset.		
	RO opens 21/22CA330s.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: Crew should not select a SG for depressurization which will require initiation of RCS Bleed and Feed sooner than would otherwise be required.</p>	PO resets 2B and 2C SECs.		
	PO reports SECs for energized vital buses reset.		
	PO reports 230V control centers reset.		
	Crew selects 22 or 24 SG for depressurization, whichever has a lower SG level.		
	PO reports steam dumps are not available.		
	RO reports MSLI performed, with 23MS167 remaining open.		
	PO fully opens selected SG MS10 valve.		
	CRS dispatches operator to open selected SG BF40 valve.		
	PO opens selected SG BF13.		
<p>Simulator Operator: 3 minutes after being dispatched, use Remote BF06A (22BF40) or BF08A (24BF40) with a one minute ramp to open selected BF40.</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO ensures selected SG BF22 is released.		
	PO opens 21 and 22CN48s.		
	PO shuts 21/22CN32s.		
	CRS waits at step 20.5 as selected SG depressurizes.		
	PO reports selected SG WR level is rising.		
CT#2 (CT-45) Establish feed flow into any SG before RCS Bleed and Feed is required. SAT _____ UNSAT _____			
Lead Evaluator terminate scenario upon transition back to procedure in effect, or after Bleed and Feed has been initiated.	PO reports no SG NR level is >9%, and that selected SG WR level is rising.		
	PO maintains selected SG pressure <575 psig.		
	RO reports Bleed and Feed have not been initiated.		
	CRS returns to procedure in effect, either TRIP-1 or LOSC-1.		

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-IO.ZZ-0004, Power Operation
- F. S2.OP-DL.ZZ-0003, Control Room Logs Modes 1-4 (page 13)
- G. S2.OP-SO.AR-0001, Condenser Air Removal System Operation
- H. S2.OP-AB.COND-0001, Loss of Condenser Vacuum
- I. S2.OP-AB.ROD-0003, Continuous Rod Motion
- J. S2.OP-SO.MS-0002, Steam Dump System Operation
- K. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
- L. 2-EOP-FRHS-1, Loss of Heat Sink

**ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY**

MODE: 1 POWER: 100 RCS BORON: 853 MWe 1220

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

NA

REACTIVITY PARAMETERS

Core Burnup: 5,000 EFPH

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Swap to next sequential Condenser Vacuum pump after turnover IAW S2.OP-SO.AR-0001, Condenser Air Removal System Operation, as directed by Control Room Logs, S2.OP-DL.ZZ-0003, page 13.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

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

PRIMARY:

SECONDARY:

Heating steam is aligned to Unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

- ___ 1. Verify simulator is in "TRAIN" Load
- ___ 2. Simulator is in RUN
- ___ 3. Overhead Annunciator Horns ON
- ___ 4. All required computer terminals in operation
- ___ 5. Simulator clocks synchronized
- ___ 6. All tagged equipment properly secured and documented
- ___ 7. TSAS Status Board up-to-date
- ___ 8. Shift manning sheet available
- ___ 9. Procedures in progress open and signed-off to proper step
- ___ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- ___ 11. Required chart recorders advanced and ON (proper paper installed)
- ___ 12. All printers have adequate paper AND functional ribbon
- ___ 13. Required procedures clean
- ___ 14. Multiple color procedure pens available
- ___ 15. Required keys available
- ___ 16. Simulator cleared of unauthorized material/personnel
- ___ 17. All charts advanced to clean traces and chart recorders are on.
- ___ 18. Rod step counters correct (channel check) and reset as necessary
- ___ 19. Exam security set for simulator
- ___ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter
With Baseline Data filled out
- ___ 21. Shift logs available if required
- ___ 22. Recording Media available (if applicable)
- ___ 23. Ensure ECG classification is correct if applicable.
- ___ 24. Reference verification performed with required documents available
- ___ 25. Verify phones disconnected from plant after drill.
- ___ 26. Verify EGC paperwork is marked "Training Use Only" and is current revision.
- ___ 27. Ensure sufficient copies of ECG paperwork are available.

ATTACHMENT 3

CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
 - degradation of any barrier to fission product release
 - degraded emergency core cooling system (ECCS) or emergency power capacity
 - a violation of a safety limit
 - a violation of the facility license condition
 - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
 - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
 - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
 - recognize a failure or an incorrect automatic actuation of an ESF system or component.
 - take one or more actions that would prevent a challenge to plant safety.
 - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation).

ATTACHMENT 4
SIMULATOR SCENARIO REVIEW CHECKLIST

SCENARIO IDENTIFIER: 13-01 NRC-ESG-3 **REVIEWER:** P Williams

Initials	Qualitative Attributes
PW	1. The scenario has clearly stated objectives in the scenario.
PW	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.
PW	3. The scenario consists mostly of related events.
PW	4. Each event description consists of: <ul style="list-style-type: none"> • 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
PW	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.
PW	6. The events are valid with regard to physics and thermodynamics.
PW	7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
PW	8. The simulator modeling is not altered.
PW	9. All crew competencies can be evaluated.
PW	10. The scenario has been validated.
PW	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.
PW	12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

ATTACHMENT 4 **SIMULATOR SCENARIO REVIEW CHECKLIST**

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	8	Total malfunctions inserted: 5-8
GG	3	Malfunctions that occur after EOP entry: 1-2
GG	3	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	1	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3

COMMENTS:

ATTACHMENT 5
ESG CRITICAL TASKS

13-01 NRC ESG-3

CT#1 (CT-2) Manually actuate SI prior to completion of TRIP-1 step 5.

Basis: Failure to manually actuate SI under the postulated conditions constitutes misoperation or incorrect crew performance in which the crew does not prevent “degraded emergency core cooling system (ECCS)...capacity.” In this case, SI can be manually actuated from the control room. Therefore, failure to manually actuate SI also represents a failure by the crew to “demonstrate the following abilities:

- Effectively direct or manipulate engineered safety feature (ESF) controls that would prevent (degraded emergency core cooling system (ECCS)...capacity)
- 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”

CT#2 (CT-45) Establish feed flow into any SG before RCS Bleed and Feed is required.

Basis: Failure to establish the minimum required feedwater flow rate, under the postulated plant conditions, results in “adverse consequences or significant degradation in the mitigative capability of the plant.” In this case, the minimum required feedwater flow rate can be established by performing the appropriate manual action. Therefore, failure to manually establish the minimum required feedwater flow rate also represents a failure of the crew to demonstrate the ability to:

- Effectively direct or manipulate engineered safety feature (ESF) controls (assuming
- AFW) that would prevent a significant reduction of safety margin beyond that irreparably
- introduced by the scenario
- Recognize a failure or an incorrect automatic actuation of an ESF system or component
- (assuming AFW)
- Take one or more actions that would prevent a challenge to plant safety”

Finally, failure to manually establish feedwater flow rate under the postulated conditions is a “violation of the facility license condition.”

EVENTS LEADING TO CORE DAMAGE

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

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam Generator that has the tube rupture(s)
N	Early depressurize the RCS
N	Initiate feed and bleed

Complete this evaluation form for each ESG.

Facility: SALEM 1 & 2 Scenario No.: ESG-4 Op-Test No.: 13-01 NRC

Examiners: _____ Operators: _____

Initial Conditions: 4% power, BOL. Unit is returning from forced outage to repair all 4 RCP diffuser vanes bolting issue. 24 SW pump is C/T for strainer repair.

Turnover: Raise power to 18% @10% per hour.

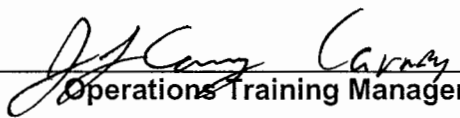
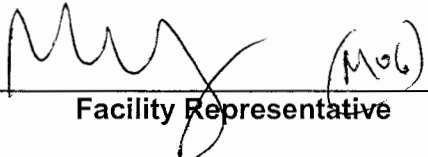
Event No.	Malf. No.	Event Type*	Event Description
1		R ALL	Raise power
2	SW0216A	C ALL	#2 SW bay leak (TS)
3	RC0002	C ALL	RCS leak (TS)
4	CV0208A CV0208B	C CRS/RO	Centrifugal charging pump fails during swap from PDP while responding to RCS leak.
5	RC0002	M CRS/RO	SBLOCA
6	EL0134	C ALL	LOOP coincident with SI initiation
7	O/R A701 B DI	C CRS/PO	2C SEC fails to initiate
8	RP318S1 RP318S2	C CRS/RO	High head ECCS fails to inject (one pump failed from Event 4 above, other pump doesn't start)
			CT's: #1 Establish High Head ECCS #2 Start minimum SW pumps

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

SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 13-01 NRC ESG-4
SCENARIO NUMBER: 13-01 NRC ESG-4
EFFECTIVE DATE: See Approval Dates below
EXPECTED DURATION: 65 minutes
REVISION NUMBER: 00
PROGRAM: ☐ L.O. REQUAL
☒ INITIAL LICENSE
☐ STA
☐ OTHER _____

Revision Summary
New Issue for 13-01 NRC Exam

PREPARED BY:	<u>G Gauding</u> Lead Regulatory Exam Author	<u>09-14-14</u> Date
APPROVED BY:	<u></u> Operations Training Manager	<u>10-23-14</u> Date
APPROVED BY:	<u> (MOB)</u> Facility Representative	<u>10-23-14</u> Date

I. OBJECTIVES

- A. Given the order or indications of a loss or malfunction of a safety related plant cooling water system, perform actions as the nuclear control operator to RESPOND to the loss or malfunction of the safety related plant cooling water system in accordance with S1/S2.OP-AB.SW-0001.
- B. Given indication of a loss or malfunction of a safety related plant cooling water system, DIRECT the response to the loss or malfunction in accordance with the approved station procedures.
- C. 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 S1/S2.OP-AB.RC-0001.
- D. Given the indications of a reactor coolant system (RCS) malfunction or leak, DIRECT the response to the malfunction in accordance with S1/S2.OP-AB.RC-0001
- E. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- F. Given the order or indications of a reactor trip perform actions as the nuclear control operator to RESPOND to the reactor trip in accordance with the approved station procedures.
- G. Given indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.
- H. Given the order or indications of a safety injection perform actions as the nuclear control operator to RESPOND to the safety injection in accordance with the approved station procedures.
- I. Given a safety injection has occurred and equipment has failed to START equipment that has failed to automatically start in accordance with the approved station procedures.

II. MAJOR EVENTS

- A. Raise power
- B. #2 SW Bay leak
- C. RCS leak (25 gpm)
- D. Centrifugal charging pump failure
- E. SBLOCA
- F. LOOP coincident with SI initiation
- G. 2C SEC fails to initiate
- H. High Head ECCS fails to inject

III. SCENARIO SUMMARY

- A. The crew will take the turnover at 4% power, BOL, with direction to raise power to 18% @ 30% per hour. 24 SW pp is C/T for strainer repair. 21 SGFP is in service, 22 SGFP is latched at idle speed.
- B. After power ascension is in progress, a leak in #2 SW Bay occurs. The CRS will enter S2.OP-AB.SW-0003, Service Water Bay leak, cross connect nuclear headers and isolate the affected SW bay. The CRS will identify Tech Spec 3.0.3 is applicable based on SW pump operability.
- C. After the SW Bay leak has been addressed, a 25 gpm RCS leak will occur. The CRS will enter S2.OP-AB.RC-0001, Reactor Coolant System Leak. When swapping to a centrifugal charging pump, the pump selected will trip after starting, and the other centrifugal charging pump will be placed in service. The crew will quantify the RCS leakrate, and the CRS will identify Tech Specs.
- D. Once the RCS leak has been addressed, the leak will worsen into a SBLOCA. The CRS will direct a Rx trip and safety injection. If attempted first, Train B SI initiation will not work, and Train A will be used to initiate SI.
- E. When SI is initiated, a loss of off-site power occurs. 2A and 2B SECs will load in MODE III (SI plus Blackout). 2C SEC fails to initiate. Operators will manually shut 2C EDG output breaker to energize 2C vital bus. The crew will start at least 1 SW pump on 2C bus. The crew will start one charging pump to establish high head ECCS injection.
- F. The crew will perform Rx trip stabilization actions in TRIP-1, then transition to LOCA-1 to reset SI and re-establish control of plant equipment. The scenario will terminate when the TRIP-3 transition point is reached.

IV. INITIAL CONDITIONS

____ Pre-snapped IC-234

PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

<i>Initial</i>	<i>Description</i>
____ 1	RCPs (SELF CHECK)
____ 2	RTBs (SELF CHECK)
____ 3	MS167s (SELF CHECK)
____ 4	500 KV SWYD (SELF CHECK)
____ 5	SGFP Trip (SELF CHECK)
____ 6	23 CV PP (SELF CHECK)
____ 7	24 SW pump C/T
____ 8	S2.OP-IO.ZZ-0003, Hot Standby to Minimum Load, filled out up to step 5.4.16.
____ 9	S2.OP-SO.MS-0002, Steam Dump System Operation, with P&L 2.2 signed off.
____ 10	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS			
Initial	ET #	Description	
	3	EVENT ACTION:	kb417pbj // 21 CHG PUMP-START
		COMMAND:	DMF CV0208B
		PURPOSE:	<update as needed>
	5	EVENT ACTION:	kb419pbj // 22 CHG PUMP-START
		COMMAND:	DMF CV0208A
		PURPOSE:	<update as needed>
	7	EVENT ACTION:	ka501doa // TRAIN 'A' - SI OPERATE KEYSWITCH
		COMMAND:	
		PURPOSE:	<update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	RC0002 RCS LEAK INTO CONTAINMENT (equiv to 0-4 inches)	N/A	N/A	N/A	RT-3	25
02	CV0208A 21 CHARGING PUMP TRIP	00:00:03	N/A	N/A	ET-3	
03	CV0208B 22 CHARGING PUMP TRIP	00:00:03	N/A	N/A	ET-5	
04	EL0134 LOSS OF ALL 500KV OFF-SITE POWE	N/A	N/A	N/A	ET-7	
05	RP318S1 21 CHRGR PMP FAILS TO STRT ON SEC	N/A	N/A	N/A	N/A	
06	RP318S2 22 CHRGR PMP FAILS TO STRT ON SEC	N/A	N/A	N/A	N/A	
07	SW0216A 21 SW HDR LEAK IN SW STRUCTURE	N/A	0	00:03:00	RT-1	8000

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	SW35D 24 SW PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
02	SW36D 24 SW PUMP RACK OUT	N/A	N/A	N/A	N/A	TAGGED
03	SW23D 21 SW PUMP BKR CONTROL POWER	N/A	N/A	N/A	RT-10	OFF
04	SW27D 22 SW PUMP BKR CONTROL POWER	00:00:10	N/A	N/A	RT-10	OFF
05	SW32D 23 SW PUMP BKR CONTROL POWER	00:00:20	N/A	N/A	RT-10	OFF

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	A701 B DI TRAIN 'B' - SI OPERATE KEYSWITCH	N/A	N/A	N/A	N/A	OFF
02	C206 A DI 2C SFGD EMER OPR-EMERG LOADING RESET	N/A	N/A	N/A	N/A	ON

OTHER CONDITIONS:

Description

1.

V. SEQUENCE OF EVENTS

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>1. Power ascension</p> <p>Note: There is no limit on power ascension rate when < 50% power.</p> <p>Note: S2.OP-SO.MS-0002 allows steam dumps to be placed in Manual for adjustment. Manual allows for finer control.</p> <p>Continue to next event on direction from Lead Evaluator.</p>			
	CRS briefs crew on power ascension.		
	PO slowly adjusts Main Steam dumps to raise reactor power using Attachment 3, by either adjusting the auto setpoint, or by placing steam dumps in manual and adjusting valve position.		
	RO slowly withdraws control rods.		
	Crew announces when Rx power is 5% and notes Mode 1 entry.		
	CRS contacts work control to update WCM to Mode 1.		
	PO ensures 21-24MS10's in auto set at 1015-1020 psig.		
	CRS continues power ascension.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
2. #2 SW Bay leak			
Simulator Operator: Insert RT-1 on direction from Lead Evaluator. MALF: SW0216B 22 SW HDR LEAK IN SW STRUCTURE Severity: 8,000 Ramp: 3 minutes			
Note: The first OHA will annunciate 1 minute after the leak is inserted.			
	RO announces unexpected SW system alarms.		
	CRS directs power ascension put on hold.		
	PO places Main Steam dumps in auto at current steam pressure if in manual.		
	RO monitors reactor.		
	PO either starts a SW pump based on lowering SW header pressure, or announces the auto start of 25 SW pump when it occurs, and the clearing of the low SW header pressures alarms.		
	PO reports indications of SW leak in #2 SW Bay.		
	CRS enters S2.OP-AB.SW-0003 SW Bay Leak per ARP direction or enters S2.OP-		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Role Play: 3 minutes after being contacted, report as NEO that there is a large leak in 2 bay, you can't identify where it is coming from due to the spray, and approx. 2.5 ft of water is in the bay now, and rising slowly. (Bay is considered disabled at 2 ft.	AB.SW-001, Loss of SW Header Pressure, then transitions to S2.OP-AB.SW-0003, and initiates CAS.		
	RO reports both SW Bays are in service and dispatches NEO to investigate 2 Bay alarms.		
	PO monitors Main Turbine / SGFP temps on SPDS and Plant Computer. (CAS Item 2.0)		
	Crew splits SW Bays by opening nuclear header cross over MOVs 21SW23 and 22SW23, and shutting SW bay cross connect valves 21SW17 and 22SW17, and reports the leak is in 2 Bay.		
	PO reports 25 and 26 SW pumps running, and stops 21-23 SW pumps.		
	Crew sends NEO to open control power bkrs for 21-23 SW pumps.		
Simulator Operator: 2 minutes after being directed to de-energize control power to 21-23 SW pumps, call as NEO and state: "This is			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>(NEOs name) calling for a First Check. I am in Unit 2 64' switchgear room, and the walls are yellow." After acknowledgment from control room, then INSERT RT-10: REMOTES: SW23D, SW27D, SW32D for 21, 22, and 23 SW Pump BKR Control Power with delays of 0, 10, and 20 seconds.</p> <p>Call control room after last remote is active and report control power breakers have been opened for 21, 22 and 23 SW pumps.</p>			
<p>Role Play: Once 2 SW Bay is isolated, NEO (if contacted) reports that the leak appears to have stopped, and level is slowly lowering in bay.</p>	Crew isolates 2 SW Bay by closing 21SW22 and 21SW20.		
	PO reports the leak is isolated.		
	PO reports SW remains available to the EDGs.		
	PO reports SW is being supplied to the Turbine Building through 23SW20.		
	PO monitors Main Turbine parameters on SPDS and the Plant Computer. (CAS item 2.0)		
	PO initiates action to remove one CCHX from		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: CRS should contact work control to find status 24 SW pump, and when pump could be restored to service to avoid a unit shutdown due to Tech Spec 3.0.3. If asked, respond that the release for 24 SW pump is in the field.</p> <p>Proceed to next event after Tech Spec has been identified at Lead Evaluators direction.</p> <p>Note: Entry conditions are also met for S2.OP-AB.ZZ-002, Flooding, due to flooding in 2 Bay.</p> <p>Proceed to next event on direction from Lead Evaluator.</p> <p>3. RCS leak</p> <p>Simulator Operator: Insert RT-3 on direction from Lead Evaluator. MALF: RC0002 RCS leak into containment Severity: 25</p>	service. (CAS item 4.0)		
	PO initiates action to isolate SW to two CFCU's IAW CAS item 5.0.		
	CRS enters TSAS 3.0.3 due to having NO operable SW loops.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports that charging flow is rising and PZR level is lowering slowly.		
	Crew reports reading on 2R11A containment radiation monitor is rising.		
	RO reports unexpected OHA C-2 CNTMT SUMP PMP START.		
	CRS enters S2.OP-AB.RC-0001, Reactor Coolant System Leak.		
	CRS directs implementation of Att. 1 CAS.		
	RO reports RCS temperature >350°F.		
	RO reports unit is in MODE 1.		
	RO reports PZR level is lowering with maximum PDP flow.		
	RO transfers to a centrifugal charging pump by performing step 3.14 as follows:		
	RO ensures charging master flow controller in auto.		
	RO shuts 2CV55.		
Simulator Operator: Ensure ET-3 OR ET-5 is true when 21 or 22 charging pump is started. This will trip the charging pump which was started, and delete the trip of the			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
remaining charging pump allowing its start.			
4. Centrifugal charging pump trip			
	RO starts 21 or 22 charging pump, and reports it has tripped.		
	CRS directs RO to start remaining charging pump.		
Simulator Operator: After the second charging pump is started, reinsert the charging pump trip for the charging pump which tripped. If 21 charging pump is tripped, insert MALF CV0208A . If 22 charging pump is tripped, insert MALF CV0208B . This must be done prior to the SI initiation.	RO starts the remaining available centrifugal charging pump.		
	RO places 23 charging pump speed controller in manual.		
	While lowering 23 Charging Pump speed to minimum, RO adjusts 2CV55 to maintain desired flow.		
	RO stops 23 Charging Pump when at minimum flow		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: Letdown will isolate if PZR level is allowed to lower to 17%.</p>	RO adjusts 2CV55 to control Pressurizer level.		
	RO places 2CV55 in AUTO OR leaves in MANUAL until directed by the SM/CRS.		
	RO adjusts RCP Seal Injection flows to maintain 6-12 gpm per pump/		
	PO swaps to the 45 gpm letdown orifice.		
	RO estimates leak rate, and reports PZR level can be maintained stable or rising.		
	CRS initiates S2.OP-ST.RC-0008, Reactor Coolant System Water Inventory Balance.		
	CRS evaluates containment conditions and determines CFCU status.		
	CRS initiates actions to locate and isolate the leak IAW Attachment 2.		
	CRS enters TSAS 3.4.7.2.b. action b for the unidentified RCS leak, and 3.5.2.a action a for ECCS		
<p>Note: Although the leak is within the makeup capacity of the CVCS system, a containment entry to locate and isolate should be ruled out due to the magnitude of the</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
leakage.			
Continue to next event on direction from Lead evaluator.			
5. SBLOCA			
Simulator Operator: On direction from Lead Evaluator, MODIFY MALF RC0002 from 25 to 2,000 with no ramp or delay.			
	RO reports indications of worsening RCS leak, and rapidly lowering PZR level.		
	CRS directs a Rx trip and Safety Injection.		
	RO trips the reactor, and confirms the Rx trip.		
	RO initiates SI on Train B and reports SI has not initiated.		
Note to Evaluators: Train B SSPS is closest to the Rx trip handles on the Control Console, and typically SI is initiated from Train B. This was not considered an event on Form ES-D-1 since it may not be performed by all operators, but may be counted as another component failure if performed.			
	RO initiates SI on Train A and reports SI has initiated on both trains.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Simulator Operator: Ensure ET-7 is true when SI is initiated on Train A. This inserts the Loss of Off-Site Power.			
6. LOOP coincident with Safety Injection			
	Crew diagnoses loss of all off-site power when control room normal lighting goes out.		
	RO continues immediate actions: - Reports Main Turbine is tripped. - Reports 2A and 2B EDGs have started and are supplying respective vital buses. - Reports SI has been manually initiated.		
	CRS and RO verify immediate actions complete.		
7. 2C SEC fails to initiate			
	PO reports no conditions present that should keep 2C EDG from starting.		
	CRS directs PO to start 2C EDG and shut 2C EDG output breaker.		
	PO starts 2C EDG, selects bezel mimic for 2C EDG output breaker.		
Note: With the 2C SEC not initiating, whatever equipment was	PO shuts 2C EDG output breaker.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>running on 2C bus before the LOOP will restart since no trip signals were sent to their breakers. Crew should open breakers for C bus equipment prior to closing EDG output breaker to prevent possibly stalling 2C EDG.</p>			
<p>CT#1 (CT-25) Start at least one SW pump prior to end of scenario.</p> <p>SAT _____ UNSAT _____</p>			
<p>8. High Head ECCS fails to inject</p>	<p>PO throttles AFW flow, and reports all SG NR levels are >9%.</p>		
	<p>PO reports SEC loading status for energized vital buses. If 22 charging pump was running before LOOP, then it will have restarted from C bus if the EDG breaker was shut.</p>		
	<p>If 21 charging pump was running prior to the LOOP, the PO will block and reset 2B SEC, then start 21 charging pump.</p>		
<p>CT#2 (CT-7) Establish Flow from at least one High-head Charging Pump prior to transition out of TRIP-1.</p> <p>SAT _____ UNSAT _____</p>			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	If 2C EDG breaker is shut, then crew will also need to evaluate SEC loading on 2C bus, since SEC will not have started any equipment, and only equipment which was previously running will be running now.		
	PO reports 21 and 22 AFW pumps running.		
	Crew recognizes when containment pressure reaches 4 psig and uses adverse containment values.		
	RO shuts charging pump mini flow valve 2CV139 and reports 2CV140 has no power when RCS pressure lowers below 1500 psig with BIT flow established. (CAS)		
	PO reports safeguards valve alignments.		
	RO reports 21/22CA330's shut and containment pressure has remained below 15 psig.		
	PO reports no high steam flow conditions.		
	PO reports 4KV vital bus status. If 2C EDG output breaker has not been shut, CRS directs power restored to 2C vital bus.		
	RO reports correct ventilation lineups.		
	RO reports CCW pump status. 21 and 22 should not be running since they were stripped		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: ECCS injection flow will be causing RCS temperature to lower. A MSLI is not required.</p>	of 2A and 2B vital buses on SEC Mode III initiation. 23 CCW pump status will hinge on whether 2C EDG output breaker is shut.		
	RO reports ECCS injection status for current RCS pressure.		
	PO reports all SG NR levels are >9%. (15% adverse)		
	RO reports RCPs stopped, and RCS temperature being controlled.		
	RO reports reactor trip breakers are open		
	RO reports PZR PORVs are shut and Block Valves open.		
	RO reports RCPs are not in service.		
	PO reports no indication of faulted steam generators.		
	PO reports no indication of ruptured steam generators.		
	RO reports at least 2 channels in Table F in warning, alarm, or rising.		
	CRS transitions to LOCA-1, Loss of Reactor Coolant.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Terminate scenario after transition to LOCA-1 is made.			

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-IO.ZZ-0003, Hot Standby to Minimum Load
- F. NF-AP-440, PWR Fuel Conditioning
- G. S2.OP-AB.SW-0001, Loss of Service Water Header Pressure
- H. S2.OP-AB.SW-0003, Service Water Bay Leak
- I. S2.OP-AB.RC-0001, Reactor Coolant System Leak
- J. 2-EOP-TRIP-1, Reactor Trip or Safety Injection

**ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY**

MODE: 1 POWER: 4.1% RCS BORON: 1740 ppm MWe 0

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

NA

REACTIVITY PARAMETERS

Core Burnup: 500 EFPH

Control Bank D is at 157 steps.

Reactivity plan for power ascension to 18.0% is to use S2.OP-SO.MS-0002, Steam Dump Operation, Section 5.4.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

S2.OP-IO.ZZ-0003, Hot Standby to Minimum Load, in progress and complete up to Step 5.4.16. All requirements for Mode 1 entry are satisfied.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

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

PRIMARY:

SECONDARY:

Main Steam Dumps are in MS Pressure Control-Auto set at 986 psig.
All MSIVs are open.
21 SGFP in service, 22 SGFP latched at idle speed. AFW secured.
Heating steam is aligned to Unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

24 SW pump C/T for strainer repair.

ATTACHMENT 2**SIMULATOR READY FOR TRAINING CHECKLIST**

- ___ 1. Verify simulator is in "TRAIN" Load
- ___ 2. Simulator is in RUN
- ___ 3. Overhead Annunciator Horns ON
- ___ 4. All required computer terminals in operation
- ___ 5. Simulator clocks synchronized
- ___ 6. All tagged equipment properly secured and documented
- ___ 7. TSAS Status Board up-to-date
- ___ 8. Shift manning sheet available
- ___ 9. Procedures in progress open and signed-off to proper step
- ___ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- ___ 11. Required chart recorders advanced and ON (proper paper installed)
- ___ 12. All printers have adequate paper AND functional ribbon
- ___ 13. Required procedures clean
- ___ 14. Multiple color procedure pens available
- ___ 15. Required keys available
- ___ 16. Simulator cleared of unauthorized material/personnel
- ___ 17. All charts advanced to clean traces and chart recorders are on.
- ___ 18. Rod step counters correct (channel check) and reset as necessary
- ___ 19. Exam security set for simulator
- ___ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter
With Baseline Data filled out
- ___ 21. Shift logs available if required
- ___ 22. Recording Media available (if applicable)
- ___ 23. Ensure ECG classification is correct if applicable.
- ___ 24. Reference verification performed with required documents available
- ___ 25. Verify phones disconnected from plant after drill.
- ___ 26. Verify EGC paperwork is marked "Training Use Only" and is current revision.
- ___ 27. Ensure sufficient copies of ECG paperwork are available.

ATTACHMENT 3

CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
 - degradation of any barrier to fission product release
 - degraded emergency core cooling system (ECCS) or emergency power capacity
 - a violation of a safety limit
 - a violation of the facility license condition
 - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
 - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
 - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
 - recognize a failure or an incorrect automatic actuation of an ESF system or component.
 - take one or more actions that would prevent a challenge to plant safety.
 - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation).

ATTACHMENT 4
SIMULATOR SCENARIO REVIEW CHECKLIST

SCENARIO IDENTIFIER: 13-01 NRC-ESG-4 **REVIEWER:** P Williams

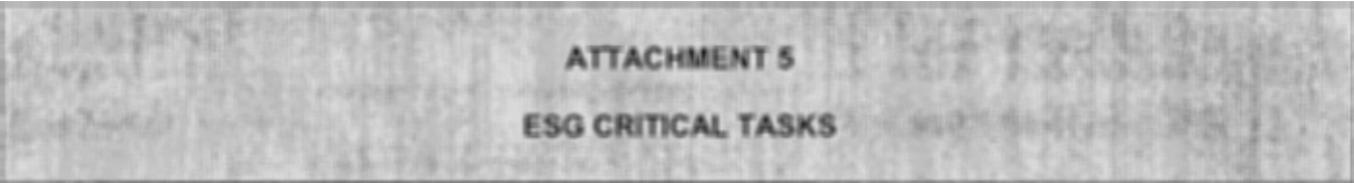
Initials	Qualitative Attributes
PW	1. The scenario has clearly stated objectives in the scenario.
PW	2. The initial conditions are realistic, in that some equipment and/or instrumentation may be out of service, but it does not cue crew into expected events.
PW	3. The scenario consists mostly of related events.
PW	4. Each event description consists of: <ul style="list-style-type: none"> • 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
PW	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.
PW	6. The events are valid with regard to physics and thermodynamics.
PW	7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
PW	8. The simulator modeling is not altered.
PW	9. All crew competencies can be evaluated.
PW	10. The scenario has been validated.
PW	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.
PW	12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

ATTACHMENT 4
SIMULATOR SCENARIO REVIEW CHECKLIST

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	7	Total malfunctions inserted: 5-8
GG	3	Malfunctions that occur after EOP entry: 1-2
GG	2	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	1	EOPs entered/requiring substantive actions: 1-2
GG	0	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3

COMMENTS:



ATTACHMENT 5
ESG CRITICAL TASKS

13-01 NRC ESG-4

CT#1 (CT-25) Start at least one SW pump prior to end of scenario.

Bases: Failure to manually start the SW pump under the postulated plant conditions means that the EDG's are running without SW cooling. Running the EDGs without SW cooling leads to a high-temperature condition that can result in EDG failure due to damage caused by engine overheating. Under the postulated plant conditions, all running EDGs are affected by the loss of all SW cooling. Thus, failure to perform the critical task constitutes misoperation or incorrect crew performance in which the crew does not prevent "degraded... emergency power capacity."

CT#2 (CT-7) Establish Flow from At Least One High-head SI Pump prior to transition out of TRIP-1.

Bases: Failure to manually start at least one high-head SI pump under the postulated conditions constitutes misoperation or incorrect crew performance in which the crew does not prevent "degraded emergency core cooling system (ECCS) ...capacity." In this case, at least one high-head SI pump can be manually started from the control room. Therefore, failure to manually start a high-head SI pump also represents a failure by the crew to "demonstrate the following abilities:

- Effectively direct or manipulate engineered safety feature (ESF) controls that would prevent a significant reduction of safety margin beyond that irreparably introduced by the scenario
- Recognize a failure or an incorrect automatic actuation of an ESF system or component"

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	<u>Event</u>
<u>N</u>	TRANSIENTS with PCS Unavailable
<u>N</u>	Steam Generator Tube Rupture
<u>Y</u>	Loss of Offsite Power
<u>N</u>	Loss of Switchgear and Pen Area Ventilation
<u>Y</u>	LOCA

<u>Y/N</u>	<u>Event</u>
<u>N</u>	Loss of Service Water
<u>N</u>	Loss of CCW
<u>N</u>	Loss of Control Air
<u>N</u>	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Containment Sump Strainers
<u>N</u>	SSWS Valves to Turbine Generator Area
<u>N</u>	RHR Suction Line valves from Hot Leg
<u>N</u>	CVCS Letdown line Control and Isolation Valves

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Gas Turbine
<u>N</u>	Any Diesel Generator
<u>N</u>	Auxiliary Feed Pump
<u>N</u>	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>N</u>	Restore AC power during SBO
<u>N</u>	Connect to gas turbine
<u>N</u>	Trip Reactor and RCPs after loss of component cooling system
<u>N</u>	Re-align RHR system for re-circulation
<u>N</u>	Un-isolate the available CCW Heat Exchanger
<u>N</u>	Isolate the CVCS letdown path and transfer charging suction to RWST
<u>N</u>	Cooldown the RCS and depressurize the system
<u>N</u>	Isolate the affected Steam Generator that has the tube rupture(s)
<u>N</u>	Early depressurize the RCS
<u>N</u>	Initiate feed and bleed

Complete this evaluation form for each ESG.

Facility: SALEM 1 & 2 Scenario No.: ESG-5(Spare) Op-Test No.: 13-01 NRC

Examiners: _____ Operators: _____

Initial Conditions: 75% power MOL. Power was reduced 30 minutes ago due to 21 SGFP Governor problems. PZR PORV 2PR1 was declared inoperable 3 hours ago due to intermittent control circuit anomalies, and the PORV Block valve 2PR6 was shut and deenergized to comply with TSAS 3.4.5 action b.

Turnover: Maintain current power

Event No.	Malf. No.	Event Type*	Event Description
1	CV0035	C CRS/RO	Charging Master Flow Controller fails low
2	PR0017C		Non-controlling PZR level Channel III fails (TS)
3	SG0078C	C ALL	90 gpd SGTL (TS)
4		R CRS/RO N PO	Downpower
5	SG0078C	M ALL	SGTR
6	AF0182B	C CRS/PO	22 AFW pp pressure override failure
7	EL0134	C ALL	LOOP during RCS cooldown
8	VL0298	C CRS/RO	PZR PORV fails shut/SGTR depress unavail →SGTR-5
			CT's: #1 Isolate AFW #2 C/D to, and maintain, RCS temp

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

SIMULATOR EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 13-01 NRC ESG-5

SCENARIO NUMBER: 13-01 NRC ESG-5


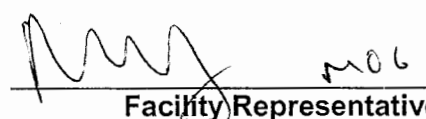
EFFECTIVE DATE: See Approval Dates below

EXPECTED DURATION: 90 minutes

REVISION NUMBER: 00

PROGRAM: ☐ L.O. REQUAL
☒ INITIAL LICENSE
☐ STA
☐ OTHER _____

Revision Summary
New issue for 13-01 NRC Exam

PREPARED BY:	<u>G Gauding</u> Lead Regulatory Exam Author	<u>09-14-14</u> Date
APPROVED BY:	<u></u> Operations Training Manager	<u>10-23-14</u> Date
APPROVED BY:	<u></u> Facility Representative	<u>10-23-14</u> Date

I. OBJECTIVES

- A. Given a steam generator tube leak, take corrective action, IAW S2.OP-AB.SG-0001.
- B. Given the order or indications of a steam generator tube leak (SGTL), perform actions as the nuclear control operator to RESPOND to the tube leak in accordance with the approved station procedures.
- C. Given the order or indications of a steam generator tube leak (SGTL), DIRECT the response to the tube leak, in accordance with the approved station procedures.
- D. Given indication of a reactor trip, DIRECT the response to the reactor trip in accordance with the approved station procedures.
- E. 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.
- F. Given indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.
- G. 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.
- H. Given the order or indications of a steam generator tube rupture (SGTR), perform actions as the nuclear control operator to RESPOND to the tube rupture in accordance with the approved station procedures.
- I. Given indication of a steam generator tube rupture (SGTR), DIRECT the response to the SGTR in accordance with the approved station procedures.
- J. Given the order or indications of a steam generator tube rupture (SGTR) without pressurizer pressure control, perform actions as the nuclear control operator to RESPOND to the SGTR in accordance with the approved station procedures.
- K. Given the indication of a steam generator tube rupture (SGTR) without pressurizer pressure control, DIRECT the response to the SGTR in accordance with the approved station procedures.
- L. During performance of emergency operating procedures, monitor the critical safety function status trees in accordance the EOP in effect.

II. MAJOR EVENTS

- A. Charging Master Flow Controller Fails
- B. Non-controlling PZR level channel fails low.
- C. 90 gpd SGTL
- D. SGTR
- E. 22 AFW pp Pressure Override Failure
- F. LOOP during RCS cooldown
- G. PORV fails shut/SGTR depressurization unavailable →SGTR-5

III. SCENARIO SUMMARY

- A. The crew will take the watch at 76% power, MOL. Power was reduced 30 minutes ago due to 21 SGFP governor problems, which have not been investigated yet. PZR PORV 2PR1 was declared inoperable 3 hours ago due to intermittent control circuit anomalies, and the PORV Block valve 2PR6 was shut and deenergized to comply with TSAS 3.4.5 action b.
- B. Shortly after taking the watch, the Master Charging Flow Controller auto setpoint will fail from its current position to 0% demand over a 5 minute period, and PZR level channel III will fail low. The crew will respond IAW S2.OP-AB.CVC-0001, Loss of Charging, to ensure level channels are selected for control and alarm functions, place 23 charging pump speed controller in manual, and restore normal charging flow. If the MFC is taken to manual, the controller output will stabilize, but will be unable to be adjusted upwards. The level channel failure is silent. The CRS will identify Tech Specs.
- C. After the PZR level channel Tech Spec has been identified, a small (90 gpd) SGTL will ramp in on 23 SG. The CRS will enter S2.OP-AB.SG-001, Steam Generator Tube Leak, and take actions to quantify the leak and minimize the spread of contamination in the secondary plant. The crew identifies that the SGTL meets the criteria for Action Level 3 in AB.SG, requiring the unit to be <50% power within one hour, and that Tech Spec 3.4.7.2 applies once the leak is >150 gpd.
- D. Once the power reduction is underway, the affected SG tube will rupture. Operators will identify the rising leak rate, and initiate a Rx trip and Safety Injection IAW CAS when conditions warrant.
- E. The crew will perform diagnostics in TRIP-1, Reactor Trip or Safety Injection. 22 AFW pump pressure override protection fails and cannot be defeated. Operators will isolate AFW to 23 SG and identify that a radioactive release from 23 SG through 23 AFW pp turbine discharge is occurring until the 23MS45, steam supply to TDAFW pump, is shut or the AFW pump is secured.

- F. The crew will transition to SGTR-1, Steam Generator Tube Rupture. With the 23MS45 still open, the CRS will secure 23 AFW pump if not performed previously, leaving 24 SG as the only generator receiving AFW flow. Once secured and with 23MS45 shut, the crew will reset 23MS52, 23 AFW pump trip valve, and start 23 AFW pump.
- G. During the RCS cooldown to target temperature in SGTR-1, a loss of off-site power will occur when the hottest CET reaches 510 degrees. The crew will perform the actions of Table C to restart safeguards loads, and re-establish the cooldown using the MS10s. 21 SI pump will not start if the crew attempts to start it, and 22 SI pump will trip if started.
- H. Once the target temperature has been reached, the crew will attempt to perform the RCS depressurization with the only available PORV since RCPs are stopped and the other PZR PORV 2PR1 is unavailable. 2PR2 will not open. With no SI pumps running, the CRS will transition to SGTR-5.
- I. The scenario will terminate after the transition to SGTR-5 has been made.

IV. INITIAL CONDITIONS

_____ Pre-snapped IC-235

PREP FOR TRAINING (i.e. computer setpoints, procedures, bezel covers ,tagged equipment)

Initial	Description
_____ 1	RCPs (SELF CHECK)
_____ 2	RTBs (SELF CHECK)
_____ 3	MS167s (SELF CHECK)
_____ 4	500 KV SWYD (SELF CHECK)
_____ 5	SGFP Trip (SELF CHECK)
_____ 6	23 CV PP (SELF CHECK)
_____ 7	2PR6 C/T
_____ 8	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:

Initial	ET #	Description
	3	EVENT ACTION: monp187 < 510 // HOTTEST INCORE T/C TEMP.0 COMMAND: PURPOSE: <update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	SG0078C 23 STEAM GENERATOR TUBE RUPTURE	N/A	0	00:05:00	RT-1	0.3
02	CV0035 CHRGR MASTER FLO CNTRLR FAILS H/L	N/A	39.2	00:05:00	RT-4	0.01
03	EL0134 LOSS OF ALL 500KV OFF-SITE POWE	N/A	N/A	N/A	ET-3	
04	VL0298 2PR2 Fails to Position (0-100%)	N/A	N/A	N/A	RT-3	0.01
05	SJ0062B 22 SAFETY INJECTION PUMP TRIP	N/A	N/A	N/A	RT-5	
06	AF0182B 22 AFP PRESS OVRD PROT FAILS	N/A	N/A	N/A	N/A	
07	AN3735 AAS 735 FAILS - :21 TGA SUMP LEVEL HIGH	00:03:00	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
08	AN3736 AAS 736 FAILS - :22 TGA SUMP LEVEL HIGH	00:03:10	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
09	AN3737 AAS 737 FAILS - :23 TGA SUMP LEVEL HIGH	00:03:20	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
10	AN3738 AAS 738 FAILS - :24 TGA SUMP LEVEL HIGH	00:03:30	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
11	AN3739 AAS 739 FAILS - :25 TGA SUMP LEVEL HIGH	00:03:42	N/A	N/A	RT-2	AAS POINT FAILS/OVRD TO ON
12	PR0017C PZR LEVEL CH III(LT461)FAILS H/L	00:00:01	N/A	N/A	RT-4	0

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
01	PR34D PORV STOP VALVE 2PR6 TAGGED	N/A	N/A	N/A	N/A	TAGGED
02	MS06A 23MS45 23 STM GEN STM SUP-23 AFP	N/A	N/A	N/A	RT-7	0
03	AF01D 23 AUX FP TRIP RESET	00:10:00	N/A	N/A	RT-8	RESET

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/Severity
01	AH01 F DI 21 SI PUMP STOP	00:00:05	N/A	N/A	ET-3	ON
02	B511 A DI 22 AUX FEED PUMP-PRESS OVERRIDE DEFEAT	N/A	N/A	N/A	N/A	OFF

OTHER CONDITIONS:

Description

1.

V. SEQUENCE OF EVENTS

- A. State shift job assignments.
- B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).
- C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".
- D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: RCS temperature will be lowering ~0.1°F / minute from Xe.</p> <p>1. Charging Master Flow Controller fails low</p>			
	The crew determines how much RCS dilution is required to maintain Tavg on program.		
	RO initiates a dilution for RCS temperature control.		
<p>Simulator Operator: Insert RT-4 on direction from Lead Evaluator. MALF: CV0035 CHRGR MASTER FLO CNTRLR FAILS H/L Severity: 0.1 Initial Value: 39.2 Ramp: 5 minutes</p> <p>MALF: PR0017C PZR LEVEL CH III(LT461) FAILS H/I Severity: 0</p>			
<p>Note: There is no audible indication or letdown isolation from the PZR level Ch III failure as the high lvi/lo level alarms come off the LC460D and LC459F (channels selected for control and alarm.)</p>			
	RO reports lowering charging flow and/or low		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
2. Non-controlling PZR Level Channel III fails low. Note: This is at least where the level channel failure should be identified.	RCP seal injection flow.		
	RO diagnoses Master Flow Controller (MFC) output lowering with PZR level on (or below) program.		
	CRS directs RO to place Master Flow Controller in manual and restore charging flow.		
	RO places MFC in manual, and reports MFC demand has stabilized, but cannot be raised.		
	CRS directs RO to place 23 charging pump speed controller in manual and restore charging flow.		
	RO reports positive control over 23 charging pump speed in manual, and raises charging flow to restore PZR level to program.		
	CRS enters S2.OP-AB.CVC-0001, Loss of Charging, based on the reduction of charging flow.		
	CRS directs initiation of Attachment 1 CAS.		
	RO reports 23 charging pump in service with no indication of cavitation.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: AB.CVC actions for a failed PZR level channel are written for a channel which is selected for control or alarm. If CRS bases procedure flowpath on this fact, then MFC failure is addressed at Step 105.</p>	RO reports PZR lvl channel III failed low.		
	If not done previously, RO takes manual control of charging to maintain PZR level on program.		
	RO reports operable channels are selected for control, alarm, and recorder.		
	CRS determines MFC will not be returned to auto.		
	CRS directs removal of PZR level channel III from service.		
<p>Note: The following steps are the actions in AB.CVC for getting to the failed MFC step105 after first reaching the step (54) for a failed PZR level channel.</p>	CRS enters TSAS 3.3.1.1 action 6.		
	RO reports VCT lvl channel has not failed.		
	RO reports no indication of charging header		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Proceed to next event after AB.CVC-1 has been addressed and PZR level channel failure TS has been identified at Lead Evaluators direction.</p> <p>2. SGTL</p>	leak.		
	RO reports charging MFC failed.		
	RO reports manual control of 23 charging pump has been established, and reports PZR level can be maintained stable or rising.		
	CRS assigns responsibility and band for manual PZR level control.		
<p>Simulator Operator: Insert RT-1 on direction from Lead Evaluator.</p> <p>MALF: SG0078C 23 Steam Generator Tube Rupture Final Value: 0.3 Ramp: 15 minutes</p>			
	RO announces OHA A-6 RMS HI RAD OR TRBL as unexpected.		
	RO reports CRT shows 2R53C in alarm.		
	RO reports 2R53C reading and slowly rising.		
	CRS contacts Radiation Protection to perform		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Go to page 14 when Action Level 3 is identified.	SC.RP-TI.RM-0607(Q), Primary To Secondary Leak Rate Response IAW ARP.		
	CRS enters S2.OP-AB.SG-001 Steam Generator Tube Leak directly or enters S2.OP-AB.RAD-001, Abnormal Radiation		
	CRS directs performance of S2.OP-AB.SG-001 CAS.		
	CRS dispatches an operator to deenergize TGA sumps.		
Simulator Operator: Insert RT-2 when directed to deenergize TGA sumps. This RT includes a 3 minute delay before opening sump breakers. Report to control room when last of the 5 sump breakers has been deenergized. MALFS: AN3735 21 TGA Sump Level Hi AN3736 22 TGA Sump Level Hi AN3737 23 TGA Sump Level Hi AN3738 24 TGA Sump Level Hi AN3739 25 TGA Sump Level Hi Delays: 3:00, 3:10, 3:25, 3:37, 3:57			
	RO reports PZR level is stable. IF RO reports PZR level is lowering, RO will swap to a		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Simulator Operator: Do NOT shut 23MS45 until directed later in scenario.</p>	centrifugal charging pump.		
	RO reports unit is in Mode 1.		
	Crew identifies 2R53C, 2R19C and 2R15 rising.		
	PO reports affected SG is 23.		
	PO raises 23MS10 setpoint to 1045 psig.		
	PO closes or checks closed 23GB4, 23MS7, and 23MS18.		
	CRS dispatches an operator to shut 23MS45, and enters TSAS 3.7.1.3 for 23 AFW pump when required.		
	CRS dispatches an operator to re-align SGBD and MS sampling to Waste System.		
<p>Simulator Operator: 10 minutes after chemistry is first contacted, report that 23 SG has developed a 300 gpd leak, from 0 primary to secondary previously.</p>			
<p>CAS Action Level 3 required actions start here.</p>			
	CRS determines that the CAS indicates that		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
<p>Note: If time does not permit Tech Spec identification, post scenario follow up question will be required.</p> <p>4. Downpower</p>	Action Level 3 is present IAW Step 6.2.A based on: - Leak rate is ≥ 75 gpd AND - The rate of change of the leakrate is ≥ 30 gpd/hr.		
	CRS determines a power reduction to ≤ 50 % must be performed within 1 hour.		
	CRS enters TSAS 3.4.7.2.c		
	RO calculates boron addition required for power reduction to 50%.		
	CRS orders a power reduction at a rate which will ensure power is $< 50\%$ within one hour.		
	CRS enters S2.OP-AB.LOAD-0001, Rapid Load Reduction to perform the power reduction.		
	PO initiates a turbine load reduction at rate specified by CRS		
	RO initiates RCS boration at rate directed by CRS.		
	RO announces expected and actual rod movement when it occurs.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Proceed to next event on direction from Lead evaluator.			
5. 23 SGTR			
Simulator Operator: MODIFY MALF SG0078C to 650 with no ramp or delay after power reduction has commenced or at direction of Lead Eval, but AFTER SG tube leak exceeds 150 gpd. (TS threshold)			
	RO reports indications of worsening tube leak on 23 SG.		
	CRS determines CAS actions for rising SG NR level IAW CAS 1.0 are true.		
	CRS directs the RO to trip the Rx, confirm the trip, and initiate a Safety Injection.		
	RO trips the Rx, confirms the trip, and initiates a Safety Injection.		
	RO performs immediate actions of TRIP-1: Verifies Rx tripped. Verifies Rx trip is confirmed. Backs up Main Turbine trip. Verifies off site power available to at least one vital buss. Verifies SI initiation.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
6. 22 AFW pump Pressure Override circuit malfunction	CRS reads immediate action steps to RO who confirms their performance.		
	Crew commences monitoring TRIP-1 CAS.		
	RO reports SEC loading is not complete for all vital busses, but all available equipment started.		
	PO reports all AFW pumps are running, but 22 AFW pump is not supplying flow even though its discharge pressure is high enough.		
	PO requests, and receives, permission to depress Pressure Override Defeat for 22 AFW pump, which has no effect on AFW flow.		
	PO reports 23 AFW pump is running, and that an unmonitored release is occurring from the TDAFW pump steam discharge with 23MS45 not shut yet.		
AFW flow control is complicated by the fact that a SGTR is present on 23 SG, but the 23MS45 has not been shut yet. Additionally, 22 AFW pump is not supplying flow to 21 and 22 SGs because its Pressure Override circuit has failed. Shortly after the Rx is tripped, SG level will recover in at least one SG so that AFW flow can			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
be lowered < 22E4. TRIP-1 does not direct tripping 23 AFW pump unless 2 MDAFW pps are running, which in this case is not true, since a running pump would be supplying flow. Detailed observation of the crew during AFW flow decisions should be made by the evaluators.			
CT# 1: (CT-18) Isolate AFW to the ruptured SG within 10 minutes of entry into TRIP-1 and subsequently close 23MS167, 23MS18, 23MS7 and 23GB4 before a transition to SGTR-3 is required.			
SAT UNSAT			
	PO requests to throttle AFW flow, and isolates AFW flow to 23 SG by closing 23AF11 and 23AF21.		
	CRS directs PO to maintain total AFW flow >22E4 lbm/hr while throttling AFW flow.		
	RO reports normal containment pressure.		
	CRS determines no MSLI is required.		
	CRS directs SM to refer to the ECG.		
	PO reports all 4KV vital busses energized from off site power.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports control room ventilation in accident pressurized mode.		
	RO reports 2 CCW pumps are running.		
	RO reports ECCS is injecting as expected for current RCS pressure.		
	PO reports AFW flow and SG NR level status.		
	RO reports all RCPs are in operation.		
	RO reports MSLI is not required.		
	RO reports RTBs are open, PORVs shut, PORV block valve 2PR7 open, 2PR6 shut and C/T, and PZR spray valves operating as expected for current RCS pressure.		
	RO reports RCS pressure > 1350 psig.		
	RO maintains seal injection flow to all RCPs.		
	PO reports no faulted SGs.		
	PO reports 23 SG is ruptured based on NR level.		
	CRS transitions to SGTR-1.		
	RO maintains seal injection flow to all RCPs.		
	PO reports 23 SG is ruptured, and 23MS10 is		

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

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
REMOTE: AF01D 23 AUX FP TRIP RESET Final Value: RESET			
<p>When contacted by crew report 2SS333 is shut.</p> <p>Note: Do NOT restore power to 2PR6 during scenario. If asked later in scenario, state you are having problems with WCM getting the release authorized.</p>	CRS checks on status of MS sampling valves which were directed to be shut in AB.SG.		
	PO reports 23 SG is isolated from intact SGs, 23 SG NR level is >9%, and feed flow is isolated to 23 SG.		
	RO reports power is C/T to 2PR6, and CRS either leaves it C/T, or orders power restored.		
	RO reports 2PR2 is operating correctly in response to PZR pressure.		
	PO reports no faulted SGs.		
	RO resets SI and Phase A isolations, and opens CA330's.		
	PO resets all SECs.		
	RO stops both RHR pumps.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports 23 SG is isolated and >375 psig.		
	CRS dispatches an operator to shift Gland Sealing steam to Unit 1.		
	CRS determines target temperature for RCS cooldown is 503 degrees.		
	PO commences RCS cooldown by using Steam Dumps in MS Pressure Control-Manual at 25% demand.		
7. Loss of Off-site power			
	PO Bypasses Tavg when Tavg reaches 543.		
Simulator Operator: Ensure ET-3 is TRUE when the hottest CET reaches 510 degrees. This inserts the loss of off-site power. MALF: EL0134 Loss of All Offsite 500KV Power I/O AH01 OVDI 21 SI Pump STOP			
	CRS recognized loss of off-site power and returns to Step 10 CAS to perform actions of Table C.		
	PO verifies all available equipment started for each SEC.		
	PO resets all SECs.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS directs starting of Safeguards loads.		
Simulator Operator: When CRS directs start of SI pumps, insert RT-5 after 22 SI pump has been started. MALF: SJ0062B 22 Safety Injection Pump trip. Note: 21 SI pump will not start.			
	CRS directs the cooldown to be re-established using 21, 22 and 24MS10's fully open.		
	RO shuts charging pump mini flows when RCS pressure lowers to 1500 psig.		
	PO stabilizes hottest CET temperature less than 503 degrees.		
CT #2 (CT-19): Establish/maintain an RCS temperature so that transition from SGTR-1 is not required either because minimum required subcooling cannot be maintained, or because RCS low temperature causes a RED or PURPLE challenge to the subcriticality and/or the integrity CSF. SAT _____ UNSAT _____			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports 23 SG pressure is stable or rising or at least 250 psig above intact SG pressure.		
	RO reports adequate subcooling.		
	RO reports RCPs are stopped and normal PZR spray is not available.		
Simulator Operator: Insert RT-3 when Step 18 PORV status is read PRIOR to crew attempting to open 2PR2. MALF: VL0298 2PR2 fails to position (0-100%) Final Value: 0.01			
	RO reports 2PR2 PZR PORV is available.		
8. PZR PORV fails shut			
	RO reports 2PR2 will not open		
	CRS returns to step 18 and answers NO to if a PORV is available.		
Simulator Operator: IF CRS did not start SI pumps subsequent to the Blackout, and starts them here, THEN insert RT-5 after 22 SI pump has been started. MALF: SJ0062B 22 Safety Injection Pump trip. Note: 21 SI pump will not start.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Terminate scenario after transition to SGTR-5 in announced.	RO reports no SI pumps are running.		
	RO reports no SI pumps running if start attempt is made.		
	CRS transitions to SGTR-5.		

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-IO.ZZ-0004, Power Operation
- F. S2.OP-AB.CVC-0001, Loss of Charging
- G. S2.OP-AB.SG-0001, Steam Generator Tube Leak
- H. S2.OP-AB.LOAD-0001 Rapid Load Reduction
- I. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
- J. 2-EOP-SGTR-1, Steam Generator Tube Rupture
- K. 2-EOP-SGTR-5, SGTR without Pressurizer Pressure Control

**ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY**

MODE: 1 POWER: 76 RCS BORON: 885 MWe 920

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

NA

REACTIVITY PARAMETERS

Core burnup is 5,000 EFPD

Control Bank D rods are at 148 steps

Power was reduced to 76% 30 minutes ago due to slight oscillations on 21 SGFP governor.

Xe is building in at 60 pcm / hr.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.4.5. Action b- 2PR1 expires 69 hours from now

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

ABNORMAL PLANT CONFIGURATIONS:

2PR6 shut and power C/T.

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.

No penalty minutes in the last 24 hrs.

PRIMARY:

PZR PORV 2PR1 was declared inoperable 3 hours ago due to intermittent control circuit anomalies.

SECONDARY:

21 SGFP remains in service. Governor problem has not been identified.

Heating steam is aligned to Unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

None

ATTACHMENT 2**SIMULATOR READY FOR TRAINING CHECKLIST**

- ___ 1. Verify simulator is in "TRAIN" Load
- ___ 2. Simulator is in RUN
- ___ 3. Overhead Annunciator Horns ON
- ___ 4. All required computer terminals in operation
- ___ 5. Simulator clocks synchronized
- ___ 6. All tagged equipment properly secured and documented
- ___ 7. TSAS Status Board up-to-date
- ___ 8. Shift manning sheet available
- ___ 9. Procedures in progress open and signed-off to proper step
- ___ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced
- ___ 11. Required chart recorders advanced and ON (proper paper installed)
- ___ 12. All printers have adequate paper AND functional ribbon
- ___ 13. Required procedures clean
- ___ 14. Multiple color procedure pens available
- ___ 15. Required keys available
- ___ 16. Simulator cleared of unauthorized material/personnel
- ___ 17. All charts advanced to clean traces and chart recorders are on.
- ___ 18. Rod step counters correct (channel check) and reset as necessary
- ___ 19. Exam security set for simulator
- ___ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter
___ With Baseline Data filled out
- ___ 21. Shift logs available if required
- ___ 22. Recording Media available (if applicable)
- ___ 23. Ensure ECG classification is correct if applicable.
- ___ 24. Reference verification performed with required documents available
- ___ 25. Verify phones disconnected from plant after drill.
- ___ 26. Verify EGC paperwork is marked "Training Use Only" and is current revision.
- ___ 27. Ensure sufficient copies of ECG paperwork are available.

ATTACHMENT 3

CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigative capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

- I. Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...
 - degradation of any barrier to fission product release
 - degraded emergency core cooling system (ECCS) or emergency power capacity
 - a violation of a safety limit
 - a violation of the facility license condition
 - incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
 - a significant reduction of safety margin beyond that irreparably introduced by the scenario
- II. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...
 - effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
 - recognize a failure or an incorrect automatic actuation of an ESF system or component.
 - take one or more actions that would prevent a challenge to plant safety.
 - prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

ATTACHMENT 4
SIMULATOR SCENARIO REVIEW CHECKLIST

SCENARIO IDENTIFIER: 13-01 NRC-ESG-5 **REVIEWER:** P Williams

Initials	Qualitative Attributes
PW	1. The scenario has clearly stated objectives in the scenario.
PW	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.
PW	3. The scenario consists mostly of related events.
PW	4. Each event description consists of: <ul style="list-style-type: none"> • 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
PW	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.
PW	6. The events are valid with regard to physics and thermodynamics.
PW	7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
PW	8. The simulator modeling is not altered.
PW	9. All crew competencies can be evaluated.
PW	10. The scenario has been validated.
PW	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.
PW	12. ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

ATTACHMENT 4
SIMULATOR SCENARIO REVIEW CHECKLIST

Note: The quantitative attribute target ranges that are specified on the form are not absolute limitations; some scenarios may be an excellent evaluation tool, but may not fit within the ranges. A scenario that does not fit into these ranges shall be evaluated to ensure that the level of difficulty is appropriate. (ES-301 Section D.5.d)

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	7	Total malfunctions inserted: 5-8
GG	3	Malfunctions that occur after EOP entry: 1-2
GG	2	Abnormal Events: 2-4
GG	1	Major Transients: 1-2
GG	2	EOPs entered/requiring substantive actions: 1-2
GG	1	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3

COMMENTS:

ATTACHMENT 5
ESG CRITICAL TASKS

13-01 NRC ESG-5

CT# 1: (CT-18) Isolate AFW to the ruptured SG within 10 minutes of entry into TRIP-1 and subsequently close 23MS167, 23MS18, 23MS7 and 23GB4 before a transition to SGTR-3 is required.

Basis: Failure to isolate the ruptured SG causes a loss of differential pressure between the ruptured SG and the intact SGs. The fact that the crew allows the differential pressure to dissipate and, as a result, are then forced to transition to a contingency ERG constitutes an incorrect performance that "necessitates the crew taking compensating action that would complicate the event mitigation strategy...."

CT#2(CT-19) Establish/maintain an RCS temperature so that transition from E-3 does not occur because the RCS temperature is in either of the following conditions:

- Too high to maintain minimum required subcooling
- OR
- Below [the RCS temperature that causes an RED path or a 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 ERG. This failure constitutes an incorrect performance that "necessitates the crew taking compensating action that would complicate the event mitigation strategy...."

EVENTS LEADING TO CORE DAMAGE

<u>Y/N</u>	<u>Event</u>
<u>N</u>	TRANSIENTS with PCS Unavailable
<u>Y</u>	Steam Generator Tube Rupture
<u>N</u>	Loss of Offsite Power
<u>N</u>	Loss of Switchgear and Pen Area Ventilation
<u>N</u>	LOCA

<u>Y/N</u>	<u>Event</u>
<u>N</u>	Loss of Service Water
<u>N</u>	Loss of CCW
<u>N</u>	Loss of Control Air
<u>N</u>	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Containment Sump Strainers
<u>N</u>	SSWS Valves to Turbine Generator Area
<u>N</u>	RHR Suction Line valves from Hot Leg
<u>N</u>	CVCS Letdown line Control and Isolation Valves

<u>Y/N</u>	<u>COMPONENT, SYSTEM, OR TRAIN</u>
<u>N</u>	Gas Turbine
<u>N</u>	Any Diesel Generator
<u>Y</u>	Auxiliary Feed Pump
<u>N</u>	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>N</u>	Restore AC power during SBO
<u>N</u>	Connect to gas turbine
<u>N</u>	Trip Reactor and RCPs after loss of component cooling system
<u>N</u>	Re-align RHR system for re-circulation
<u>N</u>	Un-isolate the available CCW Heat Exchanger
<u>N</u>	Isolate the CVCS letdown path and transfer charging suction to RWST
<u>Y</u>	Cooldown the RCS and depressurize the system
<u>Y</u>	Isolate the affected Steam Generator that has the tube rupture(s)
<u>N</u>	Early depressurize the RCS
<u>N</u>	Initiate feed and bleed

Complete this evaluation form for each ESG.