OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: TCAF Adverse Environmental Conditions

TASK NUMBER: N1140430401

JPM NUMBER: 14-01 NRC RO Admin A1-1

ALTERNATE PATH: [ ]

K/A NUMBER: 2.1.25

IMPORTANCE FACTOR: 3.9 (RO) ____ (SRO)

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: SC.OP-AB.ZZ-0001(Q) Rev. 18, Adverse Environmental Conditions, (rev. checked 9-3-15)

TOOLS AND EQUIPMENT:

VALIDATED JPM COMPLETION TIME: 30 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date: 7-23-15**

Validated By: S Bickhart / J Militti, SME or Instructor — **Date: 9-24-15**

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY: _____

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

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: TCAF Adverse Environmental Conditions

TASK NUMBER: N1140430401

INITIAL CONDITIONS:

- Both Salem Units are operating at 100% power.
- All Unit 2 Circulators are in service.
- 13B and 12A Circulators are O/S.
- A report is received which states that wind speeds of 48 mph from direction 200° are expected onsite 8 hours from now.
- The CRS enters SC.OP-AB.ZZ-0001, Adverse Environmental Conditions.
- Current wind speed is 16 mph, and is expected to rise linearly over the next 8 hours.
- River temperature is 58°F.
- Outside air temperature is 65°F.
- The latest rolling weekly detritus loading is 2200 kg/million m^3.
- River level over the next 8 hours is predicted to be:

T-0	89
T+1	89'
T+2	90'
T+3	90'
T+4	91'
T+5	92'
T+6	93'
T+7	94'
T+8	94'

The current time is 1100.

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

Initiating Cue:

INITIATING CUE:

Determine the required status of the reactors for the remainder of the shift as shown below by determining the Circulating Water Degradation Index (CWDI), Attachment 3, for BOTH units as directed in Section 3.11.

Assume the units will be maintained in the **HIGHEST** Mode allowed.

Time	Unit 1 Mode	Unit 2 Mode
1100		
1200		
1300		
1400		
1500		
1600		
1700		
1800		
1900		

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Determines Unit 1 must be in MODE 2 by 1500, and Unit 2 must be in MODE 2 by 1600.

System: ADMINISTRATIVE

Task: TCAF Adverse Environmental Conditions

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide a blank copy of SC.OP-AB.ZZ-0001.			
	3.1	IF AT ANY TIME Chemistry-Environmental or Rad-Waste Supervisor reports that River Grass Assessment samples can NOT be obtained because of natural or plant events, THEN **INITIATE** SC.OP-AB.ZZ-0003(Q), Component Biofouling.	Marks step N/A.		
	3.2	IF any of the entry conditions are met, THEN **PERFORM** the appropriate step(s): IF Wind Speeds of >30 mph (sustained) from sector between 140 degrees (SE) to 240 degrees (WSW) are predicted to occur within the next 8 hours, THEN **GO TO** Step 3.11 (Pg. 15).	Determines from initial conditions that wind speeds of >30 mph from sector between 140 degrees (SE) to 240 degrees (WSW) are predicted to occur within the next 8 hours, and **GOES TO** Step 3.11 (Pg. 15).		
	3.11.1	IF Wind Speeds of >30 mph (sustained) from sector between 140 degrees (SE) to 240 degrees (WSW) are predicted to occur within the next 8 hours, THEN **COMPLETE** Attachment 3, Circulating Water Degradation Index (CWDI), every hour until this criteria is no longer met.	Determines Wind Speeds of >30 mph from sector between 140 degrees (SE)to 240 degrees (WSW) are predicted to occur within the next 8 hours, and completes Attachment 3, Circulating Water Degradation Index.		

OPERATOR TRAINING PROGRAM NAME:_____

JOB PERFORMANCE MEASURE DATE:_____

System: ADMINISTRATIVE

Task: TCAF Adverse Environmental Conditions

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att. 3 Page 1		Completes Attachment 3 for Unit 1 with the following numbers: **Detritus Points**: 2 pts for every hour **Circulator Points:** 1 pt every hour; **Wind** **Wind Speed Points**: 1 pt for every hour T+0 –T+5; 2 pts for T+6 – T+8. **River Level Points**: 0 pts thru T+5, 1 pt for T+6, 2 pts for T+7 -T+8. Total Points: 4 pts thru T+5, 6 pts for T+6, 7 pts for T+7 –T+8.		
*	Att. 3 Page 2		Completes Attachment 3 for Unit 1 with the following numbers: **Detritus Points**: 2 pts for every hour **Circulator Points:** 0 points every hour. **Wind Speed Points**: 1 pt for every hour T+0 –T+5; 2 pts for T+6 – T+8. **River Level Points**: 0 pts thru T+5, 1 pt for T+6, 2 pts for T+7 -T+8. Total Points: 3 pts thru T+5, 5 pts for T+6, 6 pts for T+7 – T+8.		
*	Att. 3 Page 3		Determines CWDI **RED rating at T+6 (1700) for Unit 1 and T+7 for Unit 2 (1800)**		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME:_____
DATE:_____

System: ADMINISTRATIVE

Task: TCAF Adverse Environmental Conditions

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3.11.2	IF the predicted CWDI Rating is RED at any time within the next 8 hours, THEN **PERFORM** the following: **A. PLACE** the applicable Unit(s) in Mode 2 or Mode 3 at least 2 hours prior to the time the CWDI Rating is predicted RED.	CWDI RED rating requires placing unit in at least MODE 2 two hours prior to the RED rating. Determines Unit 1 must be in MODE 2 at 1500, and Unit 2 in MODE 2 by 1600.		
		Terminate the JPM when the completed tear off sheet and procedure are returned.			

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.

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

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

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

AS 4. Initial setup conditions are identified.

AS 5. Initiating and terminating Cues are properly identified.

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

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

AS 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 18 Date 8/17/2015

AS 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: Eckhart Date: 9/24/15

SME/Instructor: Militz Date: 9-24-15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

- Both Salem Units are operating at 100% power.
- All Unit 2 Circulators are in service.
- 13B and 12A Circulators are O/S.
- A report is received which states that wind speeds of 48 mph from direction 200° are expected onsite 8 hours from now.
- The CRS enters SC.OP-AB.ZZ-0001, Adverse Environmental Conditions.
- Current wind speed is 16 mph, and is expected to rise linearly over the next 8 hours.
- River temperature is 58°F.
- Outside air temperature is 65°F.
- The latest rolling weekly detritus loading is 2200 kg/million m^3.
- River level over the next 8 hours is predicted to be:

T-0	89
T+1	89'
T+2	90'
T+3	90'
T+4	91'
T+5	92'
T+6	93'
T+7	94'
T+8	94'

The current time is 1100.

INITIATING CUE:

Determine the required status of the reactors for the remainder of the shift as shown below by determining the Circulating Water Degradation Index (CWDI), Attachment 3, for BOTH units as directed in Section 3.11.

Assume the units will be maintained in the **HIGHEST** Mode allowed.

Time	Unit 1 Mode	Unit 2 Mode
1100		
1200		
1300		
1400		
1500		
1600		
1700		
1800		
1900		

STATION: SALEM

SYSTEM: EOP Admin. (CVCS)

TASK: Determine the CSD boron concentration and calculate the requisite boron addition for a natural circulation cooldown.

TASK NUMBER: 1150050501

JPM NUMBER: 14-01 NRC RO Admin A1-2

ALTERNATE PATH: [ ]

K/A NUMBER: 2.1.43

IMPORTANCE FACTOR: 4.1 (RO) / (SRO)

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES:
1-EOP-TRIP-4, Natural Circulation Cooldown, Rev. 22 All rev checked 7/16/8
S2.RE-RA.ZZ-0016, Unit 2 Curve Book, Rev. 7
S2.RE-RA.ZZ-0012, Figures, Rev. 207

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:** 9-8-15

Validated By: J Page / M Spencer, SME or Instructor — **Date:** 9-25-15 / 9-28-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (MOG) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: EOP Admin. (CVCS)

TASK: Determine the CSD boron concentration and calculate the requisite boron addition for a natural circulation cooldown.

TASK NUMBER: 1150050501

INITIAL CONDITIONS:

1. Unit 2 was tripped from full power when off-site power was lost. All vital busses are powered from their respective EDG. The CRS has transitioned to 1-EOP-TRIP-4 in anticipation of beginning a natural circulation cooldown.
2. Core Burnup is 5,000 EFPH.
3. Current RCS boron concentration is 1,050 ppm.

INITIATING CUE:

You are the RO. Perform Step 4 to determine the required CSD Boron Concentration, then determine the boration required to achieve CSD boron concentration.

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. **Provides the CSD boron concentration in ppm (1950-1970 ppm)**
2. **Provides the boration required in gallons to achieve CSD boron concentration (11,370-11,646 gallons)**

NAME: _____
DATE: _____

SYSTEM: EOP Admin. (CVCS)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide a copy of 2-EOP-TRIP-4, Natural Circulation Cooldown, Sheet 1, first column. Provide clean copies of: S2.RE-RA.ZZ-0016, Rev. 7, Curve Book S2.RE-RA.ZZ-0012, Rev. 207, Figures	Reviews procedure.		
		START TIME:			
*	TRIP-4 Step 4	Using C_B from Figure 20A of "Reactor Engineering Manual, determine required boron concentration for Cold Shutdown (All Rods In, K_{eff}=0.95) as follows: _____ PPM + 50 ppm = _____ ppm C_B Req C_B	Locates Figure 20A in Unit 2 Curve Book **Note**: Table A on page 111 are the data points for Figure 20A. The exact number for 5,000 EFPH is **1914 ppm**. Allowable graph interpolation is **1900-1920** ppm. **Adds 50 ppm**. The exact number is **1964 ppm**. Allowable range is **1950-1970** ppm **NOTE:** Using the keff=0.99 line instead of the correct keff+0.95 line will result in an incorrect boron concentration of 1452+50=1502 ppm		

NAME: _____
DATE: _____

SYSTEM: EOP Admin. (CVCS)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		Determine the boration required to achieve CSD boron concentration.	Using Figure 103 of S2.RE-RA.ZZ-0012, Tables, and the formula on that page, determines **11,563 gallons** of boron must be added. Allowable range of answer is **11,370-11,646** gallons of boron required to achieve CSD concentration. May either pick number off Figure 103, Boron Addition Graph, or use calculation provided on same figure. **NOTE:** Since the boration occurs BEFORE any cooldown, the correction factor for temperature on Figure 105 is not required, since it is only for temperatures below 547.		
			IF the extra 50 ppm is not added, the incorrect result will be 10,876 gallons.		
			Provides two numbers: 1. CSD boron concentration in ppm. 2. Boration required in gallons to achieve CSD boron concentration. When these two numbers have been given to the evaluator, state JPM is complete.		
		STOP TIME:			

Terminating Cue: None

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

DR P 1. Task description and number, JPM description and number are identified.

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

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

DR P 4. Initial setup conditions are identified.

DR P 5. Initiating and terminating Cues are properly identified.

DR P 6. Task standards identified and verified by SME review.

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

DR P 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 22 Date 9-25-15

DR P 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: [signature] PAGE Date: 9-25-15

SME/Instructor: [signature] SPENCER Date: 9-28-15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

1. Unit 2 was tripped from full power when off-site power was lost. All vital busses are powered from their respective EDG. The CRS has transitioned to 1-EOP-TRIP-4 in anticipation of beginning a natural circulation cooldown.

2. Core Burnup is 5,000 EFPH.

3. Current RCS boron concentration is 1,050 ppm.

INITIATING CUE:

You are the RO. Perform Step 4 to determine the required CSD Boron Concentration, then determine the boration required to achieve CSD boron concentration.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: Perform a Centrifugal Charging Pump Operability Surveillance

TASK NUMBER: N0040370201

JPM NUMBER: 14-01 NRC RO Admin A2

ALTERNATE PATH: [ ]

K/A NUMBER: 2.2.37

IMPORTANCE FACTOR: 3.9 (RO) ____ (SRO)

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: S1.OP-ST.CVC-0003, Rev. 25, S1.RA-ST.CVC-0003, Rev .13

TOOLS AND EQUIPMENT:

VALIDATED JPM COMPLETION TIME: 30 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date: 9-8-15**

Validated By: S Bickhart / J Militti, SME or Instructor — **Date: 9-22-15**

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10/9/15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Perform a Centrifugal Charging Pump Operability Surveillance

TASK NUMBER: N0040370201

INITIAL CONDITIONS: Operators have just performed the normal 92 day surveillance for 11 Charging Pump IAW S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump.

Initiating Cue: Review the surveillance for completeness and accuracy. Perform step 5.3 Acceptance Criteria and determine if it is satisfactory. Note any discrepancies and/or actions required on Attachment 5 of procedure.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. **Determine Bearing Vibration position P1H is incorrectly listed as being in "Alert Range SAT" when it is actually in "Required Action UNSAT"**
2. **Determine the 1SW185 stroke time is incorrectly listed as being in the "Required Evaluation Range SAT" when it is actually in the "Acceptable Range SAT".**
3. **Determines Surveillance performance is UNSAT IAW Acceptance Criteria 5.3.**

NAME:_____

DATE:_____

System: ADMINISTRATIVE

Task: TCAF Adverse Environmental Conditions

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide completed copy of S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump, Rev. 25, and a copy of S1.RE-ST.CVC-0003, Inservice Testing 11 Charging Pump Acceptance Criteria, Rev. 13.			
	5.3.1	This surveillance is satisfactory when Attachment 3 is completed with equipment listed meeting the Technical Specification Acceptance Criteria (ASME) stated in the attachment. **OR**			
*	5.3.2	This surveillance is unsatisfactory. A. **INITIATE** NOTF(s) to correct unsatisfactory condition(s). B. **RECORD** NOTF number(s), and reason for unsatisfactory completion on Attachment 5 in the Comments Section.	Reviews Attachment 3 and determines Pump Inboard Vibration Position P1H value of 0.710 in/sec is incorrectly initialed in the **Alert Range SAT** column, by checking S1.RA-ST.CVC-0003, page 5, and determining that if the value is >0.70 it is in the **Required Action Range UNSAT**.		

System: ADMINISTRATIVE

Task: TCAF Adverse Environmental Conditions

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.3.2 (cont)		Reviews Attachment 3 and determines 1SW185 Stroke Time test of 5.25 seconds is incorrectly initialed in the **Required Evaluation Range SAT**, by checking S1.RA-ST.CVC-0003, page 7, and determining that if the value is between 1.8-5.4 seconds it is in the **Acceptable Range (seconds)**		
	5.3.2 (cont)		Determines that the re-test stroke time of 1SW185 was not required to be performed. **Note**: The re-test is to be performed immediately if time falls in the Required Evaluation Range SAT (Section 5.4.2.K.1). The re-test was documented on attachment 5 and as additional stroke time on Attachment 3 Section 4.0.		
*	5.3.2 (cont)		Determines that the surveillance in **UNSAT** based on the Pump Inboard Vibration Position P1H value.		
		Terminate the JPM when the tear off sheet and procedure are returned.			

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.

S a 1. Task description and number, JPM description and number are identified.

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

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

S a 4. Initial setup conditions are identified.

S a 5. Initiating and terminating Cues are properly identified.

S a 6. Task standards identified and verified by SME review.

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

S a 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 3-12-15

S a 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: [signature] Date: 9-22-15

SME/Instructor: [signature] BICKHART Date: 9/22/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

Operators have just performed the normal 92 day surveillance for 11 Charging Pump IAW S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump.

INITIATING CUE:

Review the surveillance for completeness and accuracy. Perform step 5.3 Acceptance Criteria and determine if it is satisfactory. Note any discrepancies and/or actions required on Attachment 5 of procedure.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: Perform Duties of Secondary Communicator During an Alert

Contains non-public info

TASK NUMBER: N1240100501

JPM NUMBER: 14-01 NRC RO Admin A4

MD3.4, A5

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.43

IMPORTANCE FACTOR: 3.2 (RO) / (SRO)

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

EVALUATION SETTING/METHOD: Simulator

REFERENCES: EP-SA-111-F8, Attachment 8 Secondary Communicator Log, Rev. 02 (checked 9-8-15)

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:** 9-8-15

Validated By: S Bickhart / M Spencer, SME or Instructor **Date:** 9-29-15

Approved By: Training Department **Date:** 10-7-15

Approved By: Operations Department **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

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

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

STATION: SALEM

SYSTEM: Administrative

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

TASK NUMBER: N1140530402

JPM NUMBER: 14-01 NRC SRO A1-1

ALTERNATE PATH: [X]

K/A NUMBER: 2.1.34

IMPORTANCE FACTOR: RO 3.5 SRO

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: S1.OP-AB.CHEM-0001, Rev. 25 (rev checked 9-12-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 10 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 9-12-15

Validated By: K Hantho / B Boos, SME or Instructor — **Date:** 9-28-15 / 9-30-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10-9-15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Administrative

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

TASK NUMBER: N1140530402

INITIAL CONDITIONS:

While operating at 100% power, Salem Unit 1 has experienced a rise in Sodium levels in 22B main condenser hotwell. Chemistry samples have been reported at 0800 on September 11th:
S/G Blowdown pH: 10.1
S/G Blowdown Chlorides : 38 ppb
S/G Blowdown Sodium: 51 ppb
S/G Blowdown Sulfate: 22 ppb
S/G Blowdown Cation Conductivity: 0.7 uS/cm above baseline
All other applicable conditions fall in the "normal" range.

INITIATING CUE:

Using the assumptions that:

- The Secondary Chemistry conditions remain at these levels and cannot be corrected.
- The Condensate Polisher is bypassed.
- SGBD is aligned to the Flashtank at 39k / loop. Chemistry wants 39k / loop to be maintained.
- The SGBD Demineralizer is not the source of the impurities.
- All other systems are in their normal alignment

Determine the actions required over the next 24 hours based on these conditions. Place your response on this JPM tear-off sheet.

Assume that any required plant power changes will only be the minimum required and take the entire length of time allowed.

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. Determines Secondary Chemistry Action Level 2 is present.
2. Calculates that Unit 1 must be <30% power no later than 2000 on September 11th.

NAME: _____
DATE: _____

SYSTEM: Administrative

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide a clean copy of S1.OP-AB.CHEM-0001, Abnormal Secondary Chemistry, Rev 25.			
			Note: Once entered, the AB would not be exited until the conditions cause were found and isolated.		
	AB.CHEM 3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Reviews Attachment 1, Continuous Action Summary.		
	3.2	Is Condensate Polishing System in service?	Determines from Initial Conditions that Condensate Polishing System is NOT in service. Goes to Step 3.9.		
	3.9	Is SGBD Demineralizer the source of console alarm?	Determines from Initial Conditions that SGBD Demineralizer is NOT the source of console alarm. Goes to Step 3.11.		
	3.11	**NOTIFY** Chemistry to initiate sampling IAW SC.CH-AB.ZZ-1104(Q), Response to Abnormal Secondary Chemistry Events.	Notifies Chemistry to initiate sampling IAW SC.CH-AB.ZZ-1104(Q), Response to Abnormal Secondary Chemistry Events.		
	3.12	Is Dissolved Oxygen HI OR Hydrazine LO in alarm?	Determines from Initial Conditions that Dissolved Oxygen HI OR Hydrazine LO is not in alarm.		
	3.13	Is Condensate Polishing System in service?	Determines from Initial Conditions that Condensate Polishing System is not service.		

NAME: _____
DATE: _____

SYSTEM: Administrative

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.14	Is Condensate Polishing System Available?	Determines that the Condensate Polishing System is available based on Note preceding step 3.14 that the Normal Condensate Polisher bypass alignment is beds filled, vented, and aligned for service.		
*	3.15	**PLACE** Condensate Polishing in service as follows:	Determines Condensate Polishing System will be placed in service.		
*	3.16	**DETERMINE** Chemistry Action Level from Attachment 4, CHEMISTRY ACTION LEVELS.	Using Attachment 4, CHEMISTRY ACTION LEVELS, determines Action Level 2 is met with SGBD Sodium at 51 ppb.		
	3.17	Is Chemistry Action Level 3 required?	Determines Chemistry Action Level 3 is not required? Goes to Step 3.28		
	3.28	Is Chemistry Action Level 2 required?	Determines Chemistry Action Level 2 is required.		
*	3.29	**INITIATE** immediate actions to reduce power to ≤ 30% and achieve that power within 12 hours of entering Action Level 2 or as quickly as safe plant operation permits (Unit 1 with alloy 600TT SG tubing).	Determines Unit 1 must be ≤ 30% power within 12 hours of entering Action Level 2 (by 2000 on September 11th.) **Note:** This 12 hour time requirement is different than the Unit 2 time requirement of 24 hours.		

NAME: _____
DATE: _____

SYSTEM: Administrative

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.30	Is entry into Chemistry Action Level 2 due to any of the following? • S/G Blowdown Cation Conductivity • S/G Blowdown Sodium • S/G Blowdown Chloride • S/G Blowdown Sulfate	Determines entry into Chemistry Action Level 2 was due to S/G Blowdown Sodium		
	3.31	Is SGBD aligned to 13 condenser (Flashtank)?	Determines from Initial conditions that SGBD is aligned to 13 condenser (Flashtank)		
	3.31 A	**TRANSFER** all or some SGBD to 12 condenser as follows:	Determines all or some of SGBD must be transferred to 12 condenser.		
			Note: Steps 33-39 are a "do loop" when attempting to identify and isolate source of impurities.		
			Terminate JPM when operator turns in paperwork.		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

BB KM 1. Task description and number, JPM description and number are identified.

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

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

BB KM 4. Initial setup conditions are identified.

BB KM 5. Initiating and terminating Cues are properly identified.

BB KM 6. Task standards identified and verified by SME review.

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

BB KM 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 7/29/15

BB KM 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: 9/29/15

SME/Instructor: [signature] (Brian Boos) Date: 09/30/2015

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

While operating at 100% power, Salem Unit 1 has experienced a rise in Sodium levels in 22B main condenser hotwell. Chemistry samples have been reported at 0800 on September 11th:

- S/G Blowdown pH: 10.1
- S/G Blowdown Chlorides: 38 ppb
- S/G Blowdown Sodium: 51 ppb
- S/G Blowdown Sulfate: 22 ppb
- S/G Blowdown Cation Conductivity: 0.7 uS/cm above baseline
- All other applicable conditions fall in the "normal" range.

INITIATING CUE:

Using the assumptions that:
- The Secondary Chemistry conditions remain at these levels and cannot be corrected.
- The Condensate Polisher is bypassed.
- SGBD is aligned to the Flashtank at 39k / loop. Chemistry wants 39k / loop to be maintained.
- The SGBD Demineralizer is not the source of the impurities.
- All other systems are in their normal alignment

Determine the actions required over the next 24 hours based on these conditions. Place your response on this JPM tear-off sheet.

Assume that any required plant power changes will only be the minimum required and take the entire length of time allowed.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Administrative

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

TASK NUMBER: 1120700302

JPM NUMBER: 14-01 NRC SRO A1-2

ALTERNATE PATH: [ ]

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: RO ____ SRO 3.8

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: Salem Tech Specs, OP-SA-108-115-1001, Rev. 7 (checked 9-12-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 20 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 9-12-15

Validated By: K Hantho / B Boos, SME or Instructor — **Date:** 9-29-30 / 9-30-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Representative (MOB) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE

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

TASK NUMBER: 1120700302

INITIAL CONDITIONS:

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

INITIATING CUE:

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

Creation or documentation of notifications is not required.

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

Task Standard for Successful Completion:

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

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE

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

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

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE

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

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

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.5.B	For LCO tracking using Attachment 4 and Form 1, **PERFORM** the following:	**CUE:** Provide copies of Attachment 4-1 and Form 1. On Att. 4-1, the first LCO Index No. should is filled in so the candidate can number sequentially.		
*		1. **ASSIGN** the next consecutive LCO Index Number obtained from the Action Statement Log Index (Attachment 4) and LOG the T/S LCO ACTION Statement on the Index.	Makes entries on Att. 4-1: • Next LCO Index No. is **15-234** • TS No's. 3.1.3.4.b. 3.1.3.1.c, 3.2.4.a • Active • Summary Descriptions • Planned? NO • Entry Date/Time • Expiration: 3.1.3.1.c- 1 hour, 3.2.4.a- 1 hour, 3.1.3.4.b- 1 hour		
		2. **UPDATE** Unit Status Board for the Technical Specification Action Statement (TSAS).	**CUE:** Another operator will update the Unit Status Board.		

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE

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

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

NAME: _____
DATE: _____

SYSTEM: ADMINISTRATIVE

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

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

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.

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

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

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

SB 4. Initial setup conditions are identified.

SB 5. Initiating and terminating Cues are properly identified.

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

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

SB 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 7 Date 9/29/15

SB 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: 9/29/15

SME/Instructor: [signature] Brian Boos Date: 09/30/2013

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

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

INITIATING CUE:

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

Creation or documentation of notifications is not required.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: Determine Component Operability From Inservice Test Results

TASK NUMBER: N1230300302

JPM NUMBER: 14-01 NRC SRO Admin A2

ALTERNATE PATH: [ ]

K/A NUMBER: 2.2.37

IMPORTANCE FACTOR: RO ____ SRO 4.6

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: S1.OP-ST.CVC-0003, Rev. 25, S1.RA-ST.CVC-0003, Rev .13 Salem Tech Specs

TOOLS AND EQUIPMENT:

VALIDATED JPM COMPLETION TIME: 30 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 9-8-15

Validated By: D Pfaefflin / K Hantho, SME or Instructor — **Date:** 9-22-15 / 9-29-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Determine Component Operability From Inservice Test Results

TASK NUMBER: N1230300302

INITIAL CONDITIONS: With Unit 1 operating at 100% power with no inoperable equipment, operators have just performed the normal 92 day surveillance for 11 Charging Pump IAW S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump. Data collection was completed at 1100 today.

Initiating Cue: Perform Step 5.4.2, Completion and Review. Note any discrepancies and/or actions required on Attachment 5 of procedure.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. **Determine Bearing Vibration position P1H is incorrectly listed as being in "Alert Range SAT" when it is actually in "Required Action UNSAT"**
2. **Determine the 1SW185 stroke time is incorrectly listed as being in the "Required Evaluation Range SAT" when it is actually in the "Acceptable Range SAT".**
3. **Declares 11 CVCS pump inoperable and enters**

System: ADMINISTRATIVE

Task: Determine Component Operability From Inservice Test Results

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide completed copy of S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump, Rev. 25, and a copy of S1.RA-ST.CVC-0003, Inservice Testing 11 Charging Pump Acceptance Criteria, Rev. 13, and a copy of Salem Tech Specs with no Bases.			
	5.4.2.	SM/CRS **PERFORM** the following:			
*	5.4.2.A	**REVIEW** this procedure with Attachments 1-5 for completeness and accuracy.	Determines Attachment 3 Pump Inboard Vibration Position P1H value of 0.710 in/sec is incorrectly initialed in the **Alert Range SAT** column, by checking S1.RA-ST.CVC-0003, page 5, and determining that if the value is >0.70 it is in the **Required Action Range UNSAT**.		
*	5.4.2.A (cont)		Reviews Attachment 3 and determines 1SW185 Stroke Time test of 5.25 seconds is incorrectly initialed in the **Required Evaluation Range SAT**, by checking S1.RA-ST.CVC-0003, page 7, and determining that if the value is between 1.8-5.4 seconds it is in the **Acceptable Range (seconds)**		

System: ADMINISTRATIVE

Task: Determine Component Operability From Inservice Test Results

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.4.2.A (cont)		Determines that the re-test stroke time of 1SW185 was not required to be performed. **Note**: The re-test is to be performed immediately if time falls in the Required Evaluation Range SAT (Section 5.4.2.K.1). The re-test was documented on Attachment 5 and as additional stroke time on Attachment 3 Section 4.0.		
	5.4.2.B	IF all pump Technical Specification Acceptance Criteria (ASME) parameters are SAT AND in the ACCEPTABLE RANGE, THEN:	Determines that all pump Technical Specification Acceptance Criteria (ASME) parameters are **NOT** SAT AND in the ACCEPTABLE RANGE, and marks step N/A.		
	5.4.2.C	IF ANY pump Technical Specification Acceptance Criteria (ASME) parameter is SAT AND in the ALERT RANGE, AND NO pump Technical Specification Acceptance Criteria (ASME) parameter is UNSAT OR in the REQUIRED ACTION RANGE, THEN:	Determines there are NO pump Technical Specification Acceptance Criteria (ASME) parameters that are SAT AND in the ALERT RANGE, and marks step N/A.		

System: ADMINISTRATIVE

Task: Determine Component Operability From Inservice Test Results

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
* *	5.4.2.D	IF ANY pump Technical Specification Acceptance Criteria (ASME) parameter is UNSAT, in the REQUIRED ACTION RANGE, THEN: • **DECLARE** pump inoperable. • **EVALUATE** Technical Specifications for system operability. • **INITIATE** a NOTF IAW LS-AA-120, Issue Identification and Screening Process. • **RECORD** NOTF number(s) on Attachment 5 in the Comments Section. • **NOTIFY** the IST Program Engineer.	Determines Pump Inboard Vibration Position P1H value of 0.710 in/sec is in the **Required Action Range UNSAT**, and: • Declares 11 Charging pump inoperable. • Enters LCO 3.5.2.a action a Determines a notification should be initiated and number recorded on Att. 5 Determines IST Program Engineer should be notified. **Note to Evaluator:** Only the two bulleted items in this step are critical tasks based on their Tech Spec implications.		
	5.4.2.E	IF ANY pump Non-Technical Specification Acceptance Criteria (Non-ASME)parameter is SAT AND in the ALERT RANGE, THEN:	Determines NO pump Non-Technical Specification Acceptance Criteria (Non-ASME)parameter is SAT AND in the ALERT RANGE, and marks step N/A.		
	5.4.2.F	IF ANY pump Non-Technical Specification Acceptance Criteria (Non-ASME) parameter is UNSAT (i.e., Required Action), THEN:	Determines NO pump Non-Technical Specification Acceptance Criteria (Non-ASME) parameter is UNSAT (i.e., Required Action), and marks step N/A.		

System: ADMINISTRATIVE

Task: Determine Component Operability From Inservice Test Results

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.4.2.G	IF Technical Specification Acceptance Criteria (ASME)for ANY Check Valve is UNSAT, THEN:	Determines NO Technical Specification Acceptance Criteria (ASME)for ANY Check Valve is UNSAT, and marks step N/A.		
	5.4.2.H	IF ANY Bearing Temperature Data is UNSAT, THEN:	Determines NO ANY Bearing Temperature Data is UNSAT, and marks step N/A.		
	5.4.2.I	IF ANY Lube Oil Parameter in Attachment 2, Section 2.0 is NOT within the specified values, THEN:	Determines NO Lube Oil Parameter in Attachment 2, Section 2.0 is NOT within the specified values, and marks step N/A.		
*	5.4.2.J	IF 1SW185 stroke time is within the ACCEPTABLE RANGE, THEN **DECLARE** 1SW185 OPERABLE.	Determines 1SW185 stroke time IS within the ACCEPTABLE RANGE, and declares 1SW185 OPERABLE by initialing step.		
	5.4.2.K	IF 1SW185 stroke time is within the REQUIRED EVALUATION RANGE, THEN:	Determines 1SW185 stroke time was INCORRECTLY initialed as being in the REQUIRED EVALUATION RANGE and marks step N/A.		
	5.4.2.L	IF 1SW185 stroke time is in the REQUIRED ACTION RANGE, THEN immediately **DECLARE** 1SW185 inoperable.	Determines 1SW185 stroke time is NOT in the REQUIRED ACTION RANGE, and marks step N/A		
	5.4.2.M	IF 1SW185 is inoperable, THEN:	Determines the 1SW185 is NOT inoperable, and marks step N/A.		

NAME:_____

DATE:_____

System: ADMINISTRATIVE

Task: Determine Component Operability From Inservice Test Results

*	STEP NO.	STEP (* Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.4.2.N	**COMPLETE** Attachment 5, Section 3.0.	Completes Attachment 5, Section 3.0, by ensuring all deficiencies, including corrective actions, are clearly recorded in the COMMENTS Section of this attachment. Technical Specification compliance, procedure compliance, and Acceptance Criteria are evaluated.		
	5.4.2.O	**PLACE** this procedure in the IST PROGRAM ENGINEER REVIEW REQUIRED mail slot.	Returns procedure and tear off sheet to evaluator.		
		Terminate the JPM when the tear off sheet and procedure are returned.			

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.

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

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

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

P 4. Initial setup conditions are identified.

P 5. Initiating and terminating Cues are properly identified.

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

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

P 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 9/22/15
S1. RA. ST. CRC-0003 Rev 13 9/22/15

P 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: 9/22/15

SME/Instructor: [signature] Date: 9/29/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

With Unit 1 operating at 100% power with no inoperable equipment, operators have just performed the normal 92 day surveillance for 11 Charging Pump IAW S1.OP-ST.CVC-0003, Inservice Testing – 11 Charging Pump. Data collection was completed at 1100 today.

INITIATING CUE:

Perform Step 5.4.2, Completion and Review. Note any discrepancies and/or actions required on Attachment 5 of procedure.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

TASK NUMBER: N0680070302

JPM NUMBER: 14-01 NRC SRO A3

ALTERNATE PATH: [ ]

K/A NUMBER: 2.3.6

IMPORTANCE FACTOR: RO ____ SRO 3.8

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

EVALUATION SETTING/METHOD: Classroom

REFERENCES: S1.OP-SO.WL-0002, Rev.27, 205209 (CW), 205242 (SW)

TOOLS AND EQUIPMENT: Highliters

VALIDATED JPM COMPLETION TIME: 30 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: ____

Developed By: G Gauding, Instructor — **Date:** 9-15-15

Validated By: K Hantho / B Boos, SME or Instructor — **Date:** 9-29-15 / 9-30-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (Mob) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

TASK NUMBER: N0680070302

INITIAL CONDITIONS:

Salem Unit 2 is on day 25 of a scheduled 45 day refueling outage.
11 and 12 CCHX's are in service.
21 CCHX is in service, 22 CCHX is removed from service and drained.
All Unit 2 Circulators are O/S.
Salem Unit 1 is operating at 75% power.
12A Circulator is O/S for waterbox cleaning.
The Non-Rad Waste Treatment System is in service performing a release, and must remain in service.
Unit 1 is NOT in any active Tech Specs.
12 CVCS Monitor Tank is in Recirc using **11** CVCS Monitor Tank Pump, and Chemistry has granted permission to release the tank with a minimum dilution flow rate of 100,000 gpm.

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

Successful Completion Criteria:

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

Task Standard for Successful Completion:

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

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

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

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

TASK: Select Release Path for Radioactive Liquid Waste Release

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

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

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.

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

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

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

AD 4. Initial setup conditions are identified.

AD 5. Initiating and terminating Cues are properly identified.

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

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

AD 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 27 Date 9/29/15

AD 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: Karl Hanthe Date: 9/29/15

SME/Instructor: Brian Boos Date: 09/30/2015

SME/Instructor: _____ Date: _____

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

INITIAL CONDITIONS:

Salem Unit 2 is on day 25 of a scheduled 45 day refueling outage.
11 and 12 CCHX's are in service.
21 CCHX is in service, 22 CCHX is removed from service and drained.
All Unit 2 Circulators are O/S.
Salem Unit 1 is operating at 75% power.
12A Circulator is O/S for waterbox cleaning.
The Non-Rad Waste Treatment System is in service performing a release, and must remain in service.
Unit 1 is NOT in any active Tech Specs.
12 CVCS Monitor Tank is in Recirc using **11** CVCS Monitor Tank Pump, and Chemistry has granted permission to release the tank with a minimum dilution flow rate of 100,000 gpm.

INITIATING CUE:

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

PSEG Restricted – Possession requires Specific Permission From Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

JPM NUMBER: 14-01 NRC SRO Admin A4-1 (ESG-1)

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO ____ SRO 4.6

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

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: EP-SA-111-F2 Rev. 2 (ALERT) EP-SA-111-F3 Rev. 3 (SAE)

TOOLS AND EQUIPMENT: Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

Developed By: G Gauding, Instructor — **Date:** 09-15-15

Validated By: M Morales / K Hantho, SME or Instructor — **Date:** 9-24-15 / 9-25-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (MOG) — **Date:** 10/9/15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

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

Task Standard for Successful Completion:

1. Declare an **ALERT under EAL RB2.L** within 15 minutes of start time, and provide ICMF to the Primary Communicator within the next 15 minutes.

OR

2. Declare an **SAE under EAL RB2.L AND CB5.L L** within 15 minutes of start time, and provide ICMF to the Primary Communicator within the next 15 minutes. This is the classification if the cavitating charging pump is not recognized and it fails.

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note: This ECG call can either be an ALERT (expected) or a SAE based on whether or not the crew tripped the cavitating charging pump. Both keys are attached to this JPM as pages 8 and 9.		
		Provide candidate with "Tear-off sheet" and Blank Copies of EP-SA-111-F1 through F4 (UE, ALERT, SAE, GE)	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** It is acceptable to use the laminated tables in the simulator, rather than the ECG		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Classifies the event	Determines the classification of the event and refers to ECG **Attachment 2 (Alert)** OR refers to ESG **Attachment 3 (SAE)**		
	Att 2 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM **Cue:** I am the Primary Communicator		
	Att 2 A.2	IF a security Event is in progress, THEN **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	If time allows, **DIRECT** Classification **Independent Verification** to be performed.	**Cue:** No independent verification will be performed.		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 2 A.4	After Classification **Independent Verification** is obtained: • **DECLARE** the ALERT (enter time and date on ICMF) • **COMPLETE / APPROVE** the ICMF (last page of this attachment)	Declares an **ALERT under RB2.L (or SAE under RB2.L AND CB5.L)** within 15 minutes of Start Time: _____:_____:_____ Completes and Approves the ICMF as follows: EAL#(s): **RB2.L** Description of Event: **Loss of the Reactor Coolant System Boundary** **OR** **RB2.L AND CB5.L** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks **IS NOT (for Alert) OR IS (for a SAE)** for a Radiological Release in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 A.5	If time allows **OBTAIN** accuracy peer check of the completed ICMF	**Cue:** No peer check will be performed.		
*	Att 2 A.6	Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)** • **DIRECT** the Primary Communicator to implement ECG Attachment 6	**Cue**: Activation of ERO Emergency Callout is not required for this JPM. Provides ICMF to Primary Communicator within 15 minutes of event declaration _____:_____:_____		
			Terminate JPM when ICMF is given to the Evaluator.		

NAME: _____
DATE: _____

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

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

This page intentionally blank.

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

JPM NUMBER: 14-01 NRC SRO Admin A4-2 (ESG-2)

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO ____ SRO 4.6

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

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: EP-SA-111-F2 Rev. 2 (ALERT)

TOOLS AND EQUIPMENT: Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

Developed By: G Gauding, Instructor — **Date:** 09-15-15

Validated By: D Pfaefflin / K Hantho, SME or Instructor — **Date:** 9-22-15 / 9-25-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (MOC) — **Date:** 10/9/15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

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

Task Standard for Successful Completion:
1. Declare an **ALERT under EAL RB3.L** within 15 minutes of start time, and provide it to the Primary Communicator within the next 15 minutes.

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note: ECG key is attached to this JPM as page 7.		
		Provide candidate with "Tear-off sheet" and Blank Copies of EP-SA-111-F1 through F4 (UE, ALERT, SAE, GE)	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** It is acceptable to use the laminated tables in the simulator, rather than the ECG		
		Classifies the event	Determines the classification of the event and refers to ECG **Attachment 2 (Alert)**		
	Att 2 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM **Cue:** I am the Primary Communicator		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 2 A.2	IF a security Event is in progress, THEN **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to the classification.	Determines Security Event is not in progress.		
	Att 2 A.3	If time allows, **DIRECT** Classification **Independent Verification** to be performed.	**Cue:** No independent verification will be performed.		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
* *	Att 2 A.4	After Classification **Independent Verification** is obtained: • **DECLARE** the ALERT (enter time and date on ICMF) • **COMPLETE / APPROVE** the ICMF (last page of this attachment)	Declares an **ALERT under RB3.L** within 15 minutes of Start Time: _____:_____:_____ Completes and Approves the ICMF as follows: EAL#(s): **RB3.L** Description of Event: **Loss of the Reactor Coolant System Boundary** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks **IS** for a Radiological Release in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		
	Att 2 A.5	If time allows **OBTAIN** accuracy peer check of the completed ICMF	**Cue:** No peer check will be performed.		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 2 A.6	Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)** • **DIRECT** the Primary Communicator to implement ECG Attachment 6	**Cue**: Activation of ERO Emergency Callout is not required for this JPM. Provides ICMF to Primary Communicator within 15 minutes of event declaration _____:_____:_____		
			Terminate JPM when ICMF is given to the Evaluator.		

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

JPM NUMBER: 14-01 NRC SRO Admin A4-3 (ESG-3)

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.41

IMPORTANCE FACTOR: RO ____ SRO 4.6

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

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: EP-SA-111-F3 Rev. 3 (SAE)

TOOLS AND EQUIPMENT: Inform Simulator Operators – DO NOT ERASE ANY PROCEDURES UNTIL THE SRO EVALUATOR APPROVES

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

Developed By: G Gauding, Instructor — **Date:** 09-15-15

Validated By: M Morales / K Hantho, SME or Instructor — **Date:** 9-25-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10/9/15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Emergency Plan

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

TASK NUMBER: 1240020502

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

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

Task Standard for Successful Completion:
1. Declare a **SAE under EALs FB2.P and RB2.P** within 15 minutes of start time, and provide ICMF to the Primary Communicator within the next 15 minutes.

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note: ECG key is attached to this JPM as page 7.		
		Provide candidate with "Tear-off sheet" and Blank Copies of EP-SA-111-F1 through F4 (UE, ALERT, SAE, GE)	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume SM duties	**Cue:** The regulatory commitment time clock has started.		
		Reviews ECG to classify event	**Note:** It is acceptable to use the laminated tables in the simulator, rather than the ECG		
		Classifies the event	Determines the classification of the event and refers to ECG **Attachment 3 (SAE)**		
	Att 3 A.1	CALL communicators to the Control Room	Pages communicators and initials as SM **Cue:** I am the Primary Communicator		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 3 A.2	IF a security Event is in progress, THEN **IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to the classification.	Determines Security Event is not in progress.		
	Att 3 A.3	If time allows, **DIRECT** Classification **Independent Verification** to be performed.	**Cue:** No independent verification will be performed.		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	Att 3 A.4	After Classification **Independent Verification** is obtained: • **DECLARE** the ALERT (enter time and date on ICMF) • **COMPLETE / APPROVE** the ICMF (last page of this attachment)	Declares an **ALERT under RB3.L** within 15 minutes of Start Time: _____:_____:_____ Completes and Approves the ICMF as follows: EAL#(s): **FB2.P AND RB2.P** Description of Event: **Potential Loss of the Fuel Clad Barrier AND Potential Loss of the Reactor Coolant system Barrier** Note: Description of Event is found in EAL Description Table Fills out Section III: Checks **there is NO** for a Radiological Release in progress. Fills out Section IV: Retrieves wind speed and direction data from SPDS Initials for approval to transmit		

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Att 3 A.5	If time allows **OBTAIN** accuracy peer check of the completed ICMF	**Cue:** No peer check will be performed.		
*	Att 3 A.6	Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)** • **DIRECT** the Primary Communicator to implement ECG Attachment 6	**Cue**: Activation of ERO Emergency Callout is not required for this JPM. Provides ICMF to Primary Communicator within 15 minutes of event declaration _____:_____:_____		
			Terminate JPM when ICMF is given to the Evaluator.		

INITIAL CONDITIONS:

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

INITIATING CUE:

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

This is a Time Critical JPM.

STATION: SALEM

SYSTEM: Rod Control

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

TASK NUMBER: 1140330401

JPM NUMBER: 14-01 NRC Sim a

ALTERNATE PATH: [X]

K/A NUMBER: 003 AA2.03

IMPORTANCE FACTOR: 3.6 (RO) 3.8 (SRO)

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

EVALUATION SETTING/METHOD: Simulator

REFERENCES: S2.OP-AB.ROD-0002 Rev. 10 (checked 9-23-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 5 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor **Date:** 08-13-15

Validated By: S Bickhart / J Militti, SME or Instructor **Date:** 9-23-15

Approved By: Training Department **Date:** 10/7/15

Approved By: Operations Department **Date:** 10.9.15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Rod Control

TASK: Take corrective actions for 2 dropped control rods

TASK NUMBER: 1140330401

SIMULATOR SETUP IC-241
Insert RT-1, **RD0267**, ANY ROD DROPS INTO RX, Final Severity 5 after watch has been taken.

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

INITIAL CONDITIONS:

Salem Unit 2 is operating at 41% power, BOL.
A power reduction to bring the Main Turbine off-line is on hold.
Xe is building in @30 pcm/hr.

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

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

Task Standard for Successful Completion:
1. Places Rod Control in Manual following 1st dropped rod.
2. Trips the reactor upon discovery of 2nd dropped rod.

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		SIMULATOR OPERATOR: Insert **RT-1 RD0267,** ANY ROD DROPS INTO RX, Final Severity 5, when operator assumes the watch.	Announces cluster of rod related "E" Window OHAs as unexpected alarms. Announces indications of rod 2SA1 dropped into the core. Enters S2.OP-AB.ROD-0002, Dropped Rod.		
	2.1	IF more than one rod is verified to be tripped, THEN Manually **TRIP** Reactor AND **GO TO** 2-EOP-TRIP-1, Reactor Trip OR Safety Injection.	Verifies only 1 rod has dropped into core.		
*	3.1	**PLACE** Rod Bank Selector Switch in MAN.	Places Rod Bank Selector Switch in MAN. Note: Auto outward rod movement will occur at T+ 1:30 if rods are not placed in manual.		
	3.2	**IF** a Turbine load change is in progress…	Verifies no turbine load change in progress.		

NAME: _____
DATE: _____

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

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

NAME: _____
DATE: _____

SYSTEM: ROD CONTROL

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

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

NAME: _____
DATE: _____

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

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

S a 1. Task description and number, JPM description and number are identified.

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

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

S a 4. Initial setup conditions are identified.

S a 5. Initiating and terminating Cues are properly identified.

S a 6. Task standards identified and verified by SME review.

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

S a 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 10 Date 12-5-07

S a 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: 9-23-15

SME/Instructor: [signature] BUCKHALT. Date: 9/23/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

Salem Unit 2 is operating at 41% power, BOL.
A power reduction to bring the Main Turbine off-line is on hold.
Xe is building in @30 pcm/hr.

INITIATING CUE:

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

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: CVCS

TASK: Respond to Loss of VCT level instrument which requires initiating a manual makeup to VCT.

TASK NUMBER: 0040130101

JPM NUMBER: 14-01 NRC Sim b

ALTERNATE PATH: [X]

K/A NUMBER: APE 022 AA1.01,1.08

IMPORTANCE FACTOR: 3.4/3.4 (RO) 3.3/3.3 (SRO)

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

EVALUATION SETTING/METHOD: Simulator

REFERENCES:
S2.OP-SO.CVC-0006, Rev. 23 (Rev checked all 9-23-15)
S2.OP-AR.ZZ-0012, Rev. 37
S2.OP-AB.CVC-0001, Rev. 9
S2.RE-RA.ZZ-0012 Rev. 207
205328-1 rev. 56

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: 8-13-15**

Validated By: S Bickhart / J Militti, SME or Instructor — **Date: 9-23-15**

Approved By: Training Department — **Date:** 10/7/15

Approved By: Operations Department — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:
GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: CVCS

TASK: Respond to Loss of VCT level instrument which requires initiating a manual makeup to VCT.

TASK NUMBER: 0040130101

INITIAL CONDITIONS: 100% power, MOL. RCS boron concentration is 900 ppm.

SIMULATOR SETUP: **IC-242**

RT-1 MALF CV0037 VCT LEVEL XMTR LT112 FAILS H/L

Final Value: 100

INITIATING CUE:

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

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Initiate manual makeup to VCT, and terminate makeup when directed.

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Simulator Operator: INSERT **RT-1** upon direction of evaluator to fail 2LT-112 high.			
			Announces Control Console alarm VCT Level Hi-Lo as unexpected, and identifies LT-112 has failed high.		
			Refers to S2.OP-AR.ZZ-0012 ARP for console alarm. **Note:** Operator may enter S2.OP-AB.CVC-0001, Loss of Charging directly.		
	ARP 2.0	Automatic Actions: 2.1 Hi: If 2CV35 is in auto, high level removes normal level control AND shifts 2CV35 fully to HUT.	Notes that 2CV35 3 way valve has automatically shifted to FLOW TO HUT position in response to the high level. **Note:** Operator may place 2CV35 in MANUAL TO VCT in response to the diversion of letdown flow without an actual high level.		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	ARP 3.0	3.1 **MONITOR** VCT level on LI-112 3.2 IF level is low, THEN: A. **INITIATE** makeup IAW S2.OP-SO.CVC-0006(Q), Boron Concentration Control. B. **ENSURE** 2CV35 is lined up to VCT. 3.3 IF level is high, THEN **ENSURE** 2CV35 directed to HUT. 3.4 IF failure of a VCT level channel has occurred, THEN **INITIATE** S2.OP-AB.CVC-0001, Loss of Charging.	Monitors VCT level on LI-112. Determines level is not low. Determines actual level is not high (channel has failed high but level is not high) Determines failure of VCT level channel LT-112 has occurred, and initiates S2.OP-AB.CVC-0001,Loss of Charging		
	AB.CVC 3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary.		
	AB.CVC 3.2	Is any Charging Pump running?	Determines 23 Charging Pump is running and goes to Step 3.16		
	AB.CVC 3.16	Is there (or has there been) indication of Charging Pump cavitation as evidenced by any of the following: • pump noise • motor amp oscillations • charging flow oscillations	Determines there is no indication of Charging Pump cavitation as evidenced by lack of any of the following: • pump noise • motor amp oscillations • charging flow oscillations and goes to Step 3.54		
	AB.CVC 3.54	Has a Pressurizer level channel failed?	Determines no Pressurizer level channel has failed, and goes to Step 3.62, which continues to 3.63		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	AB.CVC 3.63	Has a VCT level instrument (2LT-112 or 2LT-114) failed high (refer to Exhibit 2)?	Determines VCT level instrument 2LT-112 has failed high.		
*	AB.CVC 3.64	**TAKE** MANUAL control of 2CV35, VCT 3 WAY INLET V, and position it to the VCT.	If not previously performed, takes manual control of 2CV35, VCT 3 WAY INLET V, and position it to the VCT.		
	AB.CVC 3.65	IF letdown is isolated, THEN **RESTORE** Letdown as follows:	Determines letdown is not isolated.		
	AB.CVC 3.66	IF required to restore VCT level, THEN **INITIATE** manual makeup to VCT IAW S2.OP-SO.CVC-0006(Q), Boron Concentration Control.	Checks VCT level. **Evaluator: If** VCT level is NOT <14%, **then** **CUE: The CRS directs you to raise VCT level by 10% from its current level.**		
	SO. CVC-6		Performs Prerequisites of S2.OP-SO.CVC-0006, and determines Section 5.2 will be used. **Cue**: Component Off Normal and Off Normal Tagged review is SAT with no abnormal conditions identified.		
	SO. CVC-6		Reviews Precautions and Limitations section.		
			Operator identifies Section 5.2 Manual Makeup Mode is correct section of procedure to be performed.		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.1	**DETERMINE** Boric Acid Flow Setpoint from S2.RE-RA.ZZ-0012, Figure(s), 100A, 100C, and 105 as applicable, OR as calculated and verified by the CRS/STA, AND **RECORD** Boric Acid Flow Setpoint.	**Cue:** "BAST boron concentration is 6,700 ppm." IF Operator uses the current makeup setpoint as displayed on the control console, **THEN CUE** that the CRS directs you to perform Step 5.2.1 to verify the Boric Acid Flow setpoint is correct. Correct Figure to Use is 100A for 62 gpm Primary Water Flow with BAST concentration at normal ppm. 100C is wrong figure because it is for 9000 ppm boron which is not used during normal ops. Figure 105 is the correction factor for RCS temperatures less than 547, which is N/A at 100% power. From the graph, setpoint is slightly less than 10 gpm. **Allowable setpoint is 9-11 gpm.** Note: If Operator performs calculation using 900 ppm in RCS and 6,700 ppm in BAST, result is 9.62 gpm. Boric Acid setter is in 1 gallon increments.		
	5.2.2	IF required, THEN **RESET** COUNT A on the Makeup Flow Registers to zero IAW Exhibit 1.	Resets COUNT A for Boric Acid and Primary Water flow IAW Exhibit 1.		
*	5.2.3	**PRESS** Makeup Control Mode Select STOP pushbutton.	Presses Makeup Control Mode Select STOP pushbutton.		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.4	**PLACE** 2CV179, PRIMARY WATER FLOW, in MANUAL, AND **CLOSE** 2CV179.	Places 2CV179, PRIMARY WATER FLOW, in MANUAL Closes or verifies closed 2CV179 PRIMARY WATER FLOW.		
*	5.2.5	**PLACE** 2CV172, BORIC ACID FLOW, in MANUAL, AND **CLOSE** 2CV172.	Places 2CV172, BORIC ACID FLOW, in MANUAL, Closes or verifies closed 2CV172 BORIC ACID FLOW.		
*	5.2.6	**ALIGN** outlet of Boric Acid Blender to one of the following: A. **OPEN** 2CV185, MAKEUP FLOWPATH OR B. **OPEN** 2CV181, MAKEUP FLOWPATH	For one selected flowpath, depresses OPEN pushbutton until OPEN bezel illuminated. The "NOTE" prior to Step 5.2.6 states that charging pump suction is the preferred path, (but not required) which is accomplished by opening the 2CV185. Opening either 2CV185 or 2CV181 is acceptable.		
*	5.2.7	**PERFORM** the following as required to support current plant conditions: • **START** a Primary Water Pump • **PLACE** a Boric Acid Pump in MANUAL/FAST START	**Note**: Normal configuration is ONE Boric acid pump running in AUTO SLOW, and NO Primary Water pumps running. Depresses START PB on either PW Pump For selected Boric Acid Pump, depresses MANUAL and FAST START pushbuttons.		
*	5.2.8	**ADJUST** 2CV172 flow (FI110A) to the value recorded in step 5.2.1	Using INC/DEC pushbuttons, adjusts Boric Acid Flow on FI110A to the value recorded in Step 5.2.1.		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.9	IF required Boric Acid flow is NOT achieved, THEN: • **CLOSE** 21CV160, RECIRC VALVE • **CLOSE** 22CV160, RECIRC VALVE •	Closing of the CV160 valves will NOT be required.		
*	5.2.10	Manually **ADJUST** 2CV179 Setpoint to 62 gpm (or as calculated) to obtain the required flow as indicated on FI111A (Refer to step 3.13)	Using 2CV179 INC/DEC PB's, adjusts PW Flow to 62 GPM +/- 2 GPM as indicated on FI111A. **Cue:** If Operator cannot get exactly 62 gpm, then **cue** a range of 61-63 gpm is acceptable. **Cue:** Once makeup is in progress and operator is monitoring VCT level via LT-114 using the Plant Computer, inform operator that VCT level has risen the required 10%.		
	5.2.11	**ENSURE** required Boric Acid AND Primary Water Flow are being maintained OR **ADJUST** 2CV172 and 2CV179 as required to obtain required flows.	Monitors Boric Acid and Primary Water flows being maintained as required and adjusts 2CV172 and 2CV179 as required to obtain required flows.		

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.12	When desired makeup is completed:			
		A. CLOSE the following valves:			
* * * *		• 2CV179 • 2CV172 • 2CV185 • 2CV181	Depresses the CLOSE pushbuttons for the valves 2CV179 and 2CV172, and whichever of the 2CV185 and 2CV181 was opened in Step 5.2.6.		
		B. STOP Primary Water Pump	Depresses STOP pushbutton for Primary Water Pump which was started.		
		C. PLACE Boric Acid Pump selected in SLOW Speed	Places the selected Boric Acid Pump in SLOW speed.		
		D. PLACE the system in Automatic Makeup Mode IAW Section 5.1	Terminate the JPM once the selected Boric Acid Pump has been placed in SLOW speed.		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

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

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

AS 4. Initial setup conditions are identified.

AS 5. Initiating and terminating Cues are properly identified.

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

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

AS 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 23 Date 9/10/2015

AS 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] BUCKHANT Date: 9/23/15

SME/Instructor: [signature] M.I.H. Date: 9-23-15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

1. 100% power, MOL. RCS boron concentration is 900 ppm.

INITIATING CUE:

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

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: Salem Generating Station

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level and Pressure

TASK NUMBER: 0065010101

JPM NUMBER: 14-01 NRC Sim c

ALTERNATE PATH: [ ]

K/A NUMBER: 006 A4.07

IMPORTANCE FACTOR: 4.4 (RO) 4.4 (SRO)

APPLICABILITY:

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-SO.SJ-0002, Accumulator Operations, Rev. 24 (Rev checked 9-23-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 13 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 8-13-15

Validated By: S Bickhart / J Militti, SME or Instructor — **Date:** 9-23-15

Approved By: Training Department — **Date:** 10/7/15

Approved By: Operations Representative (M06) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level and Pressure with a Safety Injection Pump

TASK NUMBER: 0065010101

SIMULATOR SETUP: IC-243

*****Mark up simulator laminated copy of S2.OP-SO.SJ-0002, Accumulator Operations to N/A all sections except Sections 5.2 (Raise level with 21 SI pump) and 5.10 (Raise pressure)**

INITIAL CONDITIONS:

1. The plant is at 100% power with all systems in their normal alignment with control systems in automatic.
2. 24 Accumulator is at 58.4% level and 598.8 psig.
3. The Safety Injection System is available.
4. Nitrogen System is available.
5. RWST Boron Concentration is 2455 ppm.
6. Components Off Normal and Off Normal Tagged has been checked SAT.

INITIATING CUE:

Raise 24 ECCS Accumulator parameters to 60% level using 21 SI pump, and raise 24 Accumulator pressure to 625 psig using IAW S2.OP-SO.SJ-0002, Accumulator Operations.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Raise 24 Accumulator level to 60% using a SI pump, and return system to normal lineup.
2. Raise 24 Accumulator pressure to 625 psig after level has been raised.

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Reviews procedure, and initials all Precautions and Limitations. **Note:** Precaution and Limitation 3.1 states that if both level and pressure need adjustment, level should be adjusted first.		
	5.2.1	**ENSURE** either of the following conditions exist: • ALL RCS Cold Leg Temperatures >312°F OR • The Reactor Vessel Head is Removed.	Determines ALL RCS Cold Leg Temperatures >312°F from control console indications.		
	5.2.2	IF RCS Pressure <2000 psig, THEN **ENSURE** CLOSED 21SJ134, COLD LEG DISCHARGE.	Determines RCS pressure is >2000 psig from console indication and marks step N/A..		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.3	**START** 21 Safety Injection Pump.	Operator depresses 21 Safety Injection Pump START PB and verifies red start light illuminates, green stop light extinguishes, and pump amps indicated. **Cue if required**: IF operator asks for a Field Operator to do pre-start checks on 21 SI pump, THEN report as NEO that 21 SI Pump is ready for start.		
*	5.2.4	**OPEN** 2SJ53, 21 SI PUMP DISCHARGE TEST LINE VALVE.	Depresses 2SJ53 21 SI PUMP DISCHARGE TEST LINE VALVE OPEN PB, and verifies open light illuminates and shut light extinguishes.		
*	5.2.5	**OPEN** 2SJ123, TEST LINE TO CVCS HUT.	Depresses and holds 2SJ123 TEST LINE TO CVCS HUT OPEN PB until open light illuminates and shut light extinguishes.		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.6	**OPEN** associated Accumulator fill valve: ♦ 21SJ20, 21 ACCUMULATOR FILL ♦ 22SJ20, 22 ACCUMULATOR FILL ♦ 23SJ20, 23 ACCUMULATOR FILL ♦ 24SJ20, 24 ACCUMULATOR FILL	Depresses 24SJ20 24 ACCUMULATOR FILL OPEN PB and verifies open light illuminates and shut light extinguishes. Monitors level on 2LI935D and 2LI934D. **Note:** It will take just over a minute to raise 24 Accumulator level to 60%.		
*	5.2.7	When desired level is reached, **CLOSE** the associated Accumulator fill valve: ♦ 21SJ20, 21 ACCUMULATOR FILL ♦ 22SJ20, 22 ACCUMULATOR FILL ♦ 23SJ20, 23 ACCUMULATOR FILL ♦ 24SJ20, 24 ACCUMULATOR FILL	When 24 Accumulator leve indicates 60% on 2LI935D and 2LI934D, depresses 24SJ20 24 ACCUMULATOR FILL CLOSE PB and verifies red open light extinguished and green shut light illuminates.		
	5.2.8	If required, **REPEAT** Steps 5.2.6 and 5.2.7 to fill additional Accumulators.	Determines no other Accumulators will be filled.		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.2.9	**CLOSE** 2SJ53.	Depresses 2SJ53 CLOSE PB and verifies red open light extinguished and green shut light illuminates.		
*	5.2.10	**CLOSE** 2SJ123.	Depresses 2SJ123 CLOSE PB and verifies red open light extinguished and green shut light illuminates.		
*	5.2.11	**STOP** 21 Safety Injection Pump.	Depresses 21 SI Pump STOP PB and verifies green stop light illuminate and red start light extinguishes.		
	5.2.12	IF in Modes 1, 2, or 3 AND 21SJ134 was CLOSED in Step 5.2.2, THEN **OPEN** 21SJ134.	Determines 21SJ134 was not closed.		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.13	If required, **BLEED** off the SI Pump discharge pressure by performing the following: A. **OPEN** 2SJ123, TEST LINE TO CVCS HUT. B. **OPEN** 2SJ60, TEST LINE TO CVCS HUT. C. **OPEN** 2SJ158, SI HEADER COMMON DISCH. D. When 2SJ158 is open for at least 30 seconds OR PI923 and PI919 pressure decreases to 30-50 psig: 1. **CLOSE** 2SJ158. 2. **CLOSE** 2SJ60. 3. **CLOSE** 2SJ123.	Determines SI pump discharge pressure is lowering. **Note: If pressure does NOT lower, performs the following steps:** Depresses 2SJ123 TEST LINE TO CVCS HUT open PB and verifies open light illuminates and shut light extinguishes. Depresses 2SJ60, TEST LINE TO CVCS HUT open PB and verifies open light illuminates and shut light extinguishes. Depresses 2SJ158, SI HEADER COMMON DISCH open PB and verifies open light illuminates and shut light extinguishes. When 2SJ158 SI HEADER COMMON DISCH is open for at least 30 seconds: 1. Closes 2SJ158. 2. Closes 2SJ60. 3. Closes 2SJ123. **Cue if required: The CRS directs you to terminate the lineup for bleeding off 21 SI pump discharge pressure.**		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.2.14	**Direct** a second Operator to **PERFORM** Independent Verification IAW Attachment 1, Section 2.0.	Directs a second Operator to perform Independent Verification IAW Attachment 1, Section 2.0. **Cue:** IV of Attachment 1 Section 2 complete.		
	5.2.15	IF TSAS 3.5.2 was entered, THEN **REVIEW** continued applicability of this Action Statement.	Determines TSAS 3.5.2 was not entered.		
	5.2.16	IF the Unit is in Mode 1 or 2, or Mode 3 with Pressurizer pressure >1000 psig, THEN **PERFORM** S2.OP-ST.SJ-0008(Q), Emergency Core Cooling - Accumulators.	Determines Unit is in Mode 1. **Cue:** Another NCO will perform S2.OP-ST.SJ-0008(Q), Emergency Core Cooling - Accumulators.		
	5.2.17	IF the Unit is in Mode 3 with Pressurizer pressure <1000 psig OR in modes 4, 5, 6, or Defueled, THEN **PERFORM** S2.OP-ST.SJ-0008(Q), Emergency Core Cooling - Accumulators, prior to exceeding 1000 psig Pressurizer pressure in Mode 3.	Determines Unit is in Mode 1.		
			Goes to Section 5.10 to raise 24 Accumulator pressure. **Note:** 24 Accumulator pressaure was increased to ~603 psig during fill.		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.10.1 A/B	IF Nitrogen System is available THEN: A. **ENSURE** CLOSED 2NT35, N2 HDR. B. **OPEN** 2NT32, N2 SUPPLY.	Determines 2NT35, N2 HDR is shut by console indication. Depresses and holds open PB for 2NT32, N2 SUPPLY and verifies open light illuminates and shut light extinguishes. **Note:** When performing **next step**, pressure will rise very rapidly on 24 Accumulator.		
	5.10.1 C	**OPEN** associated N2 Supply valve: • 21SJ93, N2 SUPPLY • 22SJ93, N2 SUPPLY • 23SJ93, N2 SUPPLY • 24SJ93, N2 SUPPLY	Depresses 24SJ93 open PB and verifies open light illuminates and shut light extinguishes.		
	5.10.1 D	When desired Accumulator pressure is achieved, **CLOSE** the associated Accumulator N2 Supply valve: • 21SJ93, N2 SUPPLY • 22SJ93, N2 SUPPLY • 23SJ93, N2 SUPPLY • 24SJ93, N2 SUPPLY	Determines 24 Accumulator pressure is 625 psig on 2PI936D and 2PI937D, depresses close PB for 24SJ93, N2 SUPPLY, and verifies red open light extinguished and green shut light illuminates.		

NAME: _____

DATE: _____

SYSTEM: Emergency Core Cooling Systems

TASK: Raise ECCS Accumulator Level with a Safety Injection Pump

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5.10.1 E	**IF** required, **REPEAT** steps 5.10.1C and 5.10.1D to raise pressure in additional Accumulators.	Determines no other accumulators pressure will be changed.		
	5.10.1 F	**CLOSE** 2NT32.	Depresses close PB for 2NT32 and verifies red open light extinguished and green shut light illuminates.		
	5.10.1 G	Direct a second Operator to **PERFORM** Independent Verification IAW Attachment 1, Section 10.0.	Directs a second Operator to perform Independent Verification IAW Attachment 1, Section 10.0. **Cue: JPM is complete.**		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

S a 1. Task description and number, JPM description and number are identified.

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

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

S a 4. Initial setup conditions are identified.

S a 5. Initiating and terminating Cues are properly identified.

S a 6. Task standards identified and verified by SME review.

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

S a 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 24 Date 3-12-13

S a 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] Milith Date: 9-23-15

SME/Instructor: [signature] Buckhart Date: 9/23/15

SME/Instructor:_____ Date: _____

INITIAL CONDITIONS:

1. The plant is at 100% power with all systems in their normal alignment with control systems in automatic.
2. 24 Accumulator is at 58.4% level and 598.8 psig.
3. The Safety Injection System is available.
4. Nitrogen System is available.
5. RWST Boron Concentration is 2455 ppm.
6. Components Off Normal and Off Normal Tagged has been checked SAT.

INITIATING CUE:

Raise 24 ECCS Accumulator parameters to 60% level using 21 SI pump, and raise 24 Accumulator pressure to 625 psig using IAW S2.OP-SO.SJ-0002, Accumulator Operations.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: Salem Generating Station

SYSTEM: Main Turbine

TASK: Perform Main Turbine Valve Testing

TASK NUMBER: N0450130201

JPM NUMBER: 14-01 NRC Sim d

ALTERNATE PATH: [X]

K/A NUMBER: 045 2.1.23

IMPORTANCE FACTOR: 4.3 (RO) 4.4 (SRO)

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-PT.TRB-0003, Rev. 19 (checked 9-23-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 15 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor **Date:** 8-20-15

Validated By: S Bickhart / J Militti, SME or Instructor **Date:** 9-23-15

Approved By: Training Department **Date:** 10-7-15

Approved By: Operations Department **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

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

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Confidential- Possession Requires Specific Approval from Nuclear Training

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Main Turbine

TASK: Perform Main Turbine Valve Testing

TASK #: N0450130201

Simulator Setup: **IC-244 22RS5 fails shut after 22RS5 is shut during test.**
MALF: VL0662 Reheat Intercept R2E fails to position (0-100%) Severity 0, tied to ET-1: tmvrs06l(2)

INITIAL CONDITIONS:

Unit 2 is operating at 89% power, MOL. Power is reduced to perform Main Turbine Valve Testing. Rod control is in manual per CRS direction to prevent rod movement during testing, with Control Bank D at 187 steps. The ESO has been notified of valve test.

INITIATING CUE:

Perform Main Turbine Valve Testing IAW S2.OP-PT.TRB-0003, Main Turbine Valve Stroke Testing, Sections 5.2 (Test Preparation), and 5.3 Main Turbine Valve Stroke Testing-Turbine Operating OR Main Steam Isolation Valves Closed. Perform Reheat and Intercept valve testing prior to Main Steam Stop and Governor Valves. Personnel are at the Main Turbine to perform any required local actions.

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 stroke time testing of 21RS5 and 21RS6 SAT.**
2. **Initiate a power reduction at 10% per hour within 5 minutes of the 22RS5 being shut during stroke time testing.**

PSEG Confidential- Possession Requires Specific Approval from Nuclear Training

NAME: _____

DATE: _____

SYSTEM: Main Turbine

TASK: Perform Main Turbine Valve Testing

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
			Note to Evaluators: Valve positions are required to be checked LOCALLY to satisfy test requirements. IF **only** EHC console indication is used, then JPM should be considered a failure, as it would result in exceeding periodicity FSAR requirements for turbine valve testing (10.2.2.6, page 10.2-7)		
		Provide marked up copy of S2.OP-PT.TRB-0003, with Pre-requisites signed off, and P&L's not signed off.			
	5.2.1	IF the Main Turbine is shutdown…	Determines Main Turbine is in operation, and N/A's step 5.2.1		
	5.2.2.A	**ENSURE** the Electric Systems Operator is notified of the impending test.	Determines from initial conditions that Electric System operator has been notified of impending test.		
	5.2.2.B	**CHECK** the ON LINE CONTROL MODE indicates TURB INLET PRESS.	Determines ON LINE CONTROL MODE indicates TURB INLET PRESS.		
	5.2.2.C	IF testing any Turbine Stop Valve (TSV)			

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
		and Governor Valve (GV), THEN E**NSURE** that Reactor Power is >40% RTP and <89.5% RTP using at least one of the following: • Plant Computer point NTP0401B, REACTOR PERCENT THERMAL POWER • NIS Indication • As determined IAW SC.RE-ST.ZZ-0001(Q), Daily Power Range Calibration by Calorimetric	Determines reactor power is 89%.		
	5.2.2.D1-4	At the TURBINE E-H CONTROL & STATUS "touch screen" monitor, D.1 **ADJUST** RAMP RATES - VLV POS LIM for the desired %/MIN value. D.2 **RAISE** VALVE POSITION LIMITER to 100%. D.3 **ENSURE** MODE - TURB INLET PRESS CNTRL indication is green. D.4 OPEN indication for ALL of the following valves: Main Turbine Stop Valves (21-24MS28) East Reheat Stop Valves (21-23RS5) East Intercept Valves (21-23RS6) West Reheat Stop Valves (21-23RS11) West Intercept Valves (21-23RS12) Each GOVERNOR VALVE POSITION (21-24MS29) indicates at least 17.9%.	Adjusts RAMP RATES - VLV POS LIM for the desired %/MIN value. Determines VALVE POSITION LIMITER is set at 100%. Determines MODE - TURB INLET PRESS CNTRL indication is green. Determines all of the following valves are open: Main Turbine Stop Valves (21-24MS28) East Reheat Stop Valves (21-23RS5) East Intercept Valves (21-23RS6) West Reheat Stop Valves (21-23RS11) West Intercept Valves (21-23RS12) Each GOVERNOR VALVE POSITION (21-24MS29) indicates at least 17.9%.		

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
	5.2.2.E	**SEND** Operator(s) with communication equipment to observe the following valves for smooth operation: Main Turbine Stop Valves (21-24MS28) Main Turbine Governor Valves (21-24MS29) East Reheat Stop Valves (21-23RS5) East Intercept Valves (21-23RS6) West Reheat Stop Valves (21-23RS11) West Intercept Valves (21-23RS12)	Determines from initial conditions that operators are in field.		
	5.2.2.F	**DIRECT** Operator(s) to perform the following: 1. **ENSURE** 21-24MS901, TURB STOP V EQUAL V, are CLOSED. 2. **ENSURE** STOP VALVE BYPASS TROUBLE lamps on PNL-978-2 are clear. (Push to test bulb - located on 140' el., East of HP Turbine).	Directs operators to: 1. Ensure 21-24MS901, TURB STOP V EQUAL V, are CLOSED. 2. **ENSURE** STOP VALVE BYPASS TROUBLE lamps on PNL-978-2 are clear. (Push to test bulb - located on 140' el., East of HP Turbine). **Cue: Step 5.2.2.F is complete SAT.**		
	5.2.3	IF any valve does not respond as expected or fails to reopen during this test, THEN **PERFORM** the following troubleshooting before continuing on with the test: A. **CHECK** fuse LED for any lit LEDs (failed fuse) AND **REPLACE** fuse, if needed. B. **CYCLE** the associated EHC valve to attempt to reopen the valve. C. **CHECK** associated Limit Switches (HMI/Locally).			

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
		D. Lightly **AGITATE** the associated solenoid valve with a small hammer. E. **OPEN** associated fuse holder, reinstall fuse, and **CLOSE** fuse holder. F. IF the valve functions following any of the above steps, THEN **INITIATE** a Notification to document any alarms on the HMI screen and what caused the valve to respond. G. IF none of the above step resolve the problem, THEN **CONTACT** I&C to perform additional troubleshooting.			
	5.3.1	IF the Main Turbine is shutdown, THEN:	Determines Main Turbine is operating.		
	5.3.2	IF performing 21MS28/21MS29 testing, THEN:	Determines MS28 and MS29 testing will be performed after reheat valve testing is performed.		
	5.3.6	IF testing 21RS5 - EAST REHEAT STOP AND 21RS6 - EAST INTERCEPT, THEN:			
*	5.3.6.A	At the TURBINE E-H CONTROL & STATUS monitor, EAST LP VALVE TESTS screen, **ENSURE** the TEST PERMISSIVE, NO OTHER TESTS IN PROGRESS is green.	Selects EAST LP VALVE TESTS screen, and determines the TEST PERMISSIVE, NO OTHER TESTS IN PROGRESS is green.		
	5.3.6.B	**DIRECT** an Operator to locally monitor 21RS5 AND 21RS6 for full stroke.	Directs field operator monitor 21RS5 AND 21RS6 for full stroke. **Cue: I am standing by to monitor 21RS5 and 21RS6 for full stroke.**		

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
	5.3.6.C	**RECORD** 21RS5 AND 21RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 1.	Records **local** 21RS5 and 21RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 1. (open) **Cue when asked: 21RS5 and 21RS6 are fully open.**		
		NOTE The MicroNet System will perform the following functions during testing: Issue an alarm for any valve out-of-position during testing Energize 21RS5 and 21RS6 solenoids to CLOSE both valves Hold each valve in the closed position for 10 seconds after both valves are detected in the CLOSED position De-energize 21RS5 and 21RS6 solenoids after 10 seconds elapses Alarm and initiate ABORT TESTING after 1 minute of TEST IN PROGRESS			
*	5.3.6.D	At the TURBINE E-H CONTROL & STATUS monitor, 1. **SELECT** START TEST for 21RS5 AND 21RS6. 2. **ENSURE** NORMAL OPERATION changes to TEST IN PROGRESS.	At the TURBINE E-H CONTROL & STATUS monitor, selects START TEST for 21RS5 AND 21RS6 and determines NORMAL OPERATION changes to TEST IN PROGRESS.		

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
	5.3.6.E	When 21RS5 AND 21RS6 OPEN/MOVING indications are cleared, THEN **RECORD** 21RS5 AND 21RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 2.	When 21RS5 AND 21RS6 OPEN/MOVING indications are cleared, records 21RS5 AND 21RS6 local positions on Attachment 2, Section 3.0, by initialing TEST POSITION 2. (closed) **Cue when asked: 21RS5 and 21RS6 went closed.**		
		CAUTION **Turbine-Generator load must be reduced to less than 80% at 10%/hr when a Reheat Stop Valve or Intercept Valve fails to reopen within 5 minutes while above 80% load.**			
	5.3.6.F	When TEST IN PROGRESS changes to NORMAL OPERATION, THEN **RECORD** 21RS5 AND 21RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 3.	When test in progress changes to normal operation, records 21RS5 and 21RS6 local positions on Attachment 2, Section 3.0 by initialing TEST POSITION 3. (open) **Cue when asked: 21RS5 and 21RS6 are fully open.**		
	5.3.6.G	IF EAST LP VALVE TESTS is completed, THEN **SELECT** CLOSE WINDOW at the TURBINE E-H CONTROL & STATUS monitor.	Determines testing is not complete.		
	5.3.7	IF testing 22RS5 - EAST REHEAT STOP AND 22RS6 - EAST INTERCEPT,			

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
		THEN:			
	5.3.7.A	At the TURBINE E-H CONTROL & STATUS monitor, EAST LP VALVE TESTS screen, **ENSURE** the TEST PERMISSIVE, NO OTHER TESTS IN PROGRESS is green.	Observes already on EAST LP VALVE TESTS screen, and determines the TEST PERMISSIVE, NO OTHER TESTS IN PROGRESS is green.		
	5.3.7.B	**DIRECT** an Operator to locally monitor 22RS5 AND 22RS6 for full stroke.	Directs field operator monitor 22RS5 AND 22RS6 for full stroke. **Cue: I am standing by to monitor 22RS5 and 22RS6 for full stroke.**		
	5.3.7.C	**RECORD** 22RS5 AND 22RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 1.	Records **local** 22RS5 and 22RS6 positions on Attachmen1, Section 3.0, by initialing TEST POSITION 1. (open) **Cue when asked: 22RS5 and 22RS6 are fully open.**		
		NOTE The MicroNet System will perform the following functions during testing: Issue an alarm for any valve out-of-position during testing Energize 22RS5 and 22RS6 solenoids to CLOSE both valves Hold each valve in the closed position for 10 seconds after both valves are detected in the CLOSED position			

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
		De-energize 22RS5 and 22RS6 solenoids after 10 seconds elapses Alarm and initiate ABORT TESTING after 1 minute of TEST IN PROGRESS			
*	5.3.7.D	At the TURBINE E-H CONTROL & STATUS monitor, 1. **SELECT** START TEST for 22RS5 AND 22RS6. 2. **ENSURE** NORMAL OPERATION changes to TEST IN PROGRESS.	At the TURBINE E-H CONTROL & STATUS monitor, selects START TEST for 22RS5 AND 22RS6 and determines NORMAL OPERATION changes to TEST IN PROGRESS. **EVALUATOR MARK TIME 22RS5 indicates shut:** _____:_____:_____		
	5.3.7.E	When 22RS5 AND 22RS6 OPEN/MOVING indications are cleared, THEN **RECORD** 22RS5 AND 22RS6 positions on Attachment 2, Section 3.0, by initialing TEST POSITION 2.	When 22RS5 AND 22RS6 OPEN/MOVING indications are cleared, records 22RS5 AND 22RS6 local positions on Attachment 2, Section 3.0, by initialing TEST POSITION 2. (closed)		
			Note: After 10 seconds of being closed, 22RS6 will re-open, and 22RS5 remains shut.		
		CAUTION **Turbine-Generator load must be reduced to less than 80% at 10%/hr when a**			

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
		Reheat Stop Valve or Intercept Valve fails to reopen within 5 minutes while above 80% load.			
			Determines 22RS5 has not opened, and contacts local operator to verify position. **Cue: 22RS6 is open and 22RS5 is shut.**		
	5.2.3	IF any valve does not respond as expected or fails to reopen during this test, THEN **PERFORM** the following troubleshooting before continuing on with the test: A. **CHECK** fuse LED for any lit LEDs (failed fuse) AND **REPLACE** fuse, if needed. B. **CYCLE** the associated EHC valve to attempt to reopen the valve. C. **CHECK** associated Limit Switches (HMI/Locally). D. Lightly **AGITATE** the associated solenoid valve with a small hammer. E. **OPEN** associated fuse holder, reinstall fuse, and **CLOSE** fuse holder. F. IF the valve functions following any of the above steps, THEN **INITIATE** a Notification to document any alarms on the HMI screen and what caused the valve to respond. G. IF none of the above step resolve the problem, THEN **CONTACT** I&C to perform additional troubleshooting.	**Note: This step was previously read during performance of Section 5.2, TEST PREPARATION.** Contacts field operator to investigate 22RS5 malfunction IAW Step 5.2.3. **Note: Other than reporting 22RS5 position is closed, do not provide any other report or respond to plant page after giving report of valve position requested at this step.**		

*	STEP No.	STEP * Denotes critical task	STANDARD	EVAL S/U	COMMENTS
*			Within 5 minutes of time marked above at step 5.3.7.D, initiates a turbine load reduction at 10% per hour. **Cue as required that RO will initiate boration and maintain rod control.** **If asked if the CRS wants a load reduction performed, respond: "The CRS states that if a load reduction is required by procedure to initiate the load reduction as per procedural direction."**		
			Terminate the JPM once a load reduction at 10% per hour is commenced OR 5 minutes has elapsed from the time 22RS5 was shut.		

TERMINATING CUE: None

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

a s 1. Task description and number, JPM description and number are identified.

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

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

a s 4. Initial setup conditions are identified.

a s 5. Initiating and terminating Cues are properly identified.

a s 6. Task standards identified and verified by SME review.

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

a s 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 19 Date 5/27/2015

a 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: [signature] BICKHART Date: 9/23/15

SME/Instructor: [signature] M. Lith Date: 9-23-15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

Unit 2 is operating at 89% power, MOL. Power is reduced to perform Main Turbine Valve Testing. Rod control is in manual per CRS direction to prevent rod movement during testing, with Control Bank D at 187 steps. The ESO has been notified of valve test.

INITIATING CUE:

Perform Main Turbine Valve Testing IAW S2.OP-PT.TRB-0003, Main Turbine Valve Stroke Testing, Sections 5.2 (Test Preparation), and 5.3 Main Turbine Valve Stroke Testing-Turbine Operating OR Main Steam Isolation Valves Closed. Perform Reheat and Intercept valve testing prior to Main Steam Stop and Governor Valves. Personnel are at the Main Turbine to perform any required local actions.

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OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: AC Electrical Distribution

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

TASK NUMBER: N0620110101

JPM NUMBER: 14-01 NRC Sim e

ALTERNATE PATH: [X]

K/A NUMBER: 062 A4.01

IMPORTANCE FACTOR: 3.3 RO, 3.1 SRO

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

EVALUATION SETTING/METHOD: Simulator - Perform

REFERENCES:
S2.OP-IO.ZZ-0003, Rev. 40, Hot Standby to Minimum Load (All checked 8-20-15)
S2.OP-SO.4KV-0008, Rev. 12, 4KV Group Buses Power Supply Transfer

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: 8-20-15**

Validated By: S Bickhart / J Militti, SME or Instructor — **Date: 9-23-15**

Approved By: Training Department — **Date:** 10/7/15

Approved By: Operations Department (MOD) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____

DATE: _____

SYSTEM: AC Electrical Distribution

TASK: Transfer the 4KV Group Buses To The Alternate Power Supply (SPT to APT)

TASK NUMBER: N0620110101

SIMULATOR SETUP IC-253 19.2% power BOL.

MALFS: EL0257 4KV BREAKER 22FSD FAILURE (tied to ET-1)
RP0058 Failure of Automatic Reactor Trip
ET-1: 2BFGD Close PB

Check APT voltage the same as the Group bus voltage pre-req 2.3.3

Note: The breaker failure MALF will cause a loss of 2 Group Buses

INITIAL CONDITIONS:

19.2% power, BOL.
The Main Turbine was synchronized 10 minutes ago.
Steam Dumps are in MS Pressure Mode-Auto set at 970 psig.
Rod Control is in Manual until Group Buses are transferred.
Group Buses are powered from the Station Power Transformers.

INITIATING CUE: The CRS directs you to transfer all 4KV Group buses from their respective Station Power Transformers to the Aux Power Transformers IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer. All pre-requisites are complete SAT. Perform Sections 5.1-5.4 in order.

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

Task Standard for Successful Completion:
1. Transfer 2E 4KV Group bus from SPT to APT.
2. Trip Rx upon ATWT while transferring 2F 4KV Group bus from SPT to APT

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NAME: _____
DATE: _____

SYSTEM: Electrical

TASK: Transfer the 4KV Group Buses To The Alternate Power Supply (SPT to APT)

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

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

SYSTEM: Electrical

TASK: Transfer the 4KV Group Buses To The Alternate Power Supply (SPT to APT)

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

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NAME: _____
DATE: _____

SYSTEM: Electrical

TASK: Transfer the 4KV Group Buses To The Alternate Power Supply (SPT to APT)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.2.5	**PRESS** control console 2BFGD CLOSE pushbutton, AND **ENSURE** the following: A. 21FSD is OPEN. B. 2BFGD is CLOSED. C. 2F 4KV Group Bus voltage is 4.22 - 4.36KV. D. Console bezel 2BFGD MIMIC BUS INTLK CLOSE SELECTION is extinguished.	**Simulator Operator**: Ensure ET-1 is TRUE when 2BFGD Close PB is depressed. Determines 2F Group bus did not transfer and recognizes a Rx trip demand signal is present by First Out **Annunciator F-10, RC LO FLO OR RCP BKR OPEN & P-7.** Recognizes the Rx did not trip. Announces ATWT.		
*			Trips the Rx using either trip handle.		
			Terminate the JPM when a Rx trip has been initiated.		

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JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

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

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

Sa 4. Initial setup conditions are identified.

Sa 5. Initiating and terminating Cues are properly identified.

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

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

Sa 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 12 Date 1-20-11

Sa 9. Pilot test the JPM:
   a. verify Cues both verbal and visual are free of conflict, and
   b. ensure performance time is accurate.

_____ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: [signature] Militt Date: 9-23-15

SME/Instructor: [signature] Bickhart Date: 9/23/15.

SME/Instructor: _____ Date: _____

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INITIAL CONDITIONS:

19.2% power, BOL.

The Main Turbine was synchronized 10 minutes ago.

Steam Dumps are in MS Pressure Mode-Auto set at 970 psig.

Rod Control is in Manual until Group Buses are transferred.

Group Buses are powered from the Station Power Transformers.

INITIATING CUE:

The CRS directs you to transfer all 4KV Group buses from their respective Station Power Transformers to the Aux Power Transformers IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer. All pre-requisites are complete SAT. Perform Sections 5.1-5.4 in order.

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OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Emergency Procedures

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

TASK NUMBER: N1140230401

JPM NUMBER: 14-01 NRC Sim f

ALTERNATE PATH: [X]

K/A NUMBER: EPE 007 EA1.05

IMPORTANCE FACTOR: 4.0 (RO) 4.1 (SRO)

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: 2-EOP-TRIP-2, Rev. 28 Reactor Trip Response (rev checked 9-23-15)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 5 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 8-22-15

Validated By: S Bickhart / J Militti, SME or Instructor — **Date:** 9-23-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (MUB) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Procedures

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

TASK NUMBER: 1150030501

SIMULATOR SETUP: **IC-246**

MALF: NI0195D IR CH N36 Compensating Volts Lo - TRUE
Mark up EOP-2 up to Step 19 of TRIP-2
Ensure NR-45 set up for SR1 on PEN 1 and IR2 on PEN 2
Ensure audio count rate monitor selected to 10K scale

INITIAL CONDITIONS:

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

INITIATING CUE:

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

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

Task Performance for Successful Completion:
1. Transfers Main Steam Dumps to MS Pressure Control – Auto
2. Energizes BOTH SRNI Channels

NAME: _____
DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note for Evaluator: ~ 2 minutes 10 seconds will elapse between starting JPM and when IR CH II amps will level off.		
	19	Are Condenser Steam Dumps Available?	Checks Condenser Steam Dumps and reports they are available based on circulators in service and condenser vacuum established.		
*		Place Steam Dumps in "Manual"	Depresses Steam Dumps Manual PB on control console and verifies Manual light illuminates and Auto light extinguishes.		
*		Align Steam Dump Valve demand "Press %" and "Tavg %"	Uses Increase Demand (Open Vlv) PB on to align Steam Dump Valve demand "Press %" and "Tavg %".		
*		Place Steam Dumps in "MS Pressure Control"	Depresses "MS Pressure Control" PB on control console and verifies light illuminates and Tavg Control light extinguishes.		
*		Place Steam Dumps in "Auto"	Depresses Steam Dumps Auto PB on control console and verifies Auto light illuminates and Manual light extinguishes.		

NAME: _____
DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Adjust Steam Pressure Valve Demand to maintain SG Pressure at 1005 psig.	Adjusts Steam Pressure Valve Demand to maintain SG Pressure at 1005 psig. **Note:** With Tavg stable at ~547° F, Steam dumps may or may not be adjusted. If adjusted Manual may be used for adjustment then returned to Auto.		
	20	Is <u>any</u> RCP running	Checks RCP status and determines all RCP's are running.		
	22	Are <u>both</u> IR Channels less than 7E-11 Amps	Checks IRNI Channel 1 and Channel II indication and determines 2N36 reads >7E-11 Amps.		

NAME: _____
DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Is undercompensation preventing proper IR operation?	Determines undercompensation of channel 2N36 is preventing proper IR operation by: - Elapsed time since trip - SUR 0 on affected channel with power above minimum display - NR-45 trend IR CH II leveling off **<u>If</u> operator arrives quickly at this step and continues without determining overcompensation problem, <u>then</u> when step 24 is reached (below)about whether a C/D will be perfomed give operator cue (below) that SM is in contact with Ops Manager about unit status and CRS is waiting for direction.**		
*	22.1	Energize Source Range Channels	Energizes Source Range Channel I by depressing RESET SOURC RANGE A		
*			Energizes Source Range Channel II by depressing RESET SOURC RANGE B		

NAME: _____
DATE: _____

SYSTEM: Emergency Procedures

TASK: Take Corrective Action For A Nuclear Instrumentation System Malfunction

*	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	22.2	Transfer NR-45 (Nuclear Power Recorder) to Source Range Channels	Transfers NR-45 (Nuclear Power Recorder) to Source Range Channels by selecting Source Range Channel I on Pen 1 or 2, and selecting Source Range Channel II on the other Pen.		
	22.3	Adjust Audio Count Rate Circuit Scale	Adjusts Audio Count Rate Circuit Scale		
			Terminate JPM after audio count rate scale adjustment has been verified in the control room.		
	Step 23 contingency	Maintain plant parameters as follows: PZR Pressure – 2235 psig PZR level -22% SG Level – 9%-33% RCS Temp - 547°F	Ensures plant parameters are maintained.		
	Step 24 contingency	Is RCS Cooldown Required	**Cue**: SM is in contact with Ops Manager about unit status and CRS is holding at this step waiting for direction.		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

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

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

AS 4. Initial setup conditions are identified.

AS 5. Initiating and terminating Cues are properly identified.

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

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

AS 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 28 Date 8/25/11

AS 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: BUCKHART Date: 9/23/15

SME/Instructor: M. Lith Date: 9-23-15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

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

INITIATING CUE:

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

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Component Cooling System

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

TASK NUMBER: N1140080401

JPM NUMBER: 14-01 NRC Sim g

ALTERNATE PATH: [X]

K/A NUMBER: 008 A4.01

IMPORTANCE FACTOR: 3.3 RO, 3.1 SRO

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

EVALUATION SETTING/METHOD: Simulator - Perform

REFERENCES:
S2.OP-AB.CC-0001, Rev. 14 Component Cooling Abnormality
S2.OP-AB.RCP-0001, Rev. 21 Reactor Coolant Pump Abnormality
S2.OP-AR.ZZ-0004, Rev. 27, Overhead Window D (all rev checked 9-23-15)
S2.OP-AR.ZZ-0011, Rev. 60, Control Console 2CC1

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:** 8-20-15

Validated By: S Bickhart / J Militti, SME or Instructor — **Date:** 9-23-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10-9-15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____

DATE: _____

SYSTEM: Component Cooling System

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

TASK NUMBER: N1140080401

SIMULATOR SETUP **IC-247 100% power EOL. ***Ensure VCT level is sufficient such that a swap to RWST will not occur.**

MALF: CC0361 23 CCW pump fails to start on low pressure

RT-1
MALF: CC0172B 22 Component Cooling Water Pump Trip
MALF: CC0172A 21 Component Cooling Water Pump Trip
Delay: 4 minutes

Override: A604 OVDI 23 CCW pump start PB - OFF

INITIAL CONDITIONS: 100% power, EOL.

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

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

Task Standard for Successful Completion:
1. Trip the Reactor.
2. Trip 21-24 RCPs.
3. Isolate Letdown and swap Charging Pump suction to the RWST.

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NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Note for Simulator Operator: The remaining CCW pump must be tripped **PRIOR** to the determination that the Rx must be tripped and RCPs stopped in either the Reactor Coolant Pump or Component Cooling System Abnormal Procedures. **IF required, THEN remove the delay from 22 CCW pump trip prior to the operator tripping the reactor.**	**Note to Evaluator**: The end result of this JPM will be the same whether the Component Cooling or Reactor Coolant Pump Abnormal Procedure is used. The Attachment in each procedure for Stopping RCPs is the same. S2.OP-AB.RCP-0001 steps start on page 9 S2.OP-AB.CC-0001 steps start on page 14		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Simulator Operator: Insert **RT-1** after operator assumes the watch. **MALF: CC0172B** 22 Component Cooling Water Pump Trip **MALF: CC0172A** 21 Component Cooling Water Pump Trip **DELAY**: 4 minutes **Note: IF** operator announces intention to trip the Rx before the remaining CCW pump has tripped, then remove remaining delay time from the 21 CCW pump trip.	Reports 22 CCW pump has tripped. The following alarms will annunciate: • OHAs D20-D23 21/22/23/24 RCP BRG CLG WTR FLO LO. • RCP Thermal Barrier Return Lo Flow. • 21 and 22 CCW Header Lo Pressure Console alarms. **Note:** Each of the Alarm Response actions is contained here, as well as the actions contained in both S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, and S2.OP-AB.CC-0001, Component Cooling Abnormality. Either of the Abnormal Procedures may be entered directly, or through the Alarm Response Procedure to get to ABs.		
			Determines that the standby CCW pump has failed to auto start, and attempts to manually start it here or when directed by Abnormal Procedure. When attempted, reports standby CCW pump will not start.		

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NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP D20-23		Refers to S2.OP-AR.ZZ-0004, Overhead Window D.		
	ARP D20-23 2.0		Determines there are no automatic actions associated with these alarms.		
	ARP D20-23 3.2	**CHECK** OPEN the following Component Cooling Water valves: A. 2CC117, RCP CC MOT OP INLET V. B. 2CC118, RCP CC MOT OP INLET VALVE C. 2CC136, RCP BRG MOT OP OUTLET VALVE D. 2CC187, RCP MOTOR CC MOTOR OPERATED OUTLET VALVE.	Determines the following Component Cooling Water valves are open on CC1: A. 2CC117, RCP CC MOT OP INLET V. B. 2CC118, RCP CC MOT OP INLET VALVE C. 2CC136, RCP BRG MOT OP OUTLET VALVE D. 2CC187, RCP MOTOR CC MOTOR OPERATED OUTLET VALVE.		
	ARP D20-23 3.3	**MONITOR** 21(22,23,24) RCP Motor Bearing temperatures. (T0413A, T0414A T0415A, and T0416A)	Monitors 21(22,23,24) RCP Motor Bearing temperatures. (T0413A, T0414A T0415A, and T0416A) using P-250 computer on the Reactor Coolant Pumps screen, which has 21-24 RCP bearing temperatures. **Note:** OHA D20-23 are identical except for bearing temperature instrument numbers.		

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NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP D20-23 3.4	IF either of the following conditions exist, **GO TO** S2.OP-AB.RCP-0001(Q) Reactor Coolant Pump Abnormality: • 21(22,23,24) RCP Motor Bearing Temperature reaches 175°F, or • CCW flow can NOT be established within 5 minutes AND 21 RCP Motor Bearing temperatures are trending up.	Determines 21(22,23,24) RCP Motor Bearing Temperature has not reached 175° (will reach maximum of ~ 157 °F) Determines that RCP Motor Bearing temperatures are not trending up. (The temps will rise from ~141 to 157 quickly, within 3 minutes, and the curve of the line flattens out quickly. There IS still CCW flow going to the RCPs, and it WILL keep them from reaching required pump trip temperatures. IF pace of JPM performance results in it being determined that temperatures are trending up, THEN will go to S2.OP-AB.RCP-001 here.		
	ARP D20-23 3.5	**MONITOR** CC Surge Tank and Containment Sump Pump runs for leakage indication.	Determines CC Surge Tank and Containment Sump Pump runs do not indicate leakage.		
	ARP D20-23 3.6	IF CC Console alarms header pressure low, OR Surge Tank Level High Low, THEN **INITIATE** S2.OP-AB.CC-0001, Component Cooling Abnormality.	Initiates S2.OP-AB.CC-0001, Component Cooling Abnormality based on CC header Pressure low console alarms.		

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NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	ARP CC1 2.0	21 (22) CC HDR PRESSURE LO Automatic Actions – Starts the standby CC Pump	Determines that the standby CCW pump has failed to auto start,		
	ARP CC1 3.1	**ENSURE** the CC Pump is RUNNING or START standby CC Pump.	Attempts to manually start the standby CCW pump, and recognizes it will not start.		
	ARP CC1 3.2	IF the low pressure alarm remains, THEN **GO TO** S2.OP-AB.CC-0001(Q), Component Cooling system Abnormality.			
	AB RCP 3.1	**INITIATE** Attachment 1, Continuous Action Summary.	Initiates Attachment 1, Continuous Action Summary. **Note:** The first 2 bulleted CAS actions for 1) losing CCW flow to ALL RCPs 2) not restoring CCW flow within 5 minutes of initial loss are based on a loss of ALL CCW flow. However, if a conservative decision is made that the actions of Attachment 2, Stopping Reactor Coolant Pumps are applicable, then **CUE: The CRS directs you to dispatch an operator to 23 CCW pump breaker first to see if there is any apparent reason why 23 CCW pump breaker did not close.**		

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NAME: _____
DATE: _____

SYSTEM: Component Cooling System

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

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

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		C. **ENSURE** RCP Seal Injection flows are 6-12 gpm per pump, NOT to exceed 40 gpm total RCP Seal Injection Flow.	Checks RCP Seal Injection flows are 6-12 gpm per pump, total RCP Seal Injection Flow adds up to ≤ 40 gpm.		
	AB RCP 3.4	IF any RCP Motor winding temperature, indicated on 2RP4 recorder, is >235°F for Hot Loop Conditions (Modes 1-4), OR >248°F for Cold Loop Conditions (Mode 5) THEN:	Determines all RCP Motor winding temperatures, indicated on 2RP4 recorder, are <235° for Hot Loop Conditions (Modes 1-4).		
	AB RCP 3.5	IF Loss of Seal Injection is causing RCP(s) abnormal condition, AND RCP Seal Leakoff is <2.5 gpm on any RCP, THEN:	Determines Loss of Seal Injection flow is not causing RCS(s) abnormal condition.		
	AB RCP 3.6	IF affected RCP Seal Water Leakoff is <0.8 gpm or is slowly approaching 6 gpm, AND affected Pump bearing/seal inlet temperatures are stable or lowering, THEN:	Determines affected RCP Seal Water Leakoff is >0.8 gpm and is not slowly approaching 6 gpm from console indications.		
			Note: 22 CCW pump will trip 4 minutes after 21 CCW pump trips. Determines last remaining Component Cooling water has tripped.		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

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

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NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.RCP Att. 2 1.0	IF Reactor Trip Breakers are CLOSED, THEN:			
*		1.1 **TRIP** the Reactor.	Trips the Reactor using either trip handle.		
*		1.2 **STOP** affected RCP(s).	Depresses stop PBs for 21-24 RCPs.		
		1.3 IF RCP shutdown was due to RCP seal Leakoff flow > 6gpm, THEN simultaneously **PERFORM** the following:	Determines RCP shutdown was not due to RCP seal Leakoff flow > 6gpm. **Cue if required: IF** operator continues with TRIP-1 Immediate Actions, **THEN CUE to return to AB.RCP-1 and other operators will continue performing TRIP-1 after IA's are complete.**		
		1.4 IF RCP shutdown was due to a TOTAL LOSS of Component Cooling Water (including loss of CCW to the CVCS Letdown Heat Exchanger), THEN simultaneously **PERFORM** the following:	Determines RCP shutdown was due to a TOTAL LOSS of Component Cooling Water and simultaneously performs the following:		
		• **ISOLATE** RCS letdown AND **SWAP** charging pump suction to the RWST by performing the following:			
*		a) **CLOSE** 2CV2 AND 2CV277 to isolate letdown.	Depresses the close PB for 2CV2 AND 2CV277 to isolate letdown.		
*		b) **OPEN** 2SJ1 AND 2SJ2 to swap charging pump suction to the RWST.	Depresses the open PB for 2SJ1 AND 2SJ2 to swap charging pump suction to the RWST.		
*		c) **CLOSE** 2CV40 AND 2CV41 to isolate the VCT.	Depresses the close PB for 2CV40 AND 2CV41 to isolate the VCT.		
		• **GO TO** 2-EOP-TRIP-1, Reactor Trip or Safety Injection AND **RETURN** to this attachment, at the SM/CRS discretion.	Goes to 2-EOP-TRIP-1, Reactor Trip or Safety Injection. Terminate JPM when TRIP-1 immediate actions begin to be performed.		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

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

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

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

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

NAME: _____
DATE: _____

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		IF Reactor Trip Breakers are CLOSED, THEN:			
*		A. **TRIP** the Reactor.	Trips the Reactor using either trip handle.		
*		B. **STOP** affected RCP(s).	Depresses stop PBs for 21-24 RCPs.		
		C. Simultaneously **PERFORM** the following:			
		• IF a total loss of Component Cooling Water was the initiating event (including loss of CCW to the CVCS Letdown Heat Exchanger), THEN **ISOLATE** RCS letdown AND **SWAP** Charging Pump suction to the RWST as follows:	**Cue if required:** IF operator continues with TRIP-1 Immediate Actions, **THEN CUE to return to AB.RCP-1 and other operators will continue performing TRIP-1 after IA's are complete.**		
*		a. **CLOSE** 2CV2 AND 2CV277 to isolate letdown.	Depresses the close PB for 2CV2 AND 2CV277 to isolate letdown.		
*		b. **OPEN** 2SJ1 AND 2SJ2 to swap charging pump suction to the RWST.	Depresses the open PB for 2SJ1 AND 2SJ2 to swap charging pump suction to the RWST.		
*		c. **CLOSE** 2CV40 AND 2CV41 to isolate the VCT.	Depresses the close PB for 2CV40 AND 2CV41 to isolate the VCT.		
		• IF a Component Cooling Water LEAK in Containment with 2CC113 AND 2CC215 closed was the initiating event, THEN **CLOSE** the following valves:	Determines CCW leak in containment was not the initiating event.		
		• **GO TO** 2-EOP-TRIP-1, Reactor Trip or Safety Injection.	Goes to 2-EOP-TRIP-1, Reactor Trip or Safety Injection. Terminate JPM when TRIP-1 immediate actions begin to be performed.		

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

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.

a s 1. Task description and number, JPM description and number are identified.

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

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

a s 4. Initial setup conditions are identified.

a s 5. Initiating and terminating Cues are properly identified.

a s 6. Task standards identified and verified by SME review.

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

a s 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 14 Date 10/6/10 AB.CC-0001
21 7/3/8 AB.RCP-0001
27 4/24/15 AR.ZZ-0004
60 4/30/15 AR.ZZ-0011

a 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: 9/23/15

SME/Instructor: Smith Date: 9-23-15

SME/Instructor: _____ Date: _____

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

INITIAL CONDITIONS:

100% power, EOL.

INITIATING CUE:

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

PSEG Restricted – Possession Requires Specific Permission from Nuclear Training

STATION: Salem Generating Station

SYSTEM: Radioactive Waste Liquid

TASK: Perform an Authorized Release of Radioactive Liquid Waste to the Circulating Water System (and respond to High Radiation with failure of 2WL51 to automatically shut.)

TASK NUMBER: N0685140104

JPM NUMBER: 14-01 NRC Sim h

ALTERNATE PATH: [X]

K/A NUMBER: 068 A4.03

IMPORTANCE FACTOR: 3.9 (RO) 3.8 (SRO)

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES:
S2.OP-AB.RAD-0001, Rev. 30 Abnormal Radiation(all rev checked 8-20-15)
S2.OP-SO.WL-0001, Rev. 25, Release of Radioactive Liquid Waster from 21 CVCS Monitor Tank

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:** 8-20-15

Validated By: S Bickhart / J Militti, SME or Instructor — **Date:** 9-23-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department (MD) — **Date:** 10 9 15

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: [ ] SAT [ ] UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

NAME: _____

DATE: _____

SYSTEM: Radioactive Waste Liquid

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

TASK NUMBER: N0685140104

SIMULATOR SETUP IC-248
Have S2.OP-SO.WL-0001 open on U desk.
MALF: RM0235C Process Rad Mon 2R18 fails anywhere (1E6) tied to ET-3 with 30 second delay
MALF: VL0305 2WL51 Fails to position (0-100%) tied to ET-3 with 5 second ramp.
ET-3 kao07pnu 2WL51 open PB
ET-5 kao07tcu 2WL51 close PB (DMF VL0305)

INITIAL CONDITIONS:

Unit 2 is operating at 100% power.
An authorized radioactive liquid release from 21 CVCS Monitor Tank through 21 CCHX to Unit 1 Circ Water is being performed IAW S2.OP-SO.WL-0001, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank, and is being aligned in the field. The RWO performing the release is currently beginning Step 5.5, Release of 21 CVCS MT via SW System to CW System.

INITIATING CUE:

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

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

Task Standard for Successful Completion:
1. Operator opens 2WL51 to commence the Liquid Release.
2. Operator shuts 2WL51 after receipt of Hi Radiation Alarm on 2R18.

NAME: _____
DATE: _____

SYSTEM: Waste Liquid

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Note to Evaluator: The RWO has the official copy of the procedure in the field. Place unmarked copy of S2.OP-SO.WL-0001 on NCO desk.		
			Evaluator: Initiate JPM by giving the following CUE: **Cue:** This is the RWO. Open 2WL51, Liquid Release Stop Valve IAW step 5.5.2 of S2.OP-SO.WL-0001.		
	5.5.2	Direct Unit 2 NCO to **OPEN** 2WL51, LIQUID RELEASE STOP VALVE.			
*			Depresses open pushbutton for 2WL51 LIQUID RELEASE STOP VALVE and verifies red open light illuminates. **Simulator Operator:** Ensure **ET-3** is TRUE when the operator depresses 2WL51 open PB. This inserts the 2R18 High Radiation condition after a 30 second delay.		

NAME: _____
DATE: _____

SYSTEM: Waste Liquid

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
(* If it applies here)			Announces OHA A-6, RMS HI RAD OR TRBL, as unexpected, and refers to S2.OP-AR.ZZ-0001, Overhead Annunciators - Window A. **OR** Checks CRT and reports CRT point 725, RMS Hi Rad or Trbl-Liq Waste Disposal CH 2R18 in alarm, and after observing 2WL51 open, shuts 2WL51 using Step 5.5.9 of S2.OP-SO.WL-0001 or S2.OP-AR.ZZ-0001 for guidance.		
			Evaluator Note: The 2WL51 status control should be maintained by the release procedure. Once the 2WL51 is shut, the Control Room operator must contact the RWO to inform them of the 2WL51 status.		
			IF the operator calls the RWO to report 2R18 status (on Panel 104) OR states that they would go to rack area of Control Room to verify 2R18 reading, **THEN** cue as follows as required: **Cue:** The RWO reports 2R18 reading $1x10^5$ cps. **Cue:** The 2R18 in the rack area reads $1x10^5$ cps.		

NAME: _____
DATE: _____

SYSTEM: Waste Liquid

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Evaluator Note: IF the operator shuts the 2WL51 based on the Hi Radiation signal, without reporting which procedure directs the action, THEN allow the operator to continue until they justify their action based on procedure direction. Once the 2WL51 is shut, its status communicated to the RWO, and procedure direction for shutting the 2WL51 identified, terminate the JPM.		
			Evaluator Note: Steps for AB.RAD continue on next page.		
			Checks CRT and reports CRT point 725, RMS Hi Rad or Trbl-Liq Waste Disposal CH 2R18 in alarm.		
	ARP 3.18	IF 2R18 indicates Hi Radiation or trouble, THEN **GO TO** S2.OP-AB.RAD-0001, Abnormal Radiation.	Enters S2.OP-AB.RAD-0001, Abnormal Radiation.		
	AB.RAD 3.1	**DETERMINE** affected Radiation Monitor.	Verifies 2R18 is the affected rad monitor.		

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.RAD 3.2	Is the alarm, warning, or rising indication valid? (**EVALUATE** the following): • Chemistry Sampling • Rising activity on related monitors • Maintenance activities in vicinity of radiation detector • Transfer of radioactive resins or other materials in affected area • No indication of failure or fault on affected Radiation Monitor • Radioactive release from Salem or Hope Creek	Determines alarm must be considered valid since a radioactive liquid release has just commenced and the 2R18 is sampling that release, and the monitor has been proven operable during performance of Attachment 2, Section 2.3, which performed a source check on 2R18.		
	AB.RAD 3.3	Announce the following on Plant PA system: • Affected Radiation Monitor number and name • Location of Radiation Monitor area with elevated indication	Announces "Radiation Monitor 2R18 Liquid Waste Disposal is in alarm, Auxiliary Building 84 elevation" **Note:** Operator may also include 64' elevation.		

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

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

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	AB.RAD 3.4	IF a release to the environment is in progress, THEN **DIRECT** Shift Radiation Protection Technician (SRPT) to complete and provide Page 2 of the Station Status Checklist (SSCL) for release rate determination.	If the operator has NOT shut the 2WL51, THEN the operator directs the Shift Radiation Protection Technician (SRPT) to complete and provide Page 2 of the Station Status Checklist (SSCL) for release rate determination. **Cue if required:** IF required, state the CRS will contact the SRPT to complete page 2 of SSCL. **Note:** This step may not be performed based on the operators knowledge of the ECG and that the SSCL looks at Gaseous Releases.		
	AB.RAD 3.5	**NOTIFY** SM/CRS to REFER to Event Classification Guide, ODCM, and Technical Specifications.	Directs SM/CRS to refer to Event Classification Guide, ODCM, and Technical Specifications		
	AB.RAD 3.6	**INITIATE** the applicable attachment for affected Radiation Monitor:	Initiates Attachment 1 of S2.OP-AB.RAD-0001, Abnormal Radiation.		

NAME: _____

DATE: _____

SYSTEM: Waste Liquid

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

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

Terminating Cue: None

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

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

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

SQ 4. Initial setup conditions are identified.

SQ 5. Initiating and terminating Cues are properly identified.

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

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

SQ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 6-4-12

SQ 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] M.L.H. Date: 9-23-15

SME/Instructor: [signature] BUCKHART Date: 9/23/15

SME/Instructor:_____ Date: _____

INITIAL CONDITIONS:

Unit 2 is operating at 100% power.
An authorized radioactive liquid release from 21 CVCS Monitor Tank through 21 CCHX to Unit 1 Circ Water is being performed IAW S2.OP-SO.WL-0001, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank, and is being aligned in the field. The RWO performing the release is currently beginning Step 5.5, Release of 21 CVCS MT via SW System to CW System.

INITIATING CUE:

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

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

TASK NUMBER: N0260070201

JPM NUMBER: 14-01 NRC IP-i

ALTERNATE PATH: [ ]

K/A NUMBER: 026 2.2.12

IMPORTANCE FACTOR: 3.7 (RO) 4.1 (SRO)

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

EVALUATION SETTING/METHOD: In Plant-Simulate

REFERENCES: S1.OP-ST.CS-0003, Rev. 5, Inservice Testing Containment Spray Valves
SA-AA-2113, Rev. 5, Chemical Safety

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:** 9-16-15

Validated By: S Bickhart / M spencer, SME or Instructor **Date:** 9-29-15

Approved By: Training Department **Date:** 10-7-15

Approved By: Operations Department **Date:** 10 9 15

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: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

TASK NUMBER: N0260070201

INITIAL CONDITIONS:

- Unit 1 is operating normally at 100% power.
- The crew is performing S1.OP-ST.CS-0003, Inservice Testing Containment Spray Valves for its normally scheduled 92 day surveillance.
- The control room is performing Section 5.2, IST of 1CS14/1CS16/1CS17 Tank Discharge Valves by Stroke Timing.
- The control room has reached Step 5.2.14 and directed you to perform Attachment 3, CS Eductor Line Flushing.

INITIATING CUE:

PPE requirements are RED for the flushing evolution. You are directed to determine what PPE you are required to wear, then perform the CS Eductor Line flush IAW Attachment 3, CS Eductor Line Flushing.

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 proper PPE as listed on page 52 of SA-AA-2113. (attached to this JPM)
2. Perform CS Eductor Line Flushing as per Attachment 3 of S1.OP-ST.CS-0003.

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Note: All actions in this JPM are simulated.		
		Provide clean copy of S1.OP-ST.CS-0003. Provide clean copy of SA-AA-2113.	**Note:** The Controlling copy of this procedure would be in the control room.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	Att. 1 Caution	PPE as specified in SA-AA-2113, Chemical Safety, are required to be worn when performing Eductor flush and sample.	Determines required PPE by reviewing SA-AA-2113 and finds PPE requirements for Sodium Hydroxide [NaOH] — 0-50% on pages 51-52: Hand: **Neoprene Supported UltraFlex gloves** Eye: Flushed or Diluted: Safety glasses with side shields* Not Flushed or Concentrated: **Chemical Goggles*** Face: **Face shield*** Body: **ChemMAX 2 TYCHEM SL or 6LYXX (Dupont) with Hood & Booties suit** Foot: **Butyl boots or, safety shoes inside ChemMAX 2 TYCHEM SL or 6LYXX (Dupont) suit with booties,** caution must be used for slip hazard and wear through of suit. Respiratory: **None** – unless heating (grinding, cutting, welding) or creating vapor and area is not well ventilated.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	Att. 1 A.0	**ENSURE** the following valves are CLOSED: ___ A. 1CS16, TANK DISCH ___ B. 1CS17, TANK DISCH	Locates MOV's 1CS16, TANK DISCH, and 1CS17, TANK DISCH, and determines they are shut. **Note**: 1CS16 and 1CS17 are normally shut valves)		
*	Att. 1 B.0	**UNLOCK** AND **OPEN** 1CS31, RWST SUPPLY TO EDUCTORS STOP VALVE.	Locates and opens 1CS31, RWST SUPPLY TO EDUCTORS STOP VALVE.		
*	Att. 1 C.0	**OPEN** 1CS40, SPRAY ADD TK DISCH LINE DRN.	Locates and opens 1CS40, SPRAY ADD TK DISCH LINE DRN.		
*	Att. 1 D.0	After 3 minutes of flushing to drain header, **CLOSE** 1CS40.	**Cue: 3 minutes have elapsed.** Closes 1CS40.		
*	Att. 1 E.0	**THROTTLE** 1CS61, CS SPRAY ADD TK DISCH SAMP VALVE, directing sample flow to a floor drain.	Locates 1CS61, CS SPRAY ADD TK DISCH SAMP VALVE, and describes throttling open valve and how to direct sample flow to floor drain.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Containment Spray

TASK: Perform Containment Spray Valve Verification (Flush the Containment Spray Eductor)

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	Att. 1 F.0	**DIRECT** Chemistry to perform sodium sample analysis of the water at 1CS61 local sample point.	Contacts Chemistry to perform sodium sample analysis of the water at 1CS61 local sample point. **Cue**: Chemistry has collected 1CS61 local sample.		
*	Att. 1 G.0	After sample has been obtained, **CLOSE** 1CS61.	Closes 1CS61.		
*	Att. 1 H.0	IF additional sampling is required, THEN **THROTTLE** 1CS61 as required by Chemistry Department.	**Cue:** Chemistry reports sample is 9 ppb sodium.		
*	Att. 1 I.0	WHEN Chemistry analysis verifies <10 ppm sodium, THEN **PERFORM** the following: ___ 1. **ENSURE** 1CS61 is CLOSED. ___ 2. **CLOSE** AND **LOCK** 1CS31.	Ensures 1CS61 is CLOSED. Closes and locks 1CS31.		
	Att. 1 J.0	**NOTIFY** Control Room Containment Spray Eductor Line flushing is complete.	Notifies control room Containment Spray Eductor Line flushing is complete.		
			Terminate JPM.		

TERMINATING CUE: None.

Chemical System Safety Template – Hazardous Bulk Chemical
Enclosure 5.13
Page 2 of 2
Sodium Hydroxide [NaOH] — 0 _ 50%

PPE REQUIREMENTS FOR APPLICABLE RISK CATEGORY

GREEN

Minimum PPE.

YELLOW

Minimum PPE, including Neoprene Supported UltraFlex gloves (wet) or leather work gloves (dry), as appropriate.

Face shield and ChemMAX 2 TYCHEM SL or 6LYXX (Dupont) with Hood & Booties suit, if opening a vent or drain valve.

RED

Hand	Neoprene Supported UltraFlex gloves
Eye	Flushed or Diluted: Safety glasses with side shields* Not Flushed or Concentrated: Chemical Goggles*
Face	Face shield*
Body	ChemMAX 2 TYCHEM SL or 6LYXX (Dupont) with Hood & Booties suit
Foot	Butyl boots or, safety shoes inside ChemMAX 2 TYCHEM SL or 6LYXX (Dupont) suit with booties, caution must be used for slip hazard and wear through of suit.
Respiratory	None – unless heating (grinding, cutting, welding) or creating vapor and area is not well ventilated.

*Not applicable if Respiratory Protection is used.

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.

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

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

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

SB 4. Initial setup conditions are identified.

SB 5. Initiating and terminating Cues are properly identified.

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

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

SB 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. _____ Date 9/29/15

SB 9. Pilot test the JPM: Rev 5 SA-AA-2113 Rev 5 S1.OP-ST.CS-0003
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.

Michael Spencer

SME/Instructor: _____ Date: 9/29/15

SME/Instructor: BECKHART Date: 9/29/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

- Unit 1 is operating normally at 100% power.
- The crew is performing S1.OP-ST.CS-0003, Inservice Testing Containment Spray Valves for its normally scheduled 92 day surveillance.
- The control room is performing Section 5.2, IST of 1CS14/1CS16/1CS17 Tank Discharge Valves by Stroke Timing.
- The control room has reached Step 5.2.14 and has directed you to perform Attachment 3, CS Eductor Line Flushing.

INITIATING CUE:

PPE requirements are RED for the flushing evolution.

You are directed to determine what PPE is required for this task, then perform the CS Eductor Line flush IAW Attachment 3, CS Eductor Line Flushing.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

TASK NUMBER: N1150460501

JPM NUMBER: 14-01 NRC IP-j

ALTERNATE PATH: [ ]

K/A NUMBER: 039 A1.09

IMPORTANCE FACTOR: 2.8 (RO) 2.8 (SRO)

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

EVALUATION SETTING/METHOD: In Plant / Simulate

REFERENCES: 1-EOP-LOPA-1 Sheet 2 Rev. 25

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 6 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: G Gauding, Instructor — **Date:** 8-28-15

Validated By: S Bickhart / M Spencer, SME or Instructor — **Date:** 9-29-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10 9 15

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: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

TASK NUMBER: N1150460501

INITIAL CONDITIONS:

A loss of all AC power has occurred in Unit 1. The crew has completed LOPA-1 through Step 26.

INITIATING CUE:

You are directed to locally isolate Unit 1 RCP Seal Cooling per Step 27 of EOP-LOPA-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. **Isolate RCP seal cooling IAW LOPA-1.**

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	1	Provide a copy of LOPA-1, Sheet 2.	Refers to LOPA-1, Sheet 2, Step 27.		
*	2a	Locally close CV83, SEAL WATER FILTER INLET	Locates CV83 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by turning handwheel in clockwise direction. ***CUE:* Handwheel has been rotated clockwise. Valve stem has fully lowered. Handwheel will not turn further.**		
*	2b	Locally close CV89, SEAL WATER FILTER INLET	Locates CV89 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by turning handwheel in clockwise direction. ***CUE: :* Handwheel has been rotated clockwise. Valve stem has fully lowered. Handwheel will not turn further.**		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	2c	Locally close CV95, SEAL WATER FILTER BYPASS	Locates CV95 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by turning handwheel in clockwise direction. ***CUE: :*** **Handwheel has been rotated clockwise. Valve stem has fully lowered. Handwheel will not turn further.**		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
			Note: The following 2 steps contain valves which are located in contaminated areas. If the candidate does not identify or discuss radiological measures required for entry into these areas, use a follow up query to elicit information. **The requirements for PC use and obtaining dosimetry during accident conditions (LOPA) will vary based on situational conditions, such as is there a Rad Pro Technician immediately available at Control Point to escort operator, or to waive PC requirements, is the OSC manned, etc. For this reason there is no specific standard stated here for radiological conditions. However, candidate should mention any method of contamination control they may take, or how they would perform actions in a contaminated area.**		

PSEG Restricted – Possession Requires Specific Approval from Nuclear Training

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	3	Locally close CV116, SEAL WATER TO VCT VALVE.	Points to CV116 in 78 ft elevation Mech Pen Area SG B/D HX Area. Valve is located in roped off area. **CUE: Demonstrate how to close a similar valve in the area outside of the roped off area as if were CV116.** Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction. **CUE: Handwheel has been rotated clockwise. Valve stem has fully lowered. Handwheel will not turn further**		
*	4	Locally close CC131, RCP THERMAL BARRIER VALVE	Points to CC131 in 78 ft elevation Mech Pen Area SG B/D HX Area. Valve is located in roped off area. *CUE:* **Handwheel has been rotated clockwise. Valve stem has fully lowered. Handwheel will not turn further.**		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Coolant Pump

TASK: Perform Actions For Reactor Coolant Pump Seal Cooling Restoration

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	5	**NOTIFY** Control Room that RCP Seal Cooling has been isolated.	Informs control room that RCP Seal Cooling has been isolated. ***TERMINATING CUE:*** Control room has been informed that RCP Seal Cooling has been isolated.		

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.

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

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

SD 3. Performance location specified. (In-plant, control room, or simulator)

SD 4. Initial setup conditions are identified.

SD 5. Initiating and terminating Cues are properly identified.

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

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

SD 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. 25 Date 9/29/15
EOP LOPA-1 Rev25

SD 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.

michael Spencer

SME/Instructor: [signature] Date: 9/29/15

SME/Instructor: [signature] BUCKHART Date: 9/29/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

A loss of all AC power has occurred in Unit 1. The crew has completed LOPA-1 through Step 26.

INITIATING CUE:

You are directed to locally isolate RCP Seal Cooling per Step 27 of EOP-LOPA-1.

(24) SEND OPERATOR TO REMOVE 125VDC CONTROL POWER FROM 11 AND 12 AFW PUMPS

64 FT ELEV. SWITCHGEAR ROOM 1A AND 1B

(25) RESTORE OFFSITE POWER

S1.OP-AB.LOOP-000(10) "LOSS OF OFF SITE POWER"

(26) WHEN AT LEAST ONE 4 KV VITAL BUS IS ENERGIZED, THEN GO TO STEP 42

RCP SEAL COOLING ISOLATION

(27) DO NOT START ANY CHARGING PUMP UNTIL DIRECTED

SEND OPERATOR TO CLOSE:
- 1CV83 AND 1CV89 (SEAL WATER FILTER INLET)
- 1CV95 (SEAL WATER FILTER BYPASS)

84 FT ELEV. AUX BLDG. SEAL WATER INJECTION FILTER VALVE ROOM

SEND OPERATOR TO CLOSE 1CV116 (SEAL WATER TO VCT VALVE)

78 FT ELEV. MECH PEN AREA. SG B/D HX AREA 1CV116 1CY2EP5A

DO NOT START ANY CCW PUMP UNTIL DIRECTED

SEND OPERATOR TO CLOSE 1CC131 (RCP THERMAL BARRIER VALVE)

78 FT ELEV. MECH PEN AREA. SG B/D HX AREA 1CC131 1CY2EP5I

SG ISOLATION

(28) INITIATE LOOP 11 THRU 14 MAIN STEAM ISOLATION

ISOLATE MAIN FEEDWATER BY CLOSING:
- 11 THRU 14 BF19 (FW CONTROL)
- 11 THRU 14 BF40 (BYPASS)

ISOLATE SG B/D BY CLOSING:
- 11 THRU 14 GB4 (SG OUTLET)
- 11 THRU 14 SS94 (SG B/D SAMPLING)

D

1SJ60
1SJ53
1SJ123

1CC113
1CC215

11 THRU 14 C

1VC7
1VC8
1VC11
1VC12

1WR80
1PR17
1PR18
1NT25

1NT32

CONT

VALVE

1VC5
1VC6

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Waste Gas

TASK: Conduct an Authorized Waste Gas Release (Swap in-service GDT's and Place a Gas Decay Tank in Holdup)

TASK NUMBER: N0715070104

JPM NUMBER: 14-01 NRC IP-k

ALTERNATE PATH: [ ]

K/A NUMBER: 071 Gen 2.3.11

IMPORTANCE FACTOR: 3.8 (RO) 4.3 (SRO)

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

EVALUATION SETTING/METHOD: In Plant / Simulate

REFERENCES: S2.OP-SO.WG-0008, Rev. 26
S2.OP-SO.WG-0003, Rev.11

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:** 8-27-15

Validated By: S Bickhart / M Spencer, SME or Instructor — **Date:** 9-29-15

Approved By: Training Department — **Date:** 10-7-15

Approved By: Operations Department — **Date:** 10 9 15

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: Waste Gas

TASK: Conduct an Authorized Waste Gas Release (Place a Gas Decay Tank in Holdup)

TASK NUMBER: N0715070104

INITIAL CONDITIONS:

Both Salem Units are operating at 100% power.
21 Waste Gas Decay Tank is in service at 90 psig.
22 Waste Gas Decay Tank is in Standby at 15 psig.
23 Waste Gas Decay Tank is O/S at 15 psig.
24 Waste Gas Decay Tank is O/S at 15 psig.

INITIATING CUE:

You are directed to place 24 Waste Gas Decay Tank (WGDT) in service and remove 21 Waste Gas Decay tank from service IAW Section 5.2 of S2.OP-SO.WG-0003, GASEOUS WASTE DISPOSAL SYSTEM OPERATION.

Once 21 WGDT is removed from service, you are directed to align 21 WGDT for Holdup IAW S2.OP-SO.WG-0008, DISCHARGE OF 21 GAS DECAY TANK TO PLANT VENT in preparation for sampling and release of 21 WGDT. Prerequisites and P&L's for BOTH procedures have been performed.

Successful Completion Criteria:

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

Task Standard for Successful Completion:

1. Swap in-service WGDT from 21 to 24.
2. Align 24 WGDT for HOLDUP IAW Att 1 of S2.OP-SO.WG-0008.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Waste Gas

TASK: Place a Waste Gas Tank in Holdup

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
		Provide operator with marked up procedures.			
	SO.WG-3 5.2.7	IF 24 GDT being placed in service OR standby,THEN:			
	SO.WG-3 5.2.7.A	**ENSURE** the following: 1. 24 GDT release NOT in progress. 2. 24 GDT pressure >10 psig AND <92 psig. 3. 24WG31, GDT INLET VALVE, is OPEN.	Determines 24 GDT release not in progress. Determines 24 GDT pressure is >10 psig AND <92 psig. (2PIS1039) **Cue if required: 2PIS1039 reads 15 psig.)** Determines 24WG31 is open.		
	SO.WG-3 5.2.7.B	IF 24 GDT being placed in service, THEN:			

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Waste Gas

TASK: Place a Waste Gas Tank in Holdup

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	SO.WG-3 5.2.7.B (cont)	1. **PRESS** GAS DECAY TANK 24 MANUAL SELECT pushbutton.	Depresses Gas Decay Tank 24 Manual Select PB on 104 panel. **Cue**: 24 in service light is illuminated and 21in service light is extinguished.		
		2. **ENSURE** 24WG29, GDT INLET CONT VALVE, is OPEN.	Determines 24WG29 GDT INLET CONT VALVE, is OPEN.		
*		3. **CLOSE** WG35, GDT STOP VALVE TO HUT for GDT being removed from service.	Shuts 21WG35.		
		4. **OPEN** 24WG35, GDT STOP VALVE TO HUT.	Opens 24WG35.		
	SO.WG-3 5.2.2	IF removing 21 GDT from service, THEN:			
		A. **ENSURE** GAS DECAY TANK STANDBY SELECTOR switch is NOT in "21" position.	On 105 panel checks Gas Decay Tank Standby Selector switch is NOT in "21" position. **Cue if GDT Standby Selector switch is in 21 or 24 position: Gas Decay Tank Standby Selector switch is in "22"**		
		B. **CLOSE** 21WG35, GDT STOP VALVE TO HUT.	Verifies 21WG35 is shut.		

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Waste Gas

TASK: Place a Waste Gas Tank in Holdup

*	STEP NO.	STEP (*Denotes a Critical Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	SO.WG-8 5.1.1	**ALIGN** 21 GDT as follows: A. **OBTAIN** a CRS Tagging Request for 21WG31 GDT INLET VALVE, in the CLOSED position and with specific instructions that this tag should only be released IAW this procedure.	**Cue: Assume you have the CRS tagging Request for 21WG31.**		
*		B. **PERFORM** 21 GDT Holdup Alignment IAW Attachment 1, Section 1.0	Locates and describes required positions for valves listed on Attachment 1 Section 1.0. Describes hanging Red Blocking Tag on 21WG31.		
			When Attachment 1 alignment has been performed 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.

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. 11 Date 9/29/15 SO.WG-0003
26 9/29/15 SO.WG-0008

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: [signature] BKCHART Date: 9/29/15

SME/Instructor: [signature] Spencer Date: 9/29/15

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

Both Salem Units are operating at 100% power.
21 Waste Gas Decay Tank is in service at 90 psig.
22 Waste Gas Decay Tank is in Standby at 15 psig.
23 Waste gas Decay Tank is O/S at 15 psig.
24 Waste Gas Decay Tank is O/S at 15 psig.

INITIATING CUE: You are directed to place 24 Waste Gas Decay Tank (WGDT) in service and remove 21 Waste Gas Decay tank from service IAW Section 5.2 of S2.OP-SO.WG-0003, GASEOUS WASTE DISPOSAL SYSTEM OPERATION.

Once 21 WGDT is removed from service, you are directed to align 21 WGDT for Holdup IAW S2.OP-SO.WG-0008, DISCHARGE OF 21 GAS DECAY TANK TO PLANT VENT in preparation for sampling and release of 21 WGDT. Prerequisites and P&L's for BOTH procedures have been performed.

SIMULATOR
EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 14--01 NRC ESG-1

SCENARIO NUMBER: 14--01 NRC ESG-1

EFFECTIVE DATE: See Approval Dates

EXPECTED DURATION: 80 minutes

REVISION NUMBER: 00

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary
New Issue for 14-01 ILOT NRC exam

PREPARED BY:	G Gauding **Lead Regulatory Exam Author**	9-1-15 **Date**
APPROVED BY:	P L Williams **Operations Training Manager**	10/7/15 **Date**
APPROVED BY:	M06 **Facility Representative**	10/9/15 **Date**

SCAN OF SIGNED SCENARIO COVER SHEET

I. OBJECTIVES

A. Given a failure of a power range detector, take corrective action for a power range instrument failure IAW AB.NIS-0001.

B. Given the order or indications of a nuclear instrument failure, DIRECT the response to the malfunction IAW S1/S2.OP-AB.NIS-0001

C. Given the indications of a reactor coolant system (RCS) malfunction or leak, perform actions as the nuclear control operator to RESPOND to the malfunctioning 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 the order or indications of a loss of coolant accident (LOCA), complete actions as the nuclear control operator to PERFORM the immediate response to the LOCA in accordance with the approved station procedures.

F. Given indication of a loss of coolant accident (LOCA), DIRECT the immediate response to the LOCA in accordance with the approved station procedures.

G. Given the order or a loss of coolant accident (LOCA) and plant conditions to support cold leg recirculation, perform actions as the nuclear control operator to TRANSFER to cold leg recirculation in accordance with the approved station procedures.

H. Given a loss of coolant accident (LOCA) and plant conditions to support cold leg recirculation, DIRECT actions to transfer to cold leg recirculation in accordance with the approved station procedures.

II. MAJOR EVENTS

A. Power Ascension

B. PRNI failure

C. 20 gpm RCS leak

D. LBLOCA with failure of RHR pumps to start

E. Transfer to Cold Leg Recirc

F. Charging pump cavitation while isolating RWST

III. SCENARIO SUMMARY

A. The crew will take the watch with the unit at 68.5% power, BOL. A power ascension at 10% per hour from 45% was placed on hold for shift turnover. Power was reduced 2 days ago for 21 SGFP control problem. Troubleshooting identified and corrected the problem, and 21 SGFP has been returned to service. The crew is directed to raise power at 10% per hour to 90% IAW

S2.OP-IO.ZZ-0004, Power Operation. Rx Engineering is bringing updated reactivity plan to control room and crew should determine its own reactivity plan. 25 CFCU is C/T for bearing replacement. 23 Condensate pump is O/S. Xenon is burning out at 60 pcm per hour.

B. The crew will continue the power ascension @ 10% / hr IAW S2.OP-IO.ZZ-0004, Power Operation.

C. After power movement has been evaluated, Power Range NI Channel IV fails high. Control rods will step in if in automatic at 72 spm. The crew will determine a load rejection is not in progress and place rods in manual. The CRS will enter S2.OP-AB.ROD-0003, Continuous Rod Motion. The crew will remove the failed channel from service. The CRS will identify applicable Tech Specs.

D. After the PRNI failure has been addressed, a 20 gpm RCS leak will occur. The crew will diagnose the leak with control console indications and alarms. The crew will place a centrifugal charging pump in service and a 45 gpm orifice in service and estimate the leak rate. The CRS will identify applicable Tech Specs.

E. After the RCS leak has been addressed, an RCS loop will catastrophically fail. RCS pressure will rapidly lower to containment pressure. Automatic Safety Injection actuation fails, and the crew will manually initiate SI. Neither RHR pump will start on the SEC signal, and the crew will block and reset 2A and 2B SECs and start both RHR pumps (CT#1). Following the reset of 2C SEC, 2C 4KV vital bus will experience an UV condition, and load in Blackout Mode. The crew will start any required ECCS equipment.

F. When RWST level reaches 15.2', the crew will transition to EOP-LOCA-3, Transfer to Cold Leg Recirculation and perform the alignment to Cold Leg Recirc. (CT#2) When isolating the RWST, both charging pumps will cavitate. The crew will secure the cavitating charging pumps.

G. The scenario will be terminated after the cavitiating charging pumps are secured, or if not identified and secured, when a charging system piping failure occurs in the Aux Building and a LOCA outside containment occurs.

IV. INITIAL CONDITIONS

____ IC-231

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

Initial	Description
____ 1	VC1and VC4 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	**25 CFCU C/T**
____ 9	**23 Condensate Pump O/S (available)**
___ 10	**IOP-4 complete up to Step 5.1.19**
___ 11	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:

Initial	ET #	Description	
	3	EVENT ACTION:	kb116lck // 2SJ1 RWST TO CHG PUMP CLOSE
		COMMAND:	
		PURPOSE:	<update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
_____ 01	NI0193D PR CH N44 FAILS HI/LO	N/A	N/A	N/A	RT-1	200
_____ 02	RC0002 RCS LEAK INTO CONTAINMENT (equiv to 0-4 inches)	N/A	N/A	N/A	RT-3	20
_____ 03	RC0001B RCS RUPTURE OF RC LOOP 22	N/A	N/A	N/A	RT-5	
_____ 04	RP0108 FAILURE OF AUTOMATIC SI	N/A	N/A	N/A	N/A	
_____ 05	RP318A2 RHR PUMP 22 Fails to Start on SEC	N/A	N/A	N/A	N/A	
_____ 06	RP318A1 RHR PUMP 21 Fails to Start on SEC	N/A	N/A	N/A	N/A	
_____ 07	CV0043 CHARGING LINE LEAK IN AUX BLDG	N/A	N/A	N/A	RT-9	550
_____ 08	CV0208A 21 CHARGING PUMP TRIP	00:02:00	N/A	N/A	RT-9	
_____ 09	CV0208B 22 CHARGING PUMP TRIP	00:02:00	N/A	N/A	RT-9	

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
_____ 01	CT195-2D 25 CFCU BKR #2 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF
_____ 02	CT195-3D 25 CFCU BKR #3 Low Speed 125VDC	N/A	N/A	N/A	N/A	OFF
_____ 03	CV62B 22 CHG PUMP SUCTION VALVE 2CV49	N/A	N/A	N/A	ET-3	.00005
_____ 04	CV62A 21 CHG PUMP SUCTION VALVE 2CV44	00:00:02	N/A	N/A	ET-3	.00005
_____ 05	CT195-1D 25 CFCU BKR #1 High Speed 125VDC	N/A	N/A	N/A	N/A	OFF

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
_____ 01	C812 F DI 24CSD 2C VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	N/A	ON
_____ 02	C809 F DI 23CSD 2C VITAL BUS FEEDER-OPEN	N/A	N/A	N/A	RT-7	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
1. Power Ascension			
	CRS briefs RO and PO on power ascension.		
	RO provides reactivity plan for dilution and rod movement.		
Note: Manual rod control may be used, but RCS temp will be above program and AFD will be high.			
	RO initiates dilution if required.		
Note: Terr is + 0.5 °F			
	PO initiates a power ascension 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.		
Proceed to next event on direction from Lead Evaluator.			
2. Power Range Nuclear Instrument CH IV fails high			
Simulator Operator: Insert **RT-1**			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
at Lead Evaluators direction. **MALF: NI0193D, PR CH N44 fails hi** **Final Val = 200**			
	RO reports control rods stepping in at 72 spm with no load reject in progress, places control rods in Manual (if in automatic) with concurrence from the CRS.		
Note: Crew may enter procedure S2.OP-AB.ROD-0003 first, (if rods were in auto), but will transition to S2.OP-AB.NIS-0001.			
	CRS enters S2.OP-AB.NIS-0001, Nuclear Instrumentation Malfunction.		
	CRS either places load change on hold or directs manual rod control.		
	RO identifies that Power Range NI Channel IV 2N44 failed high.		
	CRS notifies I&C of failed channel and requests assistance.		
	PO reviews OHAs in alarm and reports they are consistent with the NI channel failure.		
	CRS directs PO to remove 2N44 from service IAW S2.OP-SO.RPS-0001, Nuclear Instrumentation Channel Trip / Restoration.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports outward rod movement is unavailable until the Overpower Rod Stop is defeated, and maintains Tavg within band specified by CRS.		
Note: Xenon is burning out to help temperature control.			
	CRS enters TSAS 3.3.1.1, Action 2 and 6.		
	CRS directs performance of QPTR and requests Rx Engineer to perform flux map.		
	PO checks that tripping of associated bistable(s) will NOT result in an ESF or RPS actuation.		
	RO ensures 2N44 Channel is NOT selected on NIS Recorder 2NR45.		
	PO places DETECTOR CURRENT COMPARATOR, UPPER SECTION, switch in PRN44 position AND ensures the following: • CHANNEL DEFEAT lamp illuminates. • OHA E-38, UPPER SECT DEV ABV 50% PWR, clears.		
	PO places DETECTOR CURRENT COMPARATOR, LOWER SECTION, switch in PRN44 position and ensures the following: • CHANNEL DEFEAT lamp illuminates. • OHA E-46, LOWER SECT DEV ABV 50% PWR, clears.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO places POWER MISMATCH BYPASS switch in BYPASS PR N44.		
	PO places ROD STOP BYPASS switch in BYPASS PR N44 and ensures the following: • 2RP4 - OVER POWER ROD STOP MANUAL BYPASS, CH II is illuminated. • OHA E-31, PR OVERPWR ROD STOP, is clear.		
	PO places COMPARATOR CHANNEL DEFEAT switch in N44 and ensures the following: • COMPARATOR DEFEAT lamp is illuminated. • OHA E-39, PR CH DEV, is clear.		
	PO reports that remainder of procedure requires I&C support to complete.		
	CRS contacts I&C for support if not done previously.		
	CRS directs restoration of RCS Tavg if low out of band.		
Continue to next even on direction from Lead Evaluator.			
3. 20 gpm RCS leak			
Simulator Operator: Insert **RT-3** on direction from Lead Evaluator			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
MALF: RC0002 – RCS Leak into Containment. **Final Value: 20 gpm**			
	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 CAS.		
	RO reports PZR level is lowering with maximum PDP flow.		
	CRS enters S2.OP-AB.RAD-0001, Abnormal Radiation after OHA A-6 unexpected annunciation.		
	RO swaps to a centrifugal charging pump IAW Step 3.14, and raises charging flow to stabilize PZR level.		
	PO swaps to the 45 gpm letdown orifice.		
	RO estimates leak rate.		
	CRS initiates S2.OP-ST.RC-0008, Reactor		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Coolant System Water Inventory Balance.		
	CRS evaluates containment conditions and may contact Rad Pro for recommendation on CFCU operation.		
Role Play: If contacted state Rad Pro recommends placing 2 CFCU's in Low Speed and 2 CFCU's in High Speed.			
	PO places 2 CFCU's in Low Speed and 2 CFCU's in High Speed.		
	CRS initiates actions to locate and isolate the leak IAW Attachment 2.		
	CRS enters TSAS 3.4.7.2.b.		
Proceed to next event on direction from Lead Evaluator.			
4. Large Break LOCA			
Simulator Operator: Delete MALF RC0002, then insert RT-5 on direction from Lead Evaluator. **MALF: RC0001B RCS RUPTURE OF RC LOOP 22**			
	RO reports indications of RCS failure (rapidly lowering RCS pressure and PZR level)		
	RO reports the reactor has tripped or initiates		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	a manual reactor trip.		
5. Auto SI fails to actuate			
	RO performs Immediate Actions of TRIP-1 - Confirms the Rx trip - Trips the Main Turbine - Reports at least one 4KV Vital bus energized. Reports a demand for SI exists, but SI has not initiated, and manually initiates SI.		
	CRS and RO verify performance of immediate actions.		
	PO reports all AFW pumps running, and requests permission to throttle AFW flow while maintaining 22E4 lbm/hr or 9% level in at least one SG NR level.		
6. 21 and 22 RHR pumps fail to start on SEC			
	PO performs SEC Loading Verification along with safeguards valve alignment, and reports neither RHR pump started.		
	RO blocks 2A and 2B SECs.		
	PO resets 2A and 2B SECs.		
	RO starts 21 and 22 RHR pumps.		
CT#1 (CT-5) Manually start at least one low-head ECCS pump			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
before transition out of TRIP-1. **SAT_____ UNSAT_____**			
	PO reports 21 and 22 AFW pumps running.		
	PO reports valve groups in Table B are in safeguards position.		
	RO reports 21 and 22CA330s are shut.		
	RO reports containment pressure has not remained below 15 psig.		
	RO backs up Phase B and Spray initiation by turning both keys.		
	RO reports both containment spray pumps running and MSLI has occurred.		
	RO stops all RCPs.		
	PO reports all valves in Table D in safeguards position.		
	PO reports no high steam flow condition.		
	CRS directs implementation of the ECG.		
	PO reports all 4KV vital buses energized.		
	RO reports CAV in AP mode.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO runs 2 switchgear supply and one exhaust fan.		
	RO reports 2 or more CCW pumps running.		
	RO reports RCS not aligned for Cold Leg Recirc.		
	RO reports charging flow is at least 100 gpm on SI systems charging flow meter.		
	RO reports RCS pressure is <1660 psig (adverse), and SI flow is at least 100 gpm on 21 or 22 SI pump flow meter.		
	RO reports RCS pressure < 420 psig (adverse) and RHR flow is at least 300 gpm on both 21 and 22 SJ49s.		
	RO closes charging pump mini flow valves with RCS pressure <1500 psig.		
	PO reports total AFW flow is 22E4 lbm/hr or 15% level in at least one SG NR level, and maintains 22E4 lbm/hr until at least one SG NR level is <15% (adverse), then maintains 15-33% level.		
Note: SG pressures will drop over scenario due to LBLOCA, and AFW will rise with no action from PO.			
	RO reports no RCPs running, and RCS temperature is not stable at or trending to 547°F.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports no steam dumping in progress.		
	CRS determines MSLI has been performed.		
	RO reports both RTBs are open.		
	RO reports both PZR PORVs are shut with their Block Valves open.		
	PO reports no indication of faulted SGs.		
Note: SG pressures will drop over scenario due to LBLOCA.			
	PO /RO report no indications of a steam generator tube rupture.		
	RO reports 2 or more channels in Table F are in warning or alarm.		
	CRS transitions to EOP-LOCA-1, Loss of Reactor Coolant.		
Note: CFST monitoring will commence after the transition out of TRIP-1. STA will report to the control room 10 minutes after being paged. When the FRTS RED path is identified, the CRS go to FRTS-1. When the FRCE PURPLE path is identified, the CRS will go to FRCE-1.			
	STA reports CFST status		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
FRTS steps			
	CRS enters 2-EOP-FRTS-1, Response to Imminent Pressurized Thermal Shock Conditions.		
	RO reports RCS pressure is < 420 psig.		
	CRS returns to procedure in effect.		
FRCE steps			
	CRS enters 2-EOP-FRCE-1, Response to Excessive Containment Pressure.		
	PO verifies Phase A valves shut.		
	RO verifies 2VC5 and 2VC6 shut, containment pressure is > 15 psig, and LOCA-5 not in effect.		
	RO reports containment spray and Phase B status, and all RCPs are stopped.		
	RO reports CFCU status.		
	PO reports all MSIVs are shut.		
	PO reports no faulted SGs		
	CRS returns to procedure in effect.		
LOCA-1 steps			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Crew re-verifies no faulted or ruptured SGs exist.		
	RO resets SI, Phase A, and Phase B isolations.		
	RO opens 21 and 22CA330s.		
	PO resets each SEC.		
7. 2C 4KV vital bus UV			
Note: Event 7 may not be inserted if crew does not reach SEC reset steps in LOCA-1.			
Simulator Operator: Insert **RT-7** after all SECs have been reset. This will deenergize 2C 4KV vital bus. The 2C EDG will start and load the bus in Blackout mode.			
	PO reports UV condition on 2C 4KV vital bus, and EDG is loading Blackout loads.		
	Crew performs actions of Table B for 2B SEC: PO verifies loading complete PO resets 2B SEC CRS directs starting of safeguards loads.		
	PO resets 230V control centers.		
	RO resets SGBD Sample Isolation Bypass		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	and opens 21-24SS94s.		
	CRS directs chemistry to sample SGs for activity and boron.		
	Crew verifies proper PORV status and that SI flow cannot be reduced.		
	Crew verifies CS flow is indicated.		
	RO verifies RHR pumps running for LBLOCA.		
	Crew re-verifies no faulted SGs.		
	CRS evaluates continued EDG running status.		
	CRS transitions to 2-EOP-LOCA-3, Transfer to Cold Leg Recirculation when RO announces 2/4 RWST level have reached 15.2 ft.		
Mark time RWST lo level alarm is received for critical task performance: _____:_____:_____			
4. Transfer to Cold Leg Recirculation			
	RO reports Containment Sump Level Lights illuminated >62%.		
	RO depresses SUMP AUTO ARMED PB for 21/22SJ44s.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO removes lockouts from 2SJ67, 2SJ68, 2SJ69.		
	RO reports 21 and 22SJ44 open.		
	RO reports both RHR pumps running.		
	RO shuts 2SJ69.		
Mark time 2SJ69 close PB depressed. _____:_____:_____			
CT#2 (CT-36) Transfer to Cold Leg Recirculation such that at least one train of ECCS is in operation in the recirculation mode within the following time frames. **1. From RWST lo level alarm to initiating closed on 2SJ69 - ≤3.7 minutes** **2. From RWST lo level alarm to one containment spray pump stop ≤5.5 minutes** **3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) ≤ 11.2 minutes.** **SAT _____ UNSAT _____**			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO verifies or performs SI reset actions.		
	RO resets SECs and 230V MCCs..		
	RO stops 22 Containment Spray Pump.		
Mark time of 22 CS pump stop. **_____:_____:_____** **< 5.5 mins after RWST Lo Level CT#2(2)**			
	RO closes 21/22RH19s.		
	RO stops 23 charging pump.		
	CRS goes to step 11 based on all Vital Buses energized.		
	CRS goes to step 28 based on EDGs supplying vital buses.		
	RO reports 3 SW pumps running.		
	PO reports both CCHXs are in service .		
	RO reports 23 CCW pump is NOT in service.		
	RO reports 22 CS pump is NOT in service		
	RO starts 23 CCW pump.		
	RO reports 21CC16 and 22CC16 are open.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO shuts 2SJ67 and 2SJ68.		
	RO reports 2RH1 and 2RH2 are shut.		
	RO reports 22 RHR pump is running and opens 22SJ45.		
	RO reports 21 RHR pump in service and opens 21SJ45.		
	RO reports 21SJ113 and 22SJ113.		
	Reports 21 and 22 Safety Injection Pumps and 21 and 22 Charging Pump are running.		
Mark time ECCS pumps verified in operation. _____:_____:_____ **<11.7 mins after RWST Lo Level CT#2(3)**			
	PO removes Lockout from 2SJ30.		
	RO closes 2SJ30, 2SJ1, and 2SJ2		
Simulator Operator: Simulator Operator: Ensure **ET-3** is TRUE when the close PB for 2SJ1 is depressed. This inserts the charging pump cavitation. Pump amp oscillations between 48-90 amps will occur, and BIT flow			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
will lower to 0.			
	RO reports indications of charging pump cavitation of fluctuating charging pump amps, seal injection flow alarms, and loss of BIT flow.		
	RO stops 21 and 22 charging pumps.		
CT#3 Trip the cavitating charging pump prior to pump/system piping damage. **SAT _____ UNSAT _____**			
Simulator Operator: **IF** the crew does **NOT** trip 22 charging pump within 3 minutes of the initiation of cavitation, **THEN** insert **RT-9.** This simulates a failure of the charging system piping in the Aux Building resulting in a LOCA outside containment, then trips 22 charging pump after an additional 2 minute delay. **MALF: CV0043 Charging Line Leak in Aux Bldg** **Final Value: 550** **MALFS:** **CV0208A 21 Chg Pump trip** **CV0208B 22 Chg Pump trip** **Delay: 2 minutes** **Final Value: True**			
TERMINATE the scenario when both charging pumps have been			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
secured, **OR** if the pumps are not secured, after crew recognizes LOCA in Aux bldg, **OR** at Lead Evaluators discretion. **Note**: Some of the following steps may be performed depending on when, or if, the crew recognizes the charging pump cavitation, and should be evaluated accordingly.			
	RO places 21 and 22RH29 controllers in Manual and ensures valves are shut.		
	CRS implements FRPs as necessary.		
	CRS dispatches operator to tag SJ44 breakers open.		
	RO verifies Phase A and Phase B are reset, and CA330s are open.		

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.ROD-0003, Continuous Rod Motion
G. S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction
H. S2.OP-AB.RC-0001, Reactor Coolant System Leak
I. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
J. 2-EOP-LOCA-1, Loss of Reactor Coolant
K. 2-EOP-LOCA-3, Transfer to Cold Leg Recirculation
L. 2-EOP-FRTS-1, Response to Imminent Pressurized Thermal Shock Condition
M. 2-EOP-FRCE-1, Response to High Containment Pressure

ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY

MODE: 1 POWER: 67.5% RCS BORON: 1235 MWe 780

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

NA

REACTIVITY PARAMETERS

Control Bank D 168 steps withdrawn
Xenon burning out at 60 pcm per hour
Power was reduced to 45% 2 days ago for SGFP problem, which was fixed.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.6.2.3 action a (25 CFCU) expires in 166 hours.

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Power ascension @ 10% per hour IAW S2.OP-IO.ZZ-0004

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.
No penalty minutes in the last 24 hrs.
25 CFCU C/T for motor bearing replacement.

PRIMARY:

None

SECONDARY:

23 Condensate pump O/S

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

None

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

____ 1. Verify simulator is in "TRAIN" Load

____ 2. Simulator is in RUN

____ 3. Overhead Annunciator Horns ON

____ 4. All required computer terminals in operation

____ 5. Simulator clocks synchronized

____ 6. All tagged equipment properly secured and documented

____ 7. TSAS Status Board up-to-date

____ 8. Shift manning sheet available

____ 9. Procedures in progress open and signed-off to proper step

____ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced

____ 11. Required chart recorders advanced and ON (proper paper installed)

____ 12. All printers have adequate paper AND functional ribbon

13. Required procedures clean

____ 14. Multiple color procedure pens available

____ 15. Required keys available

____ 16. Simulator cleared of unauthorized material/personnel

____ 17. All charts advanced to clean traces and chart recorders are on.

____ 18. Rod step counters correct (channel check) and reset as necessary

____ 19. Exam security set for simulator

____ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter

____ with Baseline Data filled out

____ 21. Shift logs available if required

____ 22. Recording Media available (if applicable)

____ 23. Ensure ECG classification is correct

____ 24. Reference verification performed with required documents available

____ 25. Verify phones disconnected from plant after drill.

____ 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: 14-01 ILOT NRC ESG-1 REVIEWER: B Blose

Initials		Qualitative Attributes
BB	1.	The scenario has clearly stated objectives in the scenario.
BB	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.
BB	3.	The scenario consists mostly of related events.
BB	4.	Each event description consists of: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
BB	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.
BB	6.	The events are valid with regard to physics and thermodynamics.
BB	7.	Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
BB	8.	The simulator modeling is not altered.
BB	9.	All crew competencies can be evaluated.
BB	10.	The scenario has been validated.
BB	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.
BB	12.	ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

ATTACHMENT 4

SIMULATOR SCENARIO REVIEW CHECKLIST

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
GG	3	Malfunctions 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	2	EOP contingencies requiring substantive actions: 0-2
GG	3	EOP based Critical tasks: 2-3

COMMENTS:

ATTACHMENT 5

ESG CRITICAL TASKS

14-01 ILOT NRC ESG-1

CT#1 (CT-5) Manually start at least one low-head ECCS pump before transition out of TRIP-1.

Bases: Failure to manually start at least one low-head ECCS 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 low-head ECCS pump can be manually started from the control room. Therefore, failure to manually start a low-head ECCS 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"

CT#2 (CT-36) Transfer to Cold Leg Recirculation such that at least one train of ECCS is in operation in the recirculation mode within the following time frames.
1. From RWST lo level alarm to initiating closed on 2SJ69 - ≤3.7 minutes
2. From RWST lo level alarm to one containment spray pump stop ≤5.5 minutes
3. From RWST lo level alarm to switchover completion (includes restarting ECCS pumps if stopped on RWST lo-lo level) ≤ 11.2 minutes.

Bases: Omission or incorrect performance of this task results in "direct adverse consequences or significant degradation in the mitigative capability of the plant." Failure to transfer to cold leg recirculation before the RWST inventory is totally depleted results in the loss of all pumped safety injection and containment spray when the RWST empties. Provided that transfer to cold leg recirculation is possible (as is postulated in the plant conditions), a failure to transfer resulting in loss of pumped injection and containment constitutes misoperation or incorrect crew performance which fails to prevent "degraded ECCS...capacity." It also constitutes "a significant reduction of safety margin beyond that irreparably introduced by the scenario. "Failure to transfer to cold leg recirculation under the postulated plant conditions can result in unnecessary challenges to the following CSFs:

- Core cooling
- Containment

Thus, failure to transfer represents a demonstrated inability by the crew to "take one or more actions that would prevent a challenge to plant safety."

CT#3 Trip the cavitating charging pump prior to pump/system piping damage.

Bases: Failure to trip a cavitating charging pump during the transfer to cold leg recirculation when indications of cavitation are present, leads to the possibility of system damage and the advent of a loss of coolant outside the containment building. (As is the case in this scenario.)

EVENTS LEADING TO CORE DAMAGE

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

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG.

SIMULATOR
EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 14-01 NRC ESG-2

SCENARIO NUMBER: 14-01 NRC ESG-2

EFFECTIVE DATE: See Approval Dates

EXPECTED DURATION: 65 minutes

REVISION NUMBER: 00

PROGRAM:

- [ ] L.O. REQUAL
- [X] INITIAL LICENSE
- [ ] STA
- [ ] OTHER _____

Revision Summary
New Issue for 14-01 ILOT NRC exam

PREPARED BY:	G Gauding **Lead Regulatory Exam Author**	9-2-15 **Date**
APPROVED BY:	Rob Williams **Operations Training Manager**	10-7-15 **Date**
APPROVED BY:	(MOD) **Facility Representative**	10-9-15 **Date**

SCAN OF SIGNED SCENARIO COVER SHEET

I. OBJECTIVES

A. Given the order, OPERATE auxiliary building ventilation in accordance with the approved station procedures.

B. Given the order or indications of a pressurizer control system malfunction, perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with S1/S2.OP-AB.PZR-0001.

C. Given indication of a pressurizer control system malfunction, DIRECT the response to the malfunction in accordance with S1/S2.OP-AB.PZR-0001.

D. Given the order or indications of a fire, as the nuclear control operator PERFORM the control room actions in accordance with S1/S2.OP-AB.FIRE-0001.

E. Given the order or indications of a fire, DIRECT the control room actions in accordance with S1/S2.OP-AB.FIRE-0001.

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 reactor trip, DIRECT the response to the reactor trip 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.

II. MAJOR EVENTS

A. 21 ABV Exhaust Fan stopped.

B. Controlling PZR Pressure Channel fails low.

C. Main Generator Radio Frequency high.

D. Fire Protection Actuation (deluge) at Main Power Transformer

E. Inadvertent Safety Injection.

F. SGTR after SI termination.

III. SCENARIO SUMMARY

A. The crew takes the watch with the unit at 100%, MOL. 26 SW pump is C/T for strainer cleaning. Solar Flares are occurring. SMD K-5 is in effect for the next 4 hours.

B. Shortly after assuming the watch, 21 Aux Building Exhaust fan stops. The crew will refer to the ARP for Air Flow Low for 21 ABV Exhaust fan, and place an alternate ABV Exhaust fan in service. The CRS will identify the ABV system LCO 3.7.7.

C. Once the ABV system malfunction has been addressed, the controlling PZR Pressure channel fails low. The crew will identify the failure and the CRS will enter S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction. The crew will take manual control of PZR pressure, restore PZR to normal band, swap to an operable channel and restore PZR control to auto. The CRS will identify the requirement to close 2PR1 PZR PORV Block valve, and remove power from the Block valve. The crew will initiate actions to remove the failed channel from service. The CRS will identify LCOs 3.3.1.1 for Rx Trip Instrumentation, 3.3.2.1 for ESFAS Instrumentation, and 3.4.5 for the inoperable 2PR1.

D. After addressing the PZR Pressure channel failure, the control room will receive Aux Annunciator point 0901, Gen Radio Freq High. The field operator will report radio frequency is 51% and rising very slowly. The CRS will enter S2.OP-AB.GEN-0001, Main Generator Abnormal Stator Conditions. The crew will perform S2.OP-PT.GEN-0003 and determine SPDS temperatures validate the radio frequency alarm. The crew will initiate a load reduction to lower radio frequency to <50%. After the downpower is commenced, a Main Power Transformer (MPT) Sudden Pressure alarm will occur, and a deluge actuation at the MPT occurs. The CRS will order a Rx trip with power >P-9.

E. The crew will perform immediate actions of 2-EOP-TIP-1, Reactor Trip or Safety Injection, and transition to 2-EOP-TRIP-2 with no SI required. A second channel of PZR pressure fails low, causing an unwarranted Safety Injection on Low PZR pressure. The crew will return to EOP-TRIP-1.

F. The crew will perform TRIP-1 plant stabilization and diagnostics, and transition to 2-EOP-TRIP-3, Safety Injection Termination. The crew will terminate the Inadvertent SI within the Critical Action Time (CT-1), and re-establish letdown within the Critical Action Time.

G. After re-establishing letdown, a SGTR will occur, and the crew will re-start ECCS pumps as required.

H. The scenario will be terminated after the crew has restarted ECCS pumps.

IV. INITIAL CONDITIONS

____ IC-232

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

Initial	Description
____ 1	VC1and VC4 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	**26 SW pump C/T.**
____ 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	
	1	EVENT ACTION:	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP)
		COMMAND:	
		PURPOSE:	<update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
_____ 01	PR0016A PZR PRESS CH I (PT455) FAILS H/L	N/A	N/A	N/A	RT-3	1700
_____ 02	AN3901 AAS 901 FAILS - :GENERATOR RADIO FREQUENCY HIGH	N/A	N/A	N/A	RT-5	AAS POINT FAILS/OVRD TO ON
_____ 03	AN0529 SER 529 FAILS - :H15 MAIN POWER TRANSFORMER PHASE 1 SUDDEN PRESSURE	N/A	N/A	N/A	RT-7	SER POINT FAILS/OVRD TO ON
_____ 04	AN0316 SER 316 FAILS - :A15 FIRE PUMP 1 AND OR 2 RUN	00:03:15	N/A	N/A	RT-7	SER POINT FAILS/OVRD TO ON
_____ 05	AF0353C 23 AFP FAILURE TO AUTO START ON ANY (ALL) SIGNALS	N/A	N/A	N/A	N/A	
_____ 06	AF0182A 21 AFP PRESS OVRD PROT FAILS	N/A	N/A	N/A	N/A	
_____ 07	PR0016B PZR PRESS CH III(PT457)FAILS H/L	N/A	N/A	N/A	RT-12	1700
_____ 08	SG0078D 24 STEAM GENERATOR TUBE RUPTURE	N/A	N/A	N/A	RT-14	1200
_____ 09	RP318G3 21 Aux Bldg Exhaust Fan Fails to Start on SEC	N/A	N/A	N/A	N/A	
_____ 10	RP0060A FAILURE OF TRAIN "A" RX TRIP BREAKER TO TRIP	N/A	N/A	N/A	N/A	
_____ 11	AF0353B 22 AFP FAILURE TO AUTO START ON ANY (ALL) SIGNALS	N/A	N/A	N/A	N/A	

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
_____ 01	FP07D FIRE - MAIN TRANSFORMERS (46)	00:03:00	N/A	N/A	RT-7	FIRE
_____ 02	SW43D 26 SW PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
_____ 03	PR34D PORV STOP VALVE 2PR6 TAGGED	N/A	N/A	N/A	RT-10	TAGGED

OVERRIDES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
_____ 01	AG03 F DI 21 AUX BLDG EXHAUST FAN STOP	N/A	N/A	N/A	RT-1	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
1. Loss of 21 ABV Exhaust Fan			
Simulator Operator: Insert **RT-1** on direction from Lead Evaluator. **O/R AG03 OVDI 21 ABV Exh Fan Stop PB** **Final Value: ON**			
	RO reports unexpected AIR FLOW LO alarm for 21 ABV Exhaust Fan.		
	CRS dispatches an operator to check status of breaker 2AX1AX12X.		
Role Play: 2 minutes after being dispatched, report breaker 2AX1AX12X is tripped open.			
	CRS refers to OP-SA-108-106-1001, Large Motor Starting Criteria and Protective Circuit Breaker Reset and Reclosure Policy, and determines the cause of the breaker trip must be investigated prior to reclosure. IF the CRS directs reset and closing of 21 ABV Exhaust Fan breaker, it will not shut.		
Note: OP-SA-108-106-1001, page 3, Section 4.2 contains the discussion about breaker reclosure. LCO 3.7.7 has a 14 day action time.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Crew places the alternate ABV Exhaust Fan in service IAW S2.OP-SO.ABV-0001, Auxiliary Building Ventilation System Operation.		
	RO starts 23 ABV Exhaust Fan.		
	CRS enters LCO 3.7.7 for less than the full complement of Aux Building Ventilation fans.		
Continue to next event after LCO has been identified.			
2. Controlling PZR Pressure Channel Fails Low			
Simulator Operator: Insert **RT-3** on direction from Lead Evaluator. **MALF: PR0016A PZR Press CH I (PT-455) fails H/L** **Severity: 1700**			
	RO reports unexpected OHAs D-16 RC PRESS LO, E-12 PZR PRESS LO, and E-28 PZR HTR ON PRESS LOW.		
	RO identifies failure of controlling PZR Pressure channel.		
	RO requests permission from CRS prior to placing the Master Pressure Controller in MANUAL to mitigate the transient		
	CRS enters S2.OP-AB.PZR-0001, Pressurizer		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Pressure Malfunction.		
	CRS directs initiation of Attachment 1 CAS.		
	RO reports POPS not in service.		
	RO reports controlling PZR Pressure Channel I failed Low.		
	RO places Master Pressure Controller in MANUAL if not previously performed and adjusts demand per Attachment 2.		
	RO selects PZR Pressure Channel III for control.		
	RO restores the Master Controller to AUTO.		
	CRS enters TSAS(s) 3.3.1.1 Action 6, 3.3.2.1.b Action 19 and 3.4.5 Action b.		
	CRS directs removing failed channel from service.		
	RO verifies alternate control channel selected for control.		
	RO selects channel other than channel I for PZR Pressure recorder.		
	RO selects channel other than channel I for Differential Temperatures recorder.		
	RO reports bistables must be tripped to complete procedure.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS directs RO to close 2PR6.		
	CRS directs WCC to de-energize 2PR6.		
Note: Continue to next event after 2PR6 is closed, or at Lead Evaluator's discretion.			
Simulator Operator: 3 minutes after being directed, enter **RT-10** then report 2PR6 de-energized. **REMOTE:** **PR34D = TAGGED**			
3. Main Generator Radio Frequency High			
Simulator Operator: Insert **RT-5** on direction from Lead Evaluator. **MALF: AN3901, AAS 901 FAILS: Generator Radio Frequency High Severity: 2**			
	RO reports unexpected OHA A-41.		
	PO reports alarm is Point 0901, Gen Radio Freq High.		
	CRS enters S2.OP-AB.GEN-0001, Main Generator Abnormal Stator Conditions.		
	CRS directs initiation of Attachment 1 CAS.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO checks Stator T/C and RTD temperatures on SPDS.		
Floor Evaluator: When PO checks SPDS, verify they can properly access temperature displays, then provide pages 9-14 of S2.OP-PT.GEN-0003, labeled "Copy 1".			
	PO reports none of the following conditions listed in step 3.2 are present: - 3 sequential stator T/Cs exceed assigned temperature limits by <10°F - 3 sequential stator RTDs exceed assigned temperature limits by <10°F - Overhead Annunciator H-44, GEN STAT COIL IN/OUT TEMP HI in alarm		
	PO reports condition listed in step 3.7 exists which is: - Aux Annunciator point 901, GENERATOR RADIO FREQ. HIGH, in alarm.		
	PO performs S2.OP-PT.GEN-0003, Main Generator Stator Temperatures.		
Floor Evaluator: If PO checks temperatures again on SPDS, inform them that temperatures remain as shown on Copy 1.			
	Crew may dispatch operator to report local reading of RF Monitor.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Role Play: If dispatched, then 2 minutes later report the following: Local Radio Frequency Monitor is reading just above 50%, and the last log reading was 5% taken 13 hours ago. The reading appears to have started rising 1 hour ago and the chart recorder indicates it is still rising slowly. The Red and Yellow lights are lit and there was an audible alarm until you acknowledged it.			
	PO reports S2.OP-PT.GEN-0003 complete with UNSAT result. One RTD (U2RTD010) in Group 4 reads 169°F, which is higher than the 167°F limit.		
	CRS determines a load reduction is necessary to lower Radio Frequency Monitor to <50%.		
	CRS briefs load reduction to be performed using S2.OP-AB.LOAD-0001, Rapid Load Reduction, or S2.OP-IO.ZZ-0004, Power Operation.		
AB.LOAD steps			
	CRS enters S2.OP-AB.LOAD-001, Rapid Load Reduction.		
	CRS directs initiation of Attachment 1 CAS.		
	CRS directs RO and PO to initiate and		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	coordinate load reduction.		
	RO calculates boron addition required for load reduction.		
	RO commences RCS boration.		
	PO initiates turbine load reduction to the target load at the rate specified by CRS.		
	RO maintains Tavg on program using control rods and boration.		
	RO energizes PZR heaters.		
Role Play: After power reduction is started, if Field Operator is asked about current radio frequency magnitude, state that it is slightly above where it was the last time and rising very slowly. (Always report a number which is at least what the last number was.) The intention is for the crew to continue the power reduction, so if the CRS is thinking about tripping the unit >P-9, give indications of stable or slowly lowering radio frequency.			
	CRS determines how often S2.OP-PT.GEN-0003, Main Generator Stator Temperatures should be performed.		
4. Main Power Transformer Phase 1 Sudden Pressure / Fire			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Protection Deluge actuation			
Simulator Operator: Insert **RT-7** on direction from Lead Evaluator. **MALF: AN0529 SER 529 FAILS - :H15 MAIN POWER TRANSFORMER PHASE 1 SUDDEN PRESSURE** **REMOTE: FP07D FIRE - MAIN TRANSFORMERS (46)** **Delay: 00:3:00** **MALF: SER 316 FAILS - :A15 FIRE PUMP 1 AND OR 2 RUN** **Delay: 00:03:15**			
	PO reports unexpected OHA H-15, MPT Ø1 TRBL, and refers to Alarm Response.		
	RO reports CRT point 529 MPT Phase 1 Sudden Pressure is in alarm.		
Note: One of the potential automatic actions listed in ARP for sudden pressure is FP Deluge actuation.			
	CRS dispatches an operator to investigate alarm.		
	RO reports unexpected OHA A-7 FIRE PROT FIRE, with coded audible alarm indicated on 2RP5 Fire Protection Panel.		
	PO reports Zone 46 for MPT is affected area.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports unexpected OHA A-15 FIRE PUMP 1/2 RUN.		
Note: OHA A-15 alarms when either of the Diesel Drive Fire Pumps starts.			
Role Play: Shortly after the Fire Pump ½ Run OHA A-15 annunciates, call control room and report there is water spraying all over MPT Phase 1, there is heavy arcing and sparking, and you have left the area for safety concerns.			
	CRS determines the Main Generator must be removed from service, and power is >P-9.		
	CRS directs the RO to trip the reactor.		
	RO trips the reactor.		
	RO performs Immediate Actions of TRIP-1 - Confirms the Rx trip - Trips the Main Turbine - Reports at least one 4KV Vital bus energized. - Reports SI is not actuated, and reports SI is not required.		
	CRS and RO verify performance of immediate actions.		
	CRS transitions to EOP-TRIP-2, Reactor Trip Response.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
5. No AFW flow post trip			
	PO reports 21 AFW pump running with no discharge flow, and 22 and 23 AFW pumps have not started.		
	PO starts at least one of 22 and 23 AFW pump to establish at least 22E4 lbm/hr AFW flow and maintains at least 22E4 lbm/AFW flow until at least one SG NR level is >9%, then maintains intact SG NR level 9-33%.		
	PO stops/ensures stopped 21 and 22 SGFP.		
	PO may request to depress Pressure override Defeat for 21 AFW pump, and if done, will establish AFW flow from 21 AFW pump.		
	RO reports RCP status and RCS temperature status.		
Role Play: Prior to inserting RT-12, call as Fire Protection Operator to report there is no fire currently at Unit 2 MPT area.			
6. Inadvertent SI			
Simulator Operator: Insert **RT-12** on direction from Lead Evaluator. **MALF: PR0016B PZR PRESS CH III(PT457)FAILS H/L Severity: 1700**			
Evaluators mark time SI is			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
actuated to track Critical Task performance. _____:_____:_____			
	RO reports alarms and indications that an automatic Safety Injection has occurred, and backs up SI.		
	CRS goes to EOP-TRIP-1 from TRIP-2 CAS of SI initiation.		
	CRS and RO verify performance of immediate actions.		
	PO reports SEC loading not complete, but all available equipment started		
Note: Actions have already been taken for the ABV Exhaust fan.			
	PO reports AFW flow status and maintains 22E4 lbm/hr until at least one SG NR level is 9%, then maintains 9-33%.		
	PO reports valve groups in Table B are in safeguards position.		
	RO reports 21 and 22CA330 are shut.		
	RO reports containment pressure has remained less than 15 psig.		
	RO reports no indication of high steamline		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	flow.		
Note: RCS pressure will rise and be controlled by PZR PORV 2PR2 cycling in auto.			
	PO reports all 4KV Vital buses energized.		
	RO reports CAV in AP mode.		
	RO runs two switchgear room supply and one exhaust fans.		
	RO reports two or more CCW pumps running.		
	RO reports RHR is not aligned for cold leg recirc.		
	RO reports RCS pressure is >1540 psig.		
	PO reports AFW flow status and maintains 22E4 lbm/hr until at least one SG NR level is 9%, then maintains 9-33%.		
	RO reports RCP in service.		
	RO reports RCS temp stable at or trending to 547°F.		
	RO reports RTB "A" has not opened.		
	CRS dispatches an operator to locally open RTB "A".		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Simulator Operator: 2 minutes after being dispatched, delete MALF RP0060A and ensure RTB A opens.			
	RO reports PZR PORV operating correctly based on current RCS pressure, and reports Block Valves opens.		
	RO reports RCPs in service.		
	RO reports both PZR Spray Valves shut.		
	RO reports RCS pressure is > 1350 psig.		
	PO reports no indications of a faulted SGs.		
	RO reports no indication of Ruptured SGs.		
	RO reports no rad monitors in Table F in warning or alarm.		
	RO reports containment pressure is < 4 psig.		
	RO reports containment sump level is < 46%.		
	RO reports subcooling greater than 0°F.		
	PO reports AFW flow is at least 22 E4 lbm/hr or at least one SG NR level is >9%.		
	RO reports RCS pressure is stable or rising, and PZR level is >11%.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS transitions to EOP-TRIP-3, SI Termination.		
	RO resets SI and Phase A isolation.		
	RO reports Phase B isolation reset, and opens 21 and 22CA330's.		
Note: Channels I and III PZR pressure are failed low, so there will be no demand for spray flow.			
	RO reports no automatic control for PZR Pressure, and manually controls RCS pressure.		
	RO reports PZR spray valves not failed open.		
	PO resets each SEC, and reports 230V control centers reset.		
	PO stops all but 21 or 22 Charging pump.		
CT#1 (Salem Critical Operator Action) Terminate an Inadvertent SI by stopping all but 21 or 22 charging pump within 23 minutes of SI initiation. _____:_____:_____ **SAT**_____ **UNSAT**_____			
	RO reports RCS pressure stable or rising.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports charging pump suction is aligned to the RWST.		
	RO opens 2CV139 and 2CV140 charging pump mini flow valves.		
	RO shuts BIT isolation valves 2SJ4, 2SJ5, 2SJ12, and 2SJ13.		
	RO shuts 2CV55 Charging FCV.		
	RO opens 2CV68 and 2CV69 Charging Discharge valves.		
	RO adjusts 2CV55 to maintain PZR level >25%.		
	RO reports PZR level is stable or rising.		
	RO reports RCS pressure >1540 psig and stable or rising.		
	RO stops both SI and both RHR pumps.		
	RO reports RCS subcooling > 0 °F and PZR level <11%.		
	RO reports no CS pumps running.		
	RO reports PZR level >25%.		
	RO opens 2CV2 and 2CV277 and places in auto.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO ensures open 2CV7.		
	RO raises charging flow to at least 87 gpm.		
	RO places one letdown orifice in service while maintaining letdown pressure at 300 psig, places 2CV18 letdown pressure control valve in auto, and reports normal letdown is in service.		
CT#2 (Salem Critical Operator Action) Terminate an Inadvertent SI by re-establishing Letdown within 45 minutes of the inadvertent SI. _____:_____:_____ **SAT_____ UNSAT_____**			
	RO ensures CVCS auto makeup in Auto.		
7. SGTR initiation			
Simulator Operator: Insert **RT-14** on direction from Lead Evaluator: **MALF: SG0078D 24 STEAM GENERATOR TUBE RUPTURE**			
	RO reports lowering RCS pressure and PZR level (if on scale).		
	PO reports rising level in 24 SG.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS directs CAS action to start ECCS pumps as necessary and go to EOP-SGTR-1.		
Note: The Basis Document for TRIP-3 does not specify which or how many ECCS pumps to start. The CRS should base their decision on which, if any, ECCS pumps to start, on RCS pressure and trend. For instance if RCS pressure is >1540 psig, the only ECCS pump which would cause an effect on PZR level would be a centrifugal charging pump which is O/S.			
Terminate the scenario when the transition to SGTR-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. OP-SA-108-106-1001, Large Motor Starting Criteria and Protective Circuit Breaker Reset and Reclosure Policy

F. S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction

G. S2.OP-AB.GEN-0001, Main Generator Stator Abnormality

H. S2.OP-PT.GEN-0003, Main Generator Stator Temperatures.

I. 2-EOP-TRIP-1, Reactor Trip or Safety Injection

J. 2-EOP-TRIP-2, Reactor Trip Response

K. 2-EOP-TRIP-3, SI Termination

PSEG Restricted - Possession Requires Specific Permission from Nuclear Training

ATTACHMENT 1
UNIT TWO PLANT STATUS TODAY

MODE: 1 POWER: 100 RCS BORON: 864 MWe 1220

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

NA

REACTIVITY PARAMETERS

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

None

ABNORMAL PLANT CONFIGURATIONS:

Solar Flares are occurring. SMD K-5 in effect for next 4 hours.

CONTROL ROOM:

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

PRIMARY:

None

SECONDARY:

None

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

26 SW pump C/T for strainer cleaning.

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

____ 1. Verify simulator is in "TRAIN" Load

____ 2. Simulator is in RUN

____ 3. Overhead Annunciator Horns ON

____ 4. All required computer terminals in operation

____ 5. Simulator clocks synchronized

____ 6. All tagged equipment properly secured and documented

____ 7. TSAS Status Board up-to-date

____ 8. Shift manning sheet available

____ 9. Procedures in progress open and signed-off to proper step

____ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced

____ 11. Required chart recorders advanced and ON (proper paper installed)

____ 12. All printers have adequate paper AND functional ribbon

13. Required procedures clean

____ 14. Multiple color procedure pens available

____ 15. Required keys available

____ 16. Simulator cleared of unauthorized material/personnel

____ 17. All charts advanced to clean traces and chart recorders are on.

____ 18. Rod step counters correct (channel check) and reset as necessary

____ 19. Exam security set for simulator

____ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter

____ With Baseline Data filled out

____ 21. Shift logs available if required

____ 22. Recording Media available (if applicable)

____ 23. Ensure ECG classification is correct

____ 24. Reference verification performed with required documents available

____ 25. Verify phones disconnected from plant after drill.

____ 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: 14-01 ILOT NRC ESG-2 REVIEWER: B Blose

Initials		Qualitative Attributes
BB	1.	The scenario has clearly stated objectives in the scenario.
BB	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.
BB	3.	The scenario consists mostly of related events.
BB	4.	Each event description consists of: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
BB	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.
BB	6.	The events are valid with regard to physics and thermodynamics.
BB	7.	Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
BB	8.	The simulator modeling is not altered.
BB	9.	All crew competencies can be evaluated.
BB	10.	The scenario has been validated.
BB	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.
BB	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	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	0	EOP contingencies requiring substantive actions: 0-2
GG	2	Crew Critical Tasks: 2-3
GG		

COMMENTS:

ATTACHMENT 5

ESG CRITICAL TASKS

14-01 ILOT NRC ESG-2

CT#1 (Salem Critical Operator Action) Terminate an Inadvertent SI by stopping all but 21 or 22 charging pump within 23 minutes of SI initiation.

Bases: Failing to terminate an Inadvertent SI leads to PZR overfill and water relief through the PZR PORVs/Safeties (Engineering Eval S-2-RC-MEE-1108)

CT#2 (Salem Critical Operator Action) Terminate an Inadvertent SI by re-establishing Letdown within 45 minutes of the inadvertent SI.

Bases: Failing to terminate an Inadvertent SI leads to PZR overfill and water relief through the PZR PORVs/Safeties (Engineering Eval S-2-RC-MEE-1108)

EVENTS LEADING TO CORE DAMAGE

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

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
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.

SIMULATOR
EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 14-01 NRC ESG-3

SCENARIO NUMBER: 14-01 NRC ESG-3

EFFECTIVE DATE: See approval Dates Below

EXPECTED DURATION: 90 minutes

REVISION NUMBER: 00

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

New issue for 14-01 ILOT NRC Exam

PREPARED BY:	G Gauding **Lead Regulatory Exam Author**	8-31-15 **Date**
APPROVED BY:	Paul Williams **Operations Training Manager**	10/7/15 **Date**
APPROVED BY:	(MVL) **Facility Representative**	10 9 15 **Date**

SCAN OF SIGNED SCENARIO COVER SHEET

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 order or indications of a loss of vacuum, perform actions as the nuclear control operator to RESPOND to the malfunction, in accordance with S1/S2.OP-AB.COND-0001.

D. Given the order or indications of a loss of vacuum, DIRECT the response to the malfunction in accordance with S1/S2.OP-AB.COND-0001.

E. Given the order or indications of a feedwater or condensate system malfunction, perform actions as the nuclear control operator to RESPOND to the malfunction in accordance with S1/S2.OP-AB.CN-0001.

F. Given indication of a feedwater or condensate system malfunction, DIRECT the response to the malfunction in accordance with S1/S2.OP-AB.CN-0001.

G. Given the order or indications of a loss of secondary heat sink, perform actions as the nuclear control operator to RESPOND to the loss of heat sink in accordance with the approved station procedures.

H. Given indication of a loss of secondary heat sink, DIRECT the response to the heat sink loss in accordance with the approved station procedures.

II. MAJOR EVENTS

A. 25 SW pump discharge strainer clogging.

B. Loss of Condenser vacuum → downpower.

C. Stuck Control rod during downpower.

D. Condensate pump trip →SGFP trip.

E. 2B 4KV vital bus UV.

F. Loss of all AFW with no centrifugal charging pumps avail.

G. FRHS Bleed and Feed w/Condensate pump recovery.

III. SCENARIO SUMMARY

A. The crew will take the watch 85% power, BOL. 22 Charging pump is C/T for biofouling. 26 SW pump is C/T for strainer cleaning. 23 Condensate pump C/T. Power is reduced due to 23 condensate pump trip yesterday.

B. Shortly after assuming the watch, 25 Service Water pump strainer will develop a high D/P. The crew will respond to alarms and board indications and dispatch an operator to investigate. The CRS will determine 25 SW pump is inoperable based on high D/P reported from field. The CRS will enter LCO 3.7.4 based on not having at least 1 SW pump operable on "C" vital bus.

C. After the SW pump malfunction is addressed, 24 Main Condenser Vacuum pump will trip, and its discharge valve will not auto close. The CRS will enter S2.OP-AB.COND-0001, Loss of Main Condenser Vacuum as condenser vacuum slowly lowers. None of the standby vacuum pumps will start. The crew will perform a load reduction in an attempt to stabilize condenser vacuum.

D. During the power reduction, the crew will identify a single Control Bank D rod not moving as rod insertion occurs. The CRS will enter S2.OP-AB.ROD-0001, Immovable / Misaligned Control Rods. The RO will place control rods in manual, and the downpower will be continued using boration only.

E. Once the stuck rod has been addressed, one of the two inservice Condensate pumps will trip. SGFP suction pressure will rapidly and irreversibly lower to the point where both SGFPs will trip on low suction pressure. The crew will identify no SGFP's operating > P-10 (10% power), and initiate a manual reactor trip.

F. The RO will perform EOP-TRIP-1, Reactor Trip or Safety Injection, Immediate Actions, and the CRS will transition to EOP-TRIP-2, Reactor Trip Response, with no SI required.

G. When the Main Generator output breakers open 30 seconds after the Turbine trip, 2B 4KV vital bus will become deenergized. 2B EDG will start and load Blackout loads. 21 Charging pump and 22 Aux Feed pump fail to start on SEC initiation. After resetting 2B SEC, 21 Charging pump will trip after starting, and 22 AFW pump will not start.

H. 21 AFW pump will trip 4 minutes after the Rx trip, leaving 23 AFW pump as the only operating aux feed pump. When SG NR levels have recovered but still remain <9%, 23 AFW pump will overspeed and trip.

I. With CFST's in effect after transitioning out of TRIP-1, a RED path will be present for Heat Sink, and the CRS will transition to FRHS-1, Response to Loss of Secondary Heat Sink. The crew will identify no centrifugal charging pumps available and go to Bleed and Feed steps to stop RCPs, initiate SI, and open both PZR PORVs. (CT#1)

J. The crew will continue to depressurize a SG to establish Condensate System flow to the SG. Once the crew has performed the steps to determine the feed rate, the Lead Evaluator will cue the crew that the selected SG NR level has reached 9%. The crew will then take actions to close the open PZR PORVs. (CT#2)

K. The scenario will be terminated after both PZR PORVs are shut.

IV. INITIAL CONDITIONS

____ IC-233

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

Initial	Description
____ 1	VC1and VC4 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	**22 Charging pump C/T**
____ 9	**26 SW pump C/T**
___ 10	**23 Condensate pump C/T**
___ 11	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	kck02pbz // 22 VACUUM PUMP-START <update as needed>
	3	EVENT ACTION: COMMAND: PURPOSE:	kck05pbz // 25 VACUUM PUMP-START <update as needed>
	5	EVENT ACTION: COMMAND: PURPOSE:	MONP254 <10 // CONT ROD BANK C < 10 (RX TRIP) <update as needed>
	7	EVENT ACTION: COMMAND: PURPOSE:	kb417pbj // 21 CHG PUMP-START <update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
_____ 01	SW0222E 25 SW PUMP DISCH Clogging	N/A	5	00:07:00	RT-1	26
_____ 02	VC0087C TRIP OF VACUUM PUMP 24	N/A	N/A	N/A	RT-3	
_____ 03	VL0337 24AR25 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	100
_____ 04	VC0087A TRIP OF VACUUM PUMP 22	00:00:02	N/A	N/A	ET-1	
_____ 05	CN0086B Loss of 22 main condenser vacuum	00:00:10	5	00:10:00	ET-3	7
_____ 06	RD0065 ANY ROD(S) FAILS TO MOVE (ELECT	N/A	N/A	N/A	N/A	50
_____ 07	CN0117B 22 CONDENSATE PUMP TRIP	N/A	N/A	N/A	RT-5	
_____ 08	AF0353B 22 AFP FAILURE TO AUTO START ON ANY (ALL) SIGNALS	N/A	N/A	N/A	N/A	
_____ 09	RP318S1 21 CHRG PMP FAILS TO STRT ON SEC	N/A	N/A	N/A	N/A	
_____ 10	CV0208A 21 CHARGING PUMP TRIP	00:00:02	N/A	N/A	ET-7	
_____ 11	RP318E2 Aux Feed Pump 22 Fails to Start on SEC	N/A	N/A	N/A	N/A	
_____ 12	AF0181A 21 AUX FEEDWATER PUMP TRIP	00:04:00	N/A	N/A	ET-5	
_____ 13	AF0183 23 AUX FW PMP OVERSPEED TRIP	N/A	N/A	N/A	RT-9	

REMOTES:

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

_____ 01	RC05A RCS SYSTEM , BORON CONC RESET	N/A	N/A	N/A	N/A	892
_____ 02	SW43D 26 SW PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
_____ 03	SW44D 26 SW PUMP RACK OUT	N/A	N/A	N/A	N/A	TAGGED
_____ 04	CN38D 23 CN PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
_____ 05	CN39D 23 CN PUMP BKR RACK OUT	N/A	N/A	N/A	N/A	TAGGED
_____ 06	CV48D 22 CHG PUMP BKR CONTROL POWER	N/A	N/A	N/A	N/A	OFF
_____ 07	CV49D 22 CHG PUMP RACK OUT	N/A	N/A	N/A	N/A	TAGGED

OVERRIDES:

SELF-CHECK	**Description**	**Delay Time**	**Initial Value**	**Ramp Time**	**Trigger**	**Condition/ Severity**
_____ 01	C808 F DI 24BSD 2B VITAL BUS FEEDER-OPEN	00:00:30	N/A	N/A	ET-5	ON
_____ 02	C805 F DI 23BSD 2B VITAL BUS FEEDER-OPEN	00:00:30	N/A	N/A	ET-5	ON
_____ 03	B512 E DI 22 AUX FEED PUMP-START	N/A	N/A	N/A	N/A	OFF

OTHER CONDITIONS:

	Description
_____ 1.	

V. SEQUENCE OF EVENTS

A. State shift job assignments.

B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).

C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".

D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
1. 25 SW pump discharge strainer high D/P			
Simulator Operator: Insert **RT-1** on direction from Lead Evaluator. **MALF: SW0222E 25 SW PUMP DISCH Clogging** **Initial Value: 5** **Final Value: 26** **Ramp: 7 minutes**			
Note: It will take 01:40 minutes for the first alarm to annunciate.			
	RO either notices lowering SW header pressures, or reports OHA B-16, 24-26 SW STRAIN TRBL as unexpected when it occurs.		
	CRS dispatches an operator to investigate alarm.		
Role Play: 2 minutes after being dispatched, report that 25 SW pump strainer is in auto with backwash red light on, you can hear flow through the 25SW24 backwash valve, and the strainer shaft is NOT turning with the strainer motor running. 25 SW pump strainer D/P is ~ 10.5 psid			
	CRS directs local operator to collect Trip/High		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	D/P Observation IAW S2.OP-SO.SW-0001, Service Water Pump Operation.		
	CRS may direct swapping to an operable SW pump after Trip/High D/P data collection.		
Note: The Attachment 2 is found at the end of this scenario guide.			
	CRS determines manual backwash cannot be performed with strainer not turning.		
	CRS determines 25 SW pump is inoperable based on higher than 10 psid across strainer IAW S2.OP-AR.ZZ-0002, Overhead Annunciators Window B.		
	CRS contacts Maintenance to assist in 26 SW pump strainer repair.		
Note: If contacted about status of work on 26 SW pump, report that Maintenance Supervisor has just signed off tags.			
	CRS enters LCO 3.7.4 based on not having any operable SW pumps powered from "C" vital bus, causing only ONE SW loop to be operable.		
Continue to next event after Tech Spec determination on direction from Lead Evaluator.			
2. Loss of Main Condenser			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Vacuum			
Simulator Operator: Insert **RT-3** on direction from Lead Evaluator. **MALFS:** **VC0087C TRIP OF VACUUM PUMP 24** **VL0337 24AR25 Fails to Position (100%)**			
	PO reports trip of 24 Vacuum pump, and 24AR24 has not automatically shut.		
	CRS directs PO to shut 24AR25 (either here or when directed in AB.COND)		
	PO reports 24AR25 will not shut, and condenser backpressure is slowly rising.		
	CRS enters S2.OP-AB.COND-0001, Loss of Condenser Vacuum.		
	CRS directs initiation of Attachment 1 CAS.		
	CRS dispatches operators to perform Attachment 2 Local Vacuum checks.		
Role Play: 5 minutes after being dispatched, report local vacuum pump checks complete, with only 24AR25 being open with 24 vacuum pump secured as abnormal.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	If not performed earlier, CRS directs closure of 24AR25.		
	CRS determines vacuum problem is not Circ Water related.		
	CRS directs PO to start all available vacuum pumps.		
Simulator Operator: Ensure **ET-1** and **ET-3** are true when 22 and 25 vacuum pump start PBs are depressed respectively. This causes 22 vacuum pump to trip 2 seconds after starting, and inserts the loss of vacuum malfunction.			
Simulator Operator: **Modify MALF CN0086B** if necessary to ensure condenser vacuum continues to slowly degrade, but does not reach any required trip setpoints.			
	PO reports condenser backpressure cannot be maintained stable or lowering.		
	PO reports the Turbine is latched.		
	CRS directs the RO and PO to coordinate and perform a power reduction to attempt to stabilize condenser backpressure.		
Note: CRS direction should include a target point for the load reduction,			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
and the rate at which the power reduction is to be performed.			
	CRS may enter S2.OP-AB.LOAD-0001, Rapid Load Reduction to perform the load reduction.		
Note: If AB.LOAD is entered the following steps will be performed.			
	CRS directs initiation of AB.LOAD CAS.		
	PO initiates a turbine load reduction to target point at the rate which CRS directed the load reduction be performed.		
	RO maintains Tavg on program using control rods and boration.		
	RO energizes PZR heaters.		
	RO calculates boron addition and expected rod position for power reduction directed by CRS, and recommends a rate at which to perform a boration.		
	CRS ensures boration calculation is correct, and RO initiates boration at rate directed by CRS.		
Note: No further AB.LOAD actions will be required.			
AB.COND steps resume here.			
	PO monitors condensate pump suction temps,		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	and removes SGBD from service by closing 21-24GB4's and 21-24GB185s if they reach 120°F, and bypasses the Polisher if they reach 140°F.		
	RO reports when expected rod movement occurs.		
	PO reports condenser backpressure continues to slowly degrade.		
	Crew ensures Attachment 4 Condenser Backpressure Limits are monitored and not exceeded.		
	RO reports when stuck rod 2D2 is suspected.		
	When stuck rod is verified to not be moving as expected, CRS centers S2.OP-AB.ROD-0001, Immovable / Misaligned Control Rods.		
	RO places Rod Bank Selector Switch in manual.		
	CRS determines the load reduction must be continued, and directs RO to raise the boration rate, and the PO to lower turbine load reduction rate if necessary to maintain Tavg within +/- 1.5°F of program.		
Simulator Operator: IF the CRS briefs that a Rx trip will be performed based on degrading plant conditions, THEN **RT-5** should be inserted to trip 22			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Condensate pump prior to that direction being given.			
	RO reports OHA E-40 ROD BANK URGENT FAIL is clear.		
	PO reports rod misalignment is indicated on plant Computer.		
Note: Depending on when the rod misalignment is detected, the control rod may or may not be >18 steps mis-aligned with Rx power <85%. Actions performed will be the same regardless of the amount of misalignment.			
	RO monitors QPTR and AFD.		
Note: If the power reduction continues far enough, OHA E-38 UPPER SECT DEV ABV 50% PWR will alarm.			
	CRS contacts Rx Engineering to confirm misalignment.		
Role Play: When contacted, report BEACON indicates rod misalignment is confirmed.			
	RO reports only a single rod is misaligned.		
	CRS enters LCO 3.1.3.1 for one misaligned rod.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	If power reduction has been stopped >75% power, CRS directs power reduction to <75% RTP to comply with action of TSAS 3.1.3.1 Action c.3.d.		
Continue to next event on direction from Lead Evaluator.			
Simulator Operator: Insert **RT-5** on direction from Lead Evaluator: **MALF: CN0117B 22 CONDENSATE PUMP TRIP**			
	PO reports 22 condensate pump trip, and rapidly lowering SGFP suction pressure.		
Note: SGFP trip will occur within a few seconds on low suction pressure.			
	PO may open 21-23CN108 Condensate Polisher Bypass valves, and reports SGFP suction pressure continues to degrade.		
	PO reports both SGFPs have tripped.		
	RO or PO trips the Rx based on no SGFPs operating with Rx power >P-10 (10% power)		
Note: The Rx will automatically trip on lo lo SG NR level if a manual Rx trip is not performed.			
Simulator Operator: Ensure **ET-5**			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
is true upon the Rx trip. This starts a 4 minute timer to trip 21 AFW pump.			
	RO performs Immediate Actions of TRIP-1 - Confirms the Rx trip - Trips the Main Turbine - Reports at least one 4KV Vital bus energized. - Reports SI has not actuated, nor is it required.		
Simulator Operator: Ensure **ET-9** and **ET-11** are true upon the Rx trip. This deletes the vacuum malfunctions.			
	CRS and RO verify performance of immediate actions.		
	CRS transitions to EOP-TRIP-2 Reactor Trip Response.		
	PO reports 2B 4KV vital bus has loaded in Blackout mode.		
Note: Direction for responding to Blackout Loading occurring on any vital bus is at Step 12 of TRIP-2.			
	PO reports 22 AFW pump has not started.		
	PO receives permission to throttle AFW flow to no less than 22E4 lbm/hr.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO makes page announcement.		
	CRS directs implementation of ECG.		
	PO reports total AFW flow is >22E4 lbm/hr and both SGFPs are tripped.		
	PO maintains at least 22E4 lbm/hr AFW flow.		
	RO reports RCPs are running and Tavg trending to or at 547°F.		
	RO reports both RTBs are open.		
	With Tavg <554°F, PO ensures 21-24BF19, 21-24BF40, and 21-24BF22 are shut.		
	RO reports control rods inserted on Rx trip.		
	PO reports when 21 AFW pump trips, and adjusts 23 AFW pump speed as necessary to ensure 22E4 lbm/hr is maintained.		
Note: With CFSTs in effect after transition out of TRIP-1, AFW flow <22E4 lbm/hr with SG NR levels <9% is entry criteria for FRHS-1 on RED path. Entry may not be performed if condition is not present after verifying no higher RED paths.			
	RO reports PZR level is >17%, charging flow is established, and maintains PZR level 22%.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports no fire on Unit 1, and letdown flow is established.		
	RO reports PZR pressure stable or trending to 2235 psig.		
	PO maintains AFW flow >22E4 lbm/hr until at least one SG NR level is >9%, then maintains intact SG NR levels between 9-33%.		
	PO reports all 4KV Group buses energized.		
	PO reports Blackout loading has occurred for 2B vital bus.		
	PO reports Blackout loading is not complete, and available equipment has failed to start.		
	PO resets 2B SEC.		
Note: Blocking 2B SEC on 2RP1 is not directed since there is no SI signal present.			
	PO reports 21 charging pump started then tripped.		
Note: IF CRS does NOT start 21 charging pump, then trip 23 charging pump here.			
Simulator Operator: Insert **RT-9** to trip 23 AFW pump after 21 charging pump start has been attempted.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports 22 AFW pump will not start.		
	PO reports when 23 AFW pump trips.		
	Crew determines a RED path is present when AFW flow is <22E4 lbm/hr and ALL SG NR levels are <9%.		
	CRS transitions to FRHS-1, Response to Loss of Secondary Heat Sink.		
	PO reports loss of all AFW was not due to operator action.		
	RO reports RCS pressure is > all intact or ruptured SG pressures, and RCS Thots are >350°F.		
	RO reports neither 21 nor 22 charging pumps are available.		
	CRS goes to Step 23 Bleed and Feed initiation.		
	RO stops all RCPs.		
	RO initiates SI.		
	PO reports SI valves in safeguards positions.		
	RO reports no centrifugal charging pumps running, and both SI pumps running.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO reports correct valve alignment for both SI pumps.		
	RO reports both PZR PORV Stop valves are open, and opens BOTH PZR PORVs.		
CT#1 (CT-46) Initiate RCS bleed and feed so that the RCS depressurizes sufficiently for SI pump injection into RCS. **SAT_____ UNSAT_____**			
	RO reports both PZR PORV Stop valves and both PZR PORVs are open.		
	PO reports correct SI Valve alignment (prior to SI reset using 2RP4 indication) or performs APPX-3 SI Verification.		
	RO resets SI and Phase A isolation, and reports Phase B isolation reset.		
	RO opens 21 and 22CA330.		
	PO resets all SECs, and resets 230V control centers as required.		
	Crew maintains ECCS flow and PZR PORVs open.		
	RO reports containment pressure < 15 psig, and no containment spray pumps running.		
	CRS determines only success path is		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	Condensate pump recovery, and goes to Step 20.		
Note: SGFPs are not available based on no SW flow to TGA, and all AFW pumps have tripped.			
	CRS determines 22 or 24 SG should be depressurized, whichever has the LOWEST level.		
	PO reports condenser steam dumps are available.		
	RO initiates MSLI for all loops except selected SG.		
	RO places steam dumps in manual, adjusts valve demand to 0%, then places in MS Pressure Control.		
	RO adjusts steam pressure valve demand to 25%, and bypasses Tavg at 543°F.		
	CRS dispatches an operator to open selected SG BF40 or BF19.		
Simulator Operator: 2 minutes after being dispatched, insert **RT-11 or RT-13** to open 22BF40 or 24BF40 as directed.			
	PO ensures selected SG BF13 is open.		
	PO ensures opens selected SG BF22.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO opens 21 and 22CN48s (SGFP bypass), and shuts 21 and 22 CN32s (SGFP suct valve)		
Note: When step 20.5 is reached "Is Condensate Flow Established to Any SG", the CRS should wait to see if actions taken to establish condensate flow are successful when the selected SG depressurized sufficiently to the point where condensate flow should occur. IF CRS prematurely answers "no" at step 20.5, they will go back to step 3 and needlessly verify all the Bleed and Feed steps.			
	PO reports when condensate flow is indicated to selected SG.		
	PO reports no SG NR levels are >9%, and WR level is rising in selected SG.		
	PO maintains selected SG pressure <575 psig.		
	CRS determines Bleed and Feed has been initiated and goes to Step 36.		
	RO reports CET trends.		
	IF CETs are lowering, CRS directs feeding of selected SG at desired rate unless selected SG WR level is <11%, when it should only be		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	fed at 1-5E4 lbm/hr.		
	IF CETs are still rising, CRS directs feeding of selected SG at maximum rate.		
	PO reports selected SG is not faulted or ruptured.		
	PO reports other intact SG WR levels are >11%.		
	PO reports no SG NR levels are >9%.		
	CRS returns to Step 35.		
Lead Evaluator: At your discretion, either advise the CRS directly or announce to the entire crew that time compression is being used, and that the selected SG NR level has risen to >9%.			
	RO reports CET trends.		
	IF CETs are lowering, CRS directs feeding of selected SG at desired rate unless selected SG WR level is <11%, when it should only be fed at 1-5E4 lbm/hr.		
	IF CETs are still rising, CRS directs feeding of selected SG at maximum rate.		
	PO reports selected SG is not faulted or ruptured.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports other intact SG WR levels are >11%.		
	PO reports selected SG NR level is >9%.		
	RO reports CETs and RCS Thots are dropping.		
	RO reports Head Vent valves are shut.		
	RO reports subcooling is <50°F.		
	RO shuts ONE PORV.		
	RO reports charging pump suction aligned to the RWST.		
	RO reports 2CV139 and 2CV140 are open.		
	RO shuts open PORVs.		
CT#2 (CT-47) Close all PZR PORVs and reactor vessel head vent valves before the end of the scenario **SAT_____ UNSAT_____**			
Terminate scenario when both PORVs are shut.			

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-SO.SW-0001, Service Water Pump Operation
F. S2.OP-SO.SW-0005, Service Water System Operation
G. S2.OP-AB.COND-0001, Loss of Main Condenser Vacuum
H. S2.OP-AB.LOAD-0001, Rapid Load Reduction
I. S2.OP-AB.ROD-0001, Immovable / Misaligned Control Rod
J. S2.OP-AB.CN-0001, Main Feedwater / Condensate System Abnormality
K. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
L. 2-EOP-TRIP-2, Reactor Trip Response
M. 2-EOP-FRHS-1, Response to Loss of Secondary Heat Sink

PSEG Restricted - Possession Requires Specific Permission from Nuclear Training

ATTACHMENT 1
UNIT TWO PLANT STATUS
TODAY

MODE: 1 POWER: 85% RCS BORON: 893 MWe 1010

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

NA

REACTIVITY PARAMETERS

Control Bank D at 178 steps withdrawn
Xenon building in at 12 ppm per hour
200 gallon dilution for temperature control was completed 30 minutes ago.

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.5.2.a action a for 22 charging pump C/T. Expires in 70 hours.

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

None

ABNORMAL PLANT CONFIGURATIONS:

Power reduced to 85% IAW S2.OP-AB.CN-0001 when 23 Condensate pump tripped last shift.

CONTROL ROOM:

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

PRIMARY:

22 Charging pump C/T for oil cooler cleaning.

SECONDARY:

23 Condensate pump C/T, tripped last shift.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

26 SW pump C/T for strainer cleaning.

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

____ 1. Verify simulator is in "TRAIN" Load

____ 2. Simulator is in RUN

____ 3. Overhead Annunciator Horns ON

____ 4. All required computer terminals in operation

____ 5. Simulator clocks synchronized

____ 6. All tagged equipment properly secured and documented

____ 7. TSAS Status Board up-to-date

____ 8. Shift manning sheet available

____ 9. Procedures in progress open and signed-off to proper step

____ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced

____ 11. Required chart recorders advanced and ON (proper paper installed)

____ 12. All printers have adequate paper AND functional ribbon

13. Required procedures clean

____ 14. Multiple color procedure pens available

____ 15. Required keys available

____ 16. Simulator cleared of unauthorized material/personnel

____ 17. All charts advanced to clean traces and chart recorders are on.

____ 18. Rod step counters correct (channel check) and reset as necessary

____ 19. Exam security set for simulator

____ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter

____ With Baseline Data filled out

____ 21. Shift logs available if required

____ 22. Recording Media available (if applicable)

____ 23. Ensure ECG classification is correct

____ 24. Reference verification performed with required documents available

____ 25. Verify phones disconnected from plant after drill.

____ 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: 14-01 ILOT NRC ESG-3 REVIEWER: B Blose

Initials		Qualitative Attributes
BB	1.	The scenario has clearly stated objectives in the scenario.
BB	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.
BB	3.	The scenario consists mostly of related events.
BB	4.	Each event description consists of: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
BB	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.
BB	6.	The events are valid with regard to physics and thermodynamics.
BB	7.	Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
BB	8.	The simulator modeling is not altered.
BB	9.	All crew competencies can be evaluated.
BB	10.	The scenario has been validated.
BB	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.
BB	12.	ESG-PSA Evaluation Form is completed for the scenario at the applicable facility.

ATTACHMENT 4

SIMULATOR SCENARIO REVIEW CHECKLIST

Initial		Quantitative Attributes (as per ES-301-4, and ES-301 Section D.5.d)
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	2	Crew Critical Tasks: 2-3

COMMENTS:

ATTACHMENT 5

ESG CRITICAL TASKS

14-01 ILOT NRC ESG-3

CT#1 (CT-46) Initiate RCS bleed and feed so that the RCS depressurizes sufficiently for SI pump injection into RCS.

Bases: Failure to initiate RCS bleed and feed before the RCS saturates at a pressure above the shutoff head of the high-head ECCS pumps results in significant and sustained core uncovery. If RCS bleed is initiated so that the RCS is depressurized below the shutoff head of the high-head ECCS pumps, then core uncovery is prevented or minimized.

CT #2 (CT-47) Close all PRZR PORVs and reactor vessel head vent valves before the end of the scenario

Bases: Failure to close the RCS vent paths (such as head vents and PRZR PORVs) under the postulated plant conditions constitutes misoperation or incorrect crew performance that fails to prevent "degradation to any barrier to fission product release." In this case, the RCS fission-product barrier can be restored to full integrity only if the PRZR PORVs and the reactor vessel head vents are closed. Failure to close the RCS vent paths also results in the crew having to transition to LOCA-1 because of the continuing LOCA, instead of being able to transition to TRIP-3 for SI termination. Thus, failure to perform the critical task "necessitates the crew taking compensating action that would complicate the event mitigation strategy."

ATTACHMENT 6

ESG-PSA RELATIONSHIP EVALUATION

EVENTS LEADING TO CORE DAMAGE

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

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG.

ATTACHMENT 2
(Page 1 of 2)

SERVICE WATER STRAINER TRIP/HIGH ΔP OBSERVATIONS (as applicable)

STRAINER # _____ TIME (problem noted) _____ DATE _____

1.0 Was the Service Water Pump just started? YES/NO

- In service for how long? _____ TIME

2.0 What was the first indication of trouble? OHA/OTHER

Comments: _____

_____

3.0 Is the strainer turning? YES/NO

4.0 **RECORD** the following data (attempt even if strainer stops):

- Strainer ΔP _____ ΔP
- Service Water Pump discharge pressure _____ PSIG
- Strainer inlet pressure _____ PSIG
- Strainer outlet pressure _____ PSIG

5.0 Was the pump discharge valve (SW3) closed to backflush the affected strainer? YES/NO

6.0 IF strainer overloads were found tripped and successfully reset,
THEN **REQUEST** Maintenance to take strainer AMP readings.

7.0 Is the associated traveling screen operating? YES/NO

- Is there any carryover at the traveling screen? YES/NO
- What is the traveling screen ΔP? _____ ΔP

8.0 Is another strainer in the same Service Water Bay also in backwash? YES/NO

9.0 What position is the backwash valve in, based on stem? _____ OPEN/CLOSED/MID

ATTACHMENT 2
(Page 2 of 2)

SERVICE WATER STRAINER TRIP/HIGH)P OBSERVATIONS (as applicable)

10.0 Is the sound of backflush clearly heard? YES/NO

11.0 Backwash flow readings (if avail from Maint). _____ GPM

12.0 Is flow observed in the blowdown sump? YES/NO
(outside left, prior to going up the stairs at the Service Water Bldg)

13.0 Additional Comments:

_____

_____

_____

SIMULATOR
EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 14-01 NRC ESG-4

SCENARIO NUMBER: 14-01 NRC ESG-4

EFFECTIVE DATE: See Approval Dates below

EXPECTED DURATION: 65 minutes

REVISION NUMBER: 00

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

New Issue for 14-01 NRC Exam

PREPARED BY:	G Gauding **Lead Regulatory Exam Author**	8-31-15 **Date**
APPROVED BY:	**Operations Training Manager**	10/7/15 **Date**
APPROVED BY:	(MOD) **Facility Representative**	10 9 15 **Date**

SCAN OF SIGNED SCENARIO COVER SHEET

I. OBJECTIVES

A. Given the unit at 100% power, take corrective action for a loss of CCW IAW AB.CC-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 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.

D. Given the indication of excessive steam flow, DIRECT the response to excessive flow in accordance with S1/S2.OP-AB.STM-0001.

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 reactor trip, DIRECT the response to the reactor trip 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 indication of a safety injection DIRECT the response to the safety injection in accordance with the approved station procedures.

I. Given the order or indications of a loss of coolant accident (LOCA), complete actions as the nuclear control operator to PERFORM the immediate response to the LOCA in accordance with the approved station procedures.

J. Given the unit with a RCS Leak outside containment, PERFORM actions to isolate the leak, IAW approved station procedures.

K. Given the unit with a RCS Leak outside containment, DIRECT actions to isolate the leak, IAW approved station procedures.

II. MAJOR EVENTS

A. CCW pump trip

B. Steam leak outside containment

C. 2 stuck rods post trip

D. LOCA outside containment

III. SCENARIO SUMMARY

A. The crew will take the watch with Unit 2 at 100% power, EOL. Personnel are in containment to investigate a reduced containment sump pump run interval.

B. Shortly after the crew assumes the watch, the crew in containment will report the source of the leakage was a leaking CFCU SW drain valve, which has been tightened and capped to isolate the leak. The crew will exit containment, but not be able to close the exterior containment door. After the CRS identifies Tech Specs associated with this problem, a Maintenance Supervisor will find a small flashlight preventing airlock door closure, report no damage to the airlock door or seal, and close the airlock door.

C. 22 Component Cooling water pump will trip. The standby CCW pump (23) will not automatically start. The crew will manually start 23 CCW pump. The CRS will ensure the actions of appropriate AB's have been taken.

D. A steam leak outside containment will occur. The crew will enter S2.OP-AB.STM-0001. As the steam leak worsens, the crew will trip the Rx and initiate a MSLI to isolate the steam leak.

E. Once in EOP-TRIP-2, Reactor Trip Response following the immediate actions of EOP-TRIP-1, Reactor Trip or Safety Injection, operators will verify adequate AFW flow and secure SGFPs. Operators will borate the RCS in response to 2 stuck out rods.

F. Once RCS boration is established, a LOCA outside containment occurs on 22 RHR pump piping with check valve failures. Operators will diagnose the loss of PZR level, ECCS Accumulator losing level and pressure, RHR sump pump runs and 2R41D rising radiation, and initiate a Safety Injection based on TRIP-2 Continuous Action Summary, and return to TRIP-1.

G. Operators will perform TRIP-1 and transition to EOP-LOCA-6, LOCA Outside Containment.

H. Once in LOCA-6, operators will isolate the leakage path to 22 RHR loop.

I. The scenario will terminate when the transition from LOCA-6 has occurred.

IV. INITIAL CONDITIONS

____ Presnapped IC – 234

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

Initial	Description
____ 1	VC1and VC4 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	Complete Attachment 2 "Simulator Ready-for-Training/Examination Checklist."

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

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	kaq09tc7 // 21CA330 CNTMNT CONTROL AIR-2A HE DMF VL0374 <update as needed>
	3	EVENT ACTION: COMMAND: PURPOSE:	kaq10tc7 // 22CA330 CNTMNT CONTROL AIR-2B HE DMF VL0375 <update as needed>

MALFUNCTIONS:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
_____ 01	CC0361C 23 COMPONENT COOLING PUMP Fails to Start on Low Pressure	N/A	N/A	N/A	N/A	
_____ 02	CC0172B 22 COMPONENT COOLING PUMP TRIP	N/A	N/A	N/A	RT-5	
_____ 03	MS0091r Main Steam Header Leak Outside Containment	N/A	N/A	N/A	RT-7	1
_____ 04	RD0064 ANY ROD(S) FAILS TO TRIP (STUCK	N/A	N/A	N/A	N/A	45
_____ 05	VL0374 21CA330 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	100
_____ 06	VL0375 22CA330 Fails to Position (0-100%)	N/A	N/A	N/A	N/A	100
_____ 07	SJ0312A CL LEG INJ LINE CHK VALVE 24SJ56 (RCS SIDE) LEAKS (use with SJ0312B)	N/A	0	00:10:00	RT-9	8
_____ 08	SJ0312B CL LEG INJ LINE CHK VALVE 24SJ43 (RHR SIDE) LEAKS	N/A	0	00:10:00	RT-9	8
_____ 09	RH0300B 22 RHR LEAK AFTER HX	N/A	N/A	N/A	RT-9	500

REMOTES:

SELF-CHECK	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition
_____ 01	RC05A RCS SYSTEM , BORON CONC RESET	N/A	N/A	N/A	N/A	27.7
_____ 02	CT02D EL 103 AIRLOCK INT DOOR CLOSED	N/A	N/A	N/A	RT-1	NO
_____ 03	CT01D EL 103 AIRLOCK EXT DOOR CLOSED	N/A	N/A	N/A	RT-3	NO

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

OTHER CONDITIONS:	
	Description
____	1.

V. SEQUENCE OF EVENTS

A. State shift job assignments and review scenario objectives.

B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet).

C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. CRS please inform me when your crew is ready to assume the shift".

D. Allow sufficient time for panel walk-downs. When informed by the CRS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
1. 100' elevation containment airlock door failure to close			
Simulator Operator: Call control room as Zach Crawford and report that your crew identified a leaking drain valve (24SW269) on the outlet of 24 CFCU which did not have its drain cap installed. Your crew tightened the valve to stop the leak, put the valve cap on, and your crew will be exiting containment. After report, Insert **RT-1** to open interior containment airlock door. **REMOTE: CT02D EL 103 AIRLOCK INT DOOR CLOSED** **Final Value: NO** 15 seconds later, MODIFY **REMOTE: CT02D to YES.** Then insert **RT-3** to open airlock exterior door. **REMOTE: CT01D EL 103 AIRLOCK EXT DOOR CLOSED** **Final Value: NO**			
	RO announces expected OHA C-46 PERSONNEL ACCESS DOOR OPEN.		
Role Play: After 3 minutes with airlock door open, call control room			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
as Zach Crawford and report that the door closing handwheel will not fully close the 100' airlock exterior door and you need Mechanical Maintenance to come look at door. Specifically, the containment door remains approximately 2 inches open.			
	CRS contact maintenance.		
	CRS enters TSAS 3.6.1.1.b and 3.6.1.3.a.		
Role Play: After the CRS has determined applicable Tech Specs, **MODIFY REMOTE CT01D to YES,** then call as Maintenance Supervisor and report the reason the door would not close was a small flashlight was blocking its path. You have inspected the door seal and there is no damage.			
	RO reports OHA C-46 has cleared.		
2. 22 CCW pump trip with failure of 23 CCW pump to auto start.			
Simulator Operator: Insert **RT-5** on direction from Lead Evaluator. **MALF: CC0172B 22 CCW pump trip**			
	RO reports trip of 22 CCW pump and standby		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	pump did not auto start.		
	CRS directs RO to manually start 23 CCW pump.		
	RO manually starts 23 CCW pump and reports clearing of all alarms associated with the CCW pump trip.		
	CRS directs RO/PO to validate alarms received with ARP guidance.		
Note: CCW system alarms will annunciate during crew response, but all alarms will clear upon restoration of system pressure.			
	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 refer to S2.OP-AB.CC-0001, Component Cooling Abnormality, and S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, to verify entry is not required.		
Note: Entry into these 2 AB's may be performed to verify the actions taken to restore CCW system pressure corrected the entry conditions for the AB's.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS dispatches operators to investigate 22 CCW pump trip.		
Role Play: 2 minutes after being dispatched to check 22 CCW pump breaker, report OC trip is present on 22 CCW pump. If dispatched to check CCW pumps report they look normal.			
	CRS enters TSAS 3.7.3 based on not having 2 operable CCW loops.		
Proceed to next event at Lead Evaluators direction after Tech Spec call has been made.			
3. Steam leak outside containment / power reduction			
Simulator Operator: Insert **RT-7** at Lead Evaluators direction. **MALF: MS0091r, Main Steam Header Leak Outside Containment** **Severity: 1**			
	RO reports rising power and lowering Tavg.		
	RO reports no indication of RCS leak.		
	CRS enters S2.OP-AB.STM-0001, Excessive Steam Flow.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS directs initiation of AB.STM CAS.		
	CRS notifies Emergency Services.		
	PO reports Main turbine is latched.		
	PO reports EHC operating correctly.		
	CRS directs the PO to lower turbine load to lower reactor power ≤ 100% power.		
	PO lowers turbine load at rate directed by CRS to level directed by CRS.		
	RO initiates a boration as directed by the CRS to maintain Tavg on program.		
	PO reports no indication of any MS10 malfunction.		
	PO reports no indication of Main Steam Dump malfunction.		
	CRS dispatches operator to check for leaking Safety Valve if not previously dispatched.		
Role Play: 2 minutes after being dispatched, but **AFTER** load reduction has been performed, call as NEO to report a small steam leak from the top of 23 West Moisture Separator Reheater. You can't see exactly where it is coming from.			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
Simulator Operator: On direction from Lead Evaluator after downpower has been performed, **MODIFY MS0091r to 20%.**			
	PO reports rising steam flows on all SGs.		
	RO reports Rx power rising rapidly.		
	CRS briefs actions to be taken to trip the reactor and isolate the steam leak.		
	RO trips the reactor.		
	RO initiates MSLI.		
	PO reports steam flows have all lowered, and MSLI has isolated source of steam leak.		
	RO performs immediate actions of TRIP-1: - Confirms the reactor trip. - Trips the Main Turbine - Reports at least one 4KV vital bus energized. - Reports SI not initiated, and verifies SI not required.		
	CRS / RO verify immediate actions and SI not required.		
	CRS transitions to EOP-TRIP-2, Reactor Trip Response.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO makes page announcement.		
	CRS directs implementation of the ECG.		
	PO reports total AFW flow is >22E4 lbm/hr.		
	PO stops both SGFPs.		
	PO maintains 22E4 lbm/hr total AFW flow until at least 1 SG NR level is >9%, and maintains SG NR levels 9-33%.		
	RO reports RCPs in service and Tavg trending to 547°.		
	RO reports both Rx RTBs are open.		
	PO ensures 21-24BF19 and 21-24BF40 are shut, and shuts 21-24BF22.		
	RO reports 2 control rods have failed to fully insert.		
	RO starts a BAT pump in fast speed.		
	RO opens 2CV175.		
	RO shuts 21 and 22 CV160s.		
	RO controls charging flow to maintain >87 gpm.		
	RO reports rapid boration flow is established.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
CT #1: (TRIP-2) Initiate Rapid Boration for two or more control rods not fully inserted following a Reactor Trip prior to exiting TRIP-2. **SAT_____ UNSAT_____**			
	CRS determines 70 minutes of boration flow is required for the 2 stuck out rods, and assigns a crew member responsibility for tracking the 70 minutes.		
Simulator Operator: Insert **RT-9** on direction from Lead Evaluator after rapid boration has been established. **MALF: RH0300B 22 RHR leak after HX** **Final Value: 500** **MALF: SJ0312A CL Leg Inj Line Chk Valve 24SJ56 fails** **Final Value: 8** **Ramp: 10 minutes** **MALF: SJ0312B CL Leg Inj Line Chk Valve 24SJ43 fails** **Final Value: 8** **Ramp: 10 minutes**			
	RO reports 24 ECCS Accumulator level low		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	alarm, followed shortly by the Low Pressure alarm.		
	RO reports RCS pressure dropping slowly.		
	RO checks containment conditions and reports they are stable.		
	RO reports PZR level lowering and RHR sump pump starts.		
	RO raises charging flow to stabilize PZR level.		
	RO reports PZR level cannot be maintained stable with elevated charging flow.		
	CRS directs RO to initiate SI based on CAS of TRIP-2.		
	RO attempts to manually initiates SI, and reports SI will not initiate from Train B. RO initiates SI successfully from Train A.		
	CRS transitions to TRIP-1.		
	CRS/RO verify TRIP-1 immediate actions complete.		
	RO announces OHA C34, 22 RHR SUMP OVRFLO.		
	PO reports SEC loading is not complete for energized vital busses.		
	PO reports all available equipment started.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	PO reports 21 and 22 AFW pumps are running.		
	PO reports valve groups in Table B are in safeguards position.		
	RO reports 21 and 22CA330's are NOT shut, and shuts 21 and 22CA330.		
Simulator Operator: Ensure **ET-1** and **ET-3** are true when 21CA330 and 22CA330 close PBs are depressed respectively. This deletes the malfunctions and allows valves to shut.			
	RO reports containment pressure has remained < 15 psig.		
	RO reports no high steam flow condition is indicated on 2RP4.		
	CRS directs SM to implement the ECG.		
	RO reports all 4KV vital busses are energized.		
	RO runs two Switchgear Supply fans and one Switchgear Exhaust fan.		
	RO verifies 2 CCW pumps running.		
	CRS reads LOCA-3 transition CAS.		
	RO reports correct ECCS pumps injecting for		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	current RCS pressure.		
	PO verifies AFW flow and SG NR level status.		
	RO reports all RCPs running and MS10's controlling RCS Tave.		
	RO reports trip breaker and PORV status.		
	RO reports RCPs are in service, and spray valves status.		
	RO reports RCS pressure is >1350 psig.		
	PO reports no indications of any faulted SGs.		
	PO reports no indications of any ruptured SGs.		
	RO reports no radiation monitors indicate a LOCA in containment.		
	RO reports containment pressure is < 4 psig.		
	RO reports containment sump level is <46%.		
	RO reports subcooling is >0°F.		
	PO reports SG NR levels >9%.		
	RO reports RCS pressure is dropping slowly.		
Simulator Operator: If RO reports stable RCS pressure, then increase the size of the RHR leak to raise			

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
the rate at which pressure is lowering, to get the crew to get out of the "do loop" of step 29.			
	STA continues monitoring CFST's.		
	PO verifies AFW flow and SG NR level status.		
	RO reports radiation monitor 2R41D in alarm.		
	CRS sends an operator with Rad Pro support to investigate.		
Note: 5 minutes after being dispatched, report as NEO that the RP Tech made both of you leave the area when his monitor alarmed prior to entering the 55' elevation RHR valve room area.			
	CRS determines cause of high radiation is a LOCA outside containment in 22 RHR pump room based on alarms and plant conditions.		
	CRS transitions to LOCA-6.		
	RO resets SI and Phase A isolation, and reports Phase B isolation not actuated.		
	RO opens 21 and 22CA330's.		
	PO resets all SECs, and reports 230V control centers reset.		
	RO reports 2RH1 and 2RH2 are shut.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	RO shuts 21RH19 and 22RH19.		
	RO reports RCS pressure is not rising.		
	RO reports 2RH26 is shut, and RCS pressure is not rising.		
	RO verifies 21RH29 in auto.		
	PO removes lockout from 21SJ49.		
	RO shuts 21SJ49.		
	RO reports RCS pressure is not rising.		
	RO opens 21SJ49.		
	RO verifies 22RH29 in auto.		
	PO removes lockout from 22SJ49.		
	RO shuts 22SJ49.		
	RO reports RCS pressure is rising.		
CT#2 (CT-32) Isolate LOCA outside containment before transition out of LOCA-6. **SAT_____ UNSAT_____**			
	RO stops 22 RHR pump.		

Evaluator/Instructor Activity	Expected Plant/Student Response	SBT LOG	Comment
	CRS transitions to LOCA-1.		
Lead Examiner terminate the scenario when the transition to LOCA-1 is announced.			

VI. SCENARIO REFERENCES

A. Alarm Response Procedures (Various)

B. Technical Specifications

C. Emergency Plan (ECG)

D. OP-AA-101-111-1003, Use of Procedures

E. S2.OP-AB.CC-0001, Component Cooling System Abnormality

F. S2.OP-AB.STM-0001, Excessive Steam Flow

G. 2-EOP-TRIP-1, Reactor Trip or Safety Injection

H. 2-EOP-TRIP-2, Reactor Trip Response

I. 1-EOP-LOCA-1, Loss of Reactor Coolant

J. 2-EOP-LOCA-6, LOCA Outside Containment

PSEG Restricted - Possession Requires Specific Permission from Nuclear Training

ATTACHMENT 1
UNIT TWO PLANT STATUS TODAY

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

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

NA

REACTIVITY PARAMETERS

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Personnel are in containment investigating reduced Containment Sump Pump run interval.

ABNORMAL PLANT CONFIGURATIONS:

CONTROL ROOM:

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

PRIMARY:

None

SECONDARY:

None

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

None

ATTACHMENT 2

SIMULATOR READY FOR TRAINING CHECKLIST

____ 1. Verify simulator is in "TRAIN" Load

____ 2. Simulator is in RUN

____ 3. Overhead Annunciator Horns ON

____ 4. All required computer terminals in operation

____ 5. Simulator clocks synchronized

____ 6. All tagged equipment properly secured and documented

____ 7. TSAS Status Board up-to-date

____ 8. Shift manning sheet available

____ 9. Procedures in progress open and signed-off to proper step

____ 10. All OHA lamps operating (OHA Test) and burned out lamps replaced

____ 11. Required chart recorders advanced and ON (proper paper installed)

____ 12. All printers have adequate paper AND functional ribbon

13. Required procedures clean

____ 14. Multiple color procedure pens available

____ 15. Required keys available

____ 16. Simulator cleared of unauthorized material/personnel

____ 17. All charts advanced to clean traces and chart recorders are on.

____ 18. Rod step counters correct (channel check) and reset as necessary

____ 19. Exam security set for simulator

____ 20. Ensure a current RCS Leak Rate Worksheet is placed by Aux Alarm Typewriter

____ with Baseline Data filled out

____ 21. Shift logs available if required

____ 22. Recording Media available (if applicable)

____ 23. Ensure ECG classification is correct

____ 24. Reference verification performed with required documents available

____ 25. Verify phones disconnected from plant after drill.

____ 26. Verify ECG 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: 14-01 NRC ESG-4 **REVIEWER: R Blose**

Initials		Qualitative Attributes
BB	1.	The scenario has clearly stated objectives in the scenario.
BB	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.
BB	3.	The scenario consists mostly of related events.
BB	4.	Each event description consists of: • the point in the scenario when it is to be initiated • the malfunction(s) that are entered to initiate the event • the symptoms/cues that will be visible to the crew • the expected operator actions (by shift position) • the event termination point
BB	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.
BB	6.	The events are valid with regard to physics and thermodynamics.
BB	7.	Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
BB	8.	The simulator modeling is not altered.
BB	9.	All crew competencies can be evaluated.
BB	10.	The scenario has been validated.
BB	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.
BB	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	4	Malfunctions 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	EOP based Critical tasks: 2-3

COMMENTS:

ATTACHMENT 5

ESG CRITICAL TASKS

14-01 NRC ESG-4

CT #1 (TRIP-2) (FSAR 4.2.3.2.1) Initiate Rapid Boration for two or more control rods not fully inserted following a Reactor Trip prior to exiting TRIP-2.

BASIS: Core Shutdown Margin (SDM) is only assured with a maximum of one control rod not fully inserted. With two or more control rods not inserted, the shutdown reactivity margin must be made up through emergency boration to account for the reactivity of the stuck rods.

CT #2: (CT-32) Isolate LOCA outside containment before transition out of LOCA-6.

BASIS: Failure to isolate a LOCA outside containment (that can be isolated) degrades containment integrity beyond the level of degradation irreparably introduced by the postulated conditions. It also constitutes misoperation or incorrect crew performance that fails to prevent "degradation of any barrier to fission product release" and eventually leads to "...degraded emergency core cooling (ECCS)...capacity."

ATTACHMENT 6

PRA-ESG RELATIONSHIP EVALUATION

EVENTS LEADING TO CORE DAMAGE

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

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
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.