

Rev. 0

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Perform a peer check on a completed ECP

TASK NUMBER: 1200020301

INITIAL CONDITIONS:

Unit 2 is in HSB at 547°F/2235 PSIG with a reactor startup planned for this shift.

Previous Critical Conditions:

- Reactor trip after 55 days at 100% power
- 600 ppm Boron
- 13000 MWD/MTU
- Bank D @ 217 steps

Intended Critical Conditions:

- 48 hours after the trip
- Bank D @ 95 steps

SIMULATOR SETUP:

N/A

INITIATING CUE:

Perform a peer check on a manual ECP.

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.

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide Candidate with a completed SC.RE-RA.ZZ-0001			
		START TIME:			
		Reviews procedure.	Reads PREREQUISITES and PRECAUTION AND LIMITATIONS		
		Verify proper completion of Attachment 1, Estimated Critical Position Worksheet:			
	1	Review Section(s):	CUE: Assume the data in Sections 1.0, 2.0 and 3.0 has been properly obtained and is correct.		
		1.0 PREVIOUS CRITICAL CONDITIONS			
		2.0 SHUTDOWN CONDITIONS			
		3.0 INTENDED CRITICAL CONDITIONS			
		Review Section 4.0 – REACTIVITY WORTHS AT PREVIOUS CRITICAL CONDITIONS			
	Step 4.1	Integral Rod Worth at position in 1.4.	Using Figure 4 reads < 50 pcm.		
	Step 4.2	Power Defect at Power in 1.2 (100%) and Boron Concentration in 1.3 (600 ppm).	Using Figure 2 reads approximately 1880 pcm.		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Step 4.3	Xenon Reactivity at Time in 1.1 (48 hours ago).	Using Figure 6 reads approximately 2525 pcm. CUE: If Candidate questions use of BOL curve, tell him to use the curve available.		
	Step 4.4	Samarium Reactivity at Time in 1.1 (48 hours ago).	Using Figure 10B reads approximately 935 pcm.		
		Review Section 5.0 – REACTIVITY WORTHS AT INTENDED CRITICAL CONDITIONS			
	Step 5.1	Integral Rod Worth at Position in 3.2 (D-95).	Using Figure 4 reads approximately 700 pcm.		
	Step 5.2	Xenon Reactivity			
		<ul style="list-style-type: none"> Elapsed time from 2.1 to 3.1 			
		<ul style="list-style-type: none"> Xenon Reactivity at Time in 5.2.1 and Power in 2.2 (100%). 	Using Figure 8B, 48 hours and 100% power reads approximately 525 pcm.		
	Step 5.3	Samarium Reactivity			
		<ul style="list-style-type: none"> Elapsed time from 2.1 to 3.1 			
		<ul style="list-style-type: none"> Samarium Reactivity at Time in 5.3.1 and Power in 2.2 (100%) 	Using Figure 8B, 48 hours and 100% power reads approximately 1018 pcm.		
		Review Section 6.0 – REACTIVITY CHANGES AND SUM			
	Step 6.1	Integral Rod Worth (4.1) – (5.1)	-700 pcm, $\pm 5\%$		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Step 6.2	Power Defect (4.2)	+1850 to +1900 pcm		
*	Step 6.3	Xenon Reactivity (5.2.2) – (4.3)	Identifies error in algebraic addition. Correct number should be: +1900 to 2100 pcm		
	Step 6.4	Samarium Reactivity (5.3.2) – (4.4)	Identifies error in algebraic addition. Correct number should be: -78 to 88 pcm		
*	Step 6.5	SUM (6.1) + (6.2) + (6.3) + (6.4)	Making the corrections above, the sum is now: $(-700) + (1880) + (2000) + (-83) =$ +2943 to +3251 pcm		
	Step 7.0	Review Section 7.0 – INTENDED CRITICAL BORON CONCENTRATION DETERMINATION			
	Step 7.1	Correction to Previous Boron due to Burnup Differences.....			
	Step 7.1.1	HFP ARO Equilibrium Poison Boron Concentration at Burnup in (1.5)	Using Figure 30 reads 650 ppm		
	Step 7.1.2	HFP ARO Equilibrium Poison Boron Concentration at Burnup in (3.3)	Using Figure 30 reads 650 ppm		
	Step 7.1.3	Boron Concentration Difference (7.1.1)- (7.1.2)	Calculates difference as 0 ppm		
	Step 7.1.4	Corrected Previous Boron Concentration (1.3)-(7.1.3)	Calculates corrected boron as 600 ppm		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Step 7.2	First Estimate of Boron Concentration Change			
	Step 7.2.1	Differential Boron Worth at Concentration in (7.1.4) and Burnup in (3.3) for $T_{avg}=547^{\circ}\text{F}$	Using Figure 12 reads (-7.85)		
*	Step 7.2.2	Boron Concentration Change $(6.5) \div (7.2.1)$	Identifies error carried forward. Correct number should be approximately (-397).		
	Step 7.3	Second Estimate of Boron Concentration Change			
	Step 7.3.1	$[2 \times (7.1.4) - (7.2.2)] \div 2$	Identifies error carried forward. Correct number should be approximately 799		
	Step 7.3.2	Differential Boron Worth at Concentration in (7.3.1) and Burnup in (3.3) for $T_{avg}=547^{\circ}\text{F}$	Identifies error carried forward. Using Figure 12 reads that correct number should be approximately (-7.75).		
	Step 7.3.3	Boron Concentration Change $(6.5) \div (7.3.2)$	Identifies error carried forward. Correct number should be approximately (-402).		
*	Step 7.4	Intended Critical Boron Concentration $(7.1.4) - (7.3.3)$	Identifies error carried forward. Correct number should be approximately 1002.		
	Step 8.0	LIMITS ON INTENDED CRITICAL CONTROL ROD POSITION			
	Step 8.1	Rod Insertion Limit (TS 3.1.3.5)	Refers to Tech Spec which refers to Core Operating Limit Report (COLR). Verifies RIL to be Bank C at 58 steps		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Step 8.2	Intended Position + 1000 pcm (Mode 2)			
	Step 8.2.1	Integral Rod Worth (5.1) + 1000	Verifies calculation to be 1700		
	Step 8.2.2	Control Bank Position at Worth in (8.2.1)	Using Figure 4 verifies Bank C at 85 steps: Bank D at 0 steps		
	Step 8.3	Intended Position + 500 pcm (Mode 2)			
	Step 8.3.1	Integral Rod Worth (5.1) + 500	Verifies calculation to be 1200		
	Step 8.3.2	Control Bank Position at Worth in (8.3.1)	Using Figure 4 verifies Bank C at 158 steps: Bank D at 30 steps		
	Step 8.4	Intended Position + 400 pcm (Mode 2)			
	Step 8.4.1	Integral Rod Worth (5.1) + 400	Verifies calculation to be 1100		
	Step 8.4.2	Control Bank Position at Worth in (8.4.1)	Using Figure 4 verifies Bank C at 173 steps: Bank D at 45 steps		
	Step 8.5	Intended Position + 300 pcm (Mode 2)			

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Step 8.5.1	Integral Rod Worth (5.1) + 300	Verifies calculation to be 1000		
	Step 8.5.2	Control Bank Position at Worth in (8.5.1)	Using Figure 4 verifies Bank C at 183 steps: Bank D at 55 steps		
	Step 8.6	Intended Position - 300 pcm (Mode 2)			
	Step 8.6.1	Integral Rod Worth (5.1) - 300	Verifies calculation to be 400		
	Step 8.6.2	Control Bank Position at Worth in (8.6.1)	Using Figure 4 verifies Bank C at 225 steps: Bank D at 152 steps		
	Step 8.7	Intended Position - 400 pcm (Mode 2)			
	Step 8.7.1	Integral Rod Worth (5.1) - 400	Verifies calculation to be 300		
	Step 8.7.2	Control Bank Position at Worth in (8.7.1)	Using Figure 4 verifies Bank C at 225 steps: Bank D at 170 steps		
	Step 8.8	Intended Position - 500 pcm (Mode 2)			
	Step 8.8.1	Integral Rod Worth (5.1) - 400	Verifies calculation to be 200		
	Step 8.8.2	Control Bank Position at Worth in (8.8.1)	Using Figure 4 verifies Bank D at 185 steps		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Signs in the Verified By: space after Step 8.8.2	TERMINATE JPM after signature		
		STOP TIME _____			

Terminating Cue: Candidate signs in the Verified By line and then state "This JPM is complete".

INITIAL CONDITIONS:

Unit 2 is in HSB at 547°F/2235 PSIG with a reactor startup planned for this shift.

Previous Critical Conditions:

- Reactor trip after 55 days at 100% power
- 600 ppm Boron
- 13000 MWD/MTU
- Bank D @ 217 steps

Intended Critical Conditions:

- 48 hours after the trip
- Bank D @ 95 steps

INITIATING CUE:

Perform a peer check on a manual ECP.

PSEG NUCLEAR L.L.C.
SALEM GENERATING STATION/REACTOR ENGINEERING
SC.RE-RA.ZZ-0001(Q) - REV. 0
ESTIMATED CRITICAL POSITION

PSEG
CONTROL
COPY # 57

USE CATEGORY: I

REVISION SUMMARY:

Biennial Review performed: Yes X No NA

This revision combined procedures S1.RE-RA.ZZ-0001(Q) and S2.RE-RA.ZZ-0001(Q), therefore, all references were revised to incorporate both Salem Stations.

The requirements related to independent verification were strengthened – Steps 5.1.5 and 5.1.6 were added. Required signatures were added to: Attachment 1, page 5; and Attachment 2.

The requirements related to Supervisor – Reactor Engineering review and approval were strengthened – Step 5.1.7 was added and a required signature was added to Attachment 1, page 5.

The titles were changed from “SNSS\NSS” to “OS\CRS” throughout the procedure to reflect current terminology.

Deleted “Xenon Code,” “ECP Code,” and “RXCALC Program” as data sources throughout the procedure. Added preferred data sources “Power Distribution Monitoring System (PDMS)” and “Advanced Nodal Code (ANC).”

Old Steps 5.1.2 – 5.1.4 were moved to the Precautions Section (3.14 – 3.16).

Precaution 3.17 was added to provide additional clarification.

Step 3.5 – the Core Operating Limits Report was added to provide the specific location of the referenced insertion limit.

IMPLEMENTATION REQUIREMENTS

Effective Date 11/2/01

APPROVED:

Wm M Evans
Manager Nuclear Fuels/Reactor Engineering (or Designee)

11/2/01
Date

SC.RE-RA.ZZ-0001(Q) - REV. 0
ESTIMATED CRITICAL POSITION

Step 3.11 - the value was changed from 50 pcm to 100 pcm to allow greater flexibility.

The note prior to Step 5.1 was added to reflect preferred use of PDMS.

The old note prior to Attachment 1, Step 5.3.2, related to adding 588 pcm to the value obtained from the figure was deleted. It is no longer applicable with the development of new figures.

The note prior to step 5.1.1.C.2 was added recommending placing Control Bank D at approximately 100 steps.

“Use HFP” was added to Steps 5.1.1.D.4 and 5.1.1.E.1 for clarification.

Steps 5.1.1.D.3, 5.1.1.D.4, 5.1.1.E.2, and 5.1.1.E.3 were changed to a conditional step format.

Step 5.1.1.D.4.a – changed from “use 588 pcm” to “use Figures 10 A, B, C of S1(2).RE-RA.ZZ-0012(Q), Figures” to incorporate the new figures.

Step 5.1.1.E.2.a – reference was changed from “Figure 8” to “Figure 8 A, B, C” to incorporate the new figures.

Step 5.1.1.E.3.a – reference was changed from “Figure 10” to “Figure 10 A, B, C” to incorporate the new figures.

Step 5.1.1.H.1 - the reference was changed from T/S “3.1.3.5 Figure 3-1-1” to “Core Operating Limits Report (COLR) Figure 1(T/S 3.1.3.5)” to reflect current T/S wording.

Steps 5.1.2 and 5.1.3 were added to require calculation of a second ECP.

Step 5.2.2 - The information related to records retention was deleted.

Step 6.1 - the reference was changed from NAP-3 to NAP-11. The cross-reference was also changed.

7.1.1.B – Cross-reference was revised to correspond to T/S wording.

Step 1.3 and item 7.1.2.D – Cross-reference was updated to SC.RE-IO.ZZ-0002(Q). Item 7.1.2.F was added.

Numerous minor editorial changes were made throughout the document to comply with the writers guide. These changes were not identified with revision bars.

ESTIMATED CRITICAL POSITION

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1.0 PURPOSE

- 1.1 To calculate plant conditions that will achieve criticality. The conditions ensure adequate shutdown margin in the event of a reactor trip. The estimated conditions also avoid unanticipated criticality in the event of instrument failure.
- 1.2 To satisfy the requirements of Technical Specification (T/S) Surveillance 4.1.1.1.c in Mode 2.
- 1.3 This procedure is to be completed prior to approach to criticality during the operating cycle. This procedure is **NOT** applicable to the initial approach to criticality following a Refueling Outage. The Estimated Critical Position following a Refueling Outage is predicted IAW SC.RE-IO.ZZ-0002(Q), Low Power Physics Testing and Power Ascension.

2.0 PREREQUISITES

- FA* 2.1 The plant is in hot standby ($T_{ave} = 547^{\circ} \text{F}$).

3.0 PRECAUTIONS AND LIMITATIONS

- FA* 3.1 The NAME, INITIALS, and SIGNATURES of all personnel performing steps in this procedure, and the DATE of performance shall be recorded on Attachment 2.
- FA* 3.2 Conditional steps shall be evaluated by the user and if not applicable marked "N/A." Conditional steps include words IF, WHEN, and OR.
- FA* 3.3 All deficiencies and corrective actions taken during the performance of this procedure, including Termination, shall be documented in the Comments section of Attachment 2.
- FA* 3.4 Non-conditional steps which are evaluated as being not applicable shall be marked "N/A," initialed by the Reactor Engineer, and clearly explained in the Comments section of Attachment 2.
- FA* 3.5 The critical control rod position shall be above the hot zero power minimum insertion limit of the Core Operating Limits Report (COLR) IAW T/S 3.1.3.5.
- FA* 3.6 This procedure does not correct for temperatures other than 547°F .
- FA* 3.7 Criticality must be anticipated any time there is an insertion of positive reactivity (e.g. RCCA withdrawal, Boron Dilution, etc.).

- FK 3.8 Data chosen for the previous critical conditions should be the best available data, not necessarily the most recent. Conditions that yield the best ECP results are steady state operation and previous hot zero power conditions. [C0498]
- FK 3.9 The actual critical configuration shall be within ± 1000 pcm of the estimated configuration.
- FK 3.10 Chemical analysis is used to verify boron concentrations.
- FK 3.11 IF the estimated time of criticality changes such that the amount of reactivity change introduced is greater than ± 100 pcm, THEN a new estimated critical position shall be calculated.
- FK 3.12 Reactivity data will change with fuel exposure, fission product build up, calculational improvements, etc.
- FK 3.13 All previous critical data should be from the same point in time. This is especially pertinent for data collected during transients. [C0498]
- FK 3.14 The Supervisor - Reactor Engineering may substitute reactivity worths from sources not specifically mentioned in Section 5.1 at his/her discretion. Substitutions of this type shall be noted where entered on Attachment 1 and shall be initialed by the Supervisor - Reactor Engineering and the OS/CRS prior to criticality.
- FK 3.15 Each reactor startup will be guided by plotting an Inverse Count Rate Ratio Plot IAW SC.RE-RA.ZZ-0002(Q), Inverse Count Rate Ratio During Control Rod Withdrawal.
- FK 3.16 REFER to S1(2).OP-IO.ZZ-0003(Q), Hot Standby to Minimum Load, for corrective actions if any of the following occur:
- ◆ Criticality is achieved prior to the rod position in Attachment 1, Step 8.1.
 - ◆ Criticality is achieved prior to the rod position in Attachment 1, Step 8.3.2.
 - ◆ Criticality is not yet achieved when the rod position in Attachment 1, Step 8.8.2 is reached.
- FK 3.17 For transient xenon conditions, increased accuracy may be obtained by interpolating between Figures 12 and 13 of S1(2).RE-RA.ZZ-0012(Q), Figures.

4.0 **EQUIPMENT/MATERIAL REQUIRED**

Calculator

Approved Computer Code

5.0 **PROCEDURE****NOTE**

If available, consider using the Power Distribution Monitoring System (PDMS) IAW SC.RE-SO.NIS-0001(Q), BEACON Operation & Calculation Verification, to satisfy the requirements of this procedure.

5.1 **Estimated Critical Position**

FSK 5.1.1 **COMPLETE** Attachment 1, Estimated Critical Position Worksheet, Steps 1.1 – 8.8.2 as follows:

FSK A. **DETERMINE** appropriate Previous Critical Conditions: [C0498]

FSK 1. **CHOOSE** the best conditions available, not necessarily the most recent.

FSK 2. **REFER** to the following for examples of previous conditions which yield the best ECP results:

♦ Previous Hot Zero Power data

♦ Steady state operation data

FSK 3. **AVOID** using data collected during or just following a transient power history, if possible.

FSK 4. **OBTAIN** all previous critical data from the same point in time. This is especially pertinent for data collected during transients.

Ed 5. **OBTAIN** Date, Time, Power Level, Boron Concentration, and Control Bank position data from any of the following sources:

- ◆ Control Room Logs
- ◆ Calorimetric Calculations
- ◆ Past ECPs
- ◆ Control Room Charts
- ◆ Chemistry Logs
- ◆ Power Distribution Monitoring System (PDMS)

Ed 6. **OBTAIN** Cycle Exposure data

Ed B. **OBTAIN** Shutdown Conditions from any of the following sources:

- ◆ Control Room Logs
- ◆ Control Room Charts
- ◆ Shutdown Margin Calculations
- ◆ Power Distribution Monitoring System (PDMS)

Ed C. **DETERMINE** Intended Critical Conditions:

Ed 1. **CHOOSE** a Date and Time that is within four hours prior to achieving criticality IAW T/S 4.1.1.1.1.c.

NOTE

It is recommended that Control Bank D be set at approximately 100 steps (consider the following recommendations: BOL 85-95 steps, MOL 90-130 steps, and EOL 125-145 steps). This ensures adequate control rod height for AFD control and should be consistently greater than 500-pcm rod height.

Ed 2. **CHOOSE** a Control Bank Position that allows for the full ± 500 pcm of rod motion allowed by the administrative limit.

Ed 3. **OBTAIN** Cycle Exposure data.

FH D. **DETERMINE** Reactivity Worths at Previous Critical Conditions:

FH 1. **OBTAIN** Integral Rod Worth from any of the following sources:

- ◆ Figure 4 of S1(2).RE-RA.ZZ-0012(Q), Figures (use HFP)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FH 2. **OBTAIN** Power Defect from any of the following sources:

- ◆ Figure 2 of S1(2).RE-RA.ZZ-0012(Q), Figures
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FH 3. **OBTAIN** Xenon Reactivity from an applicable source:

FH a. IF equilibrium xenon conditions existed at the previous critical conditions, THEN use Figure 6 of S1(2).RE-RA.ZZ-0012(Q).

NB b. IF equilibrium xenon conditions did **NOT** exist at the previous critical conditions, THEN use any of the following:

- ◆ Power Distribution Monitoring System (PDMS)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FH 4. **OBTAIN** Samarium Reactivity from an applicable source:

FH a. IF equilibrium samarium conditions existed at the previous critical conditions, THEN use Figure 10 A, B, C of S1(2).RE-RA.ZZ-0012(Q), Figures.

- N/A b. IF equilibrium samarium conditions did **NOT** exist at the previous critical conditions, THEN use any of the following:

- ◆ Power Distribution Monitoring System (PDMS)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FK E. **DETERMINE** Reactivity Worths at Intended Critical Conditions:

- FK 1. **OBTAIN** Integral Rod Worth from any of the following sources:

- ◆ Figure 4 of S1(2).RE-RA.ZZ-0012(Q), Figures (use HZP)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

- FK 2. **OBTAIN** Xenon Reactivity from an applicable source:

- FK a. IF the shutdown was due to a reactor trip and equilibrium xenon conditions existed prior to the reactor trip, THEN use Figure 8 A, B, C of S1(2).RE-RA.ZZ-0012(Q), Figures.

- N/A b. IF the shutdown was **NOT** due to a reactor trip OR equilibrium xenon conditions did **NOT** exist prior to the reactor trip, THEN use any of the following:

- ◆ Power Distribution Monitoring System (PDMS)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

- FK 3. **OBTAIN** Samarium Reactivity from an applicable source:

- FK a. IF equilibrium samarium conditions existed at the time of shutdown, THEN use Figure 10 A, B, C of S1(2).RE-RA.ZZ-0012(Q), Figures.

N/A

- b. IF the shutdown was **NOT** due to a reactor trip OR equilibrium samarium conditions did **NOT** exist prior to the reactor trip, THEN use any of the following:

- ◆ Power Distribution Monitoring System (PDMS)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FSL

- F. **CALCULATE** Reactivity Changes and **SUM** as directed on Attachment 1, Steps 6.1 - 6.5.

FSL

- G. **DETERMINE** Intended Critical Boron Concentration: [C0498]

FSL

1. **OBTAIN** HFP ARO Equilibrium Boron Concentrations from Figure 30 of S1(2).RE-RA.ZZ-0012(Q), Figures.

FSL

2. **CALCULATE** the Corrected Previous Boron Concentration (due to burnup differences between the previous and intended critical conditions) as directed on Attachment 1, Step 7.1.

FSL

3. **OBTAIN** Differential Boron Worths from any of the following sources:

- ◆ Figure 12 of S1(2).RE-RA.ZZ-0012(Q), Figures
- ◆ Figure 13 of S1(2).RE-RA.ZZ-0012(Q), Figures
- ◆ Power Distribution Monitoring System (PDMS)
- ◆ Advanced Nodal Code (ANC)
- ◆ Nuclear Design Report (NDR)

FSL

4. **CALCULATE** the First Estimate of Boron Concentration Change as directed on Attachment 1, Step 7.2.

FSL

5. **CALCULATE** the Second Estimate of Boron Concentration Change as directed on Attachment 1, Step 7.3.

FSL

6. **CALCULATE** the Intended Critical Boron Concentration as directed on Attachment 1, Step 7.4.

FHH. **DETERMINE** Limits on Intended Critical Control Rod Position:FH

1. **OBTAIN** the Rod Insertion Limit for 0% RTP from either of the following sources for Attachment 1, Step 8.1:

- ◆ Figure 14 of S1(2).RE-RA.ZZ-0012(Q), Figures
- ◆ Salem 1(2) Core Operating Limits Report (COLR) Figure 1 (T/S 3.1.3.5)

FH

2. **OBTAIN** Control Bank Positions from either of the following sources for Attachment 1, Steps 8.2 through 8.8:

- ◆ Figure 4 of S1(2).RE-RA.ZZ-0012(Q), Figures
- ◆ Nuclear Design Report (NDR)

FH

- 5.1.2 **USE** a different methodology to **CALCULATE** a second Estimated Critical Position IAW with Step 5.1.1.

FH

- 5.1.3 **ENSURE** the Estimated Critical Positions calculated in Steps 5.1.1 and 5.1.2 are within 100 pcm. **RECONCILE** any differences greater than 100 pcm.

FH

- 5.1.4 **COMPLETE** Attachment 2, Section 1.0 and 2.0.

FH

- 5.1.5 **DIRECT** a Qualified Individual to **PERFORM** an independent verification of Attachment 1, Steps 1.1 – 8.8.2 for each calculated Estimated Critical Position.

—

- 5.1.6 Independent Verifier **COMPLETE** Attachment 1 and Attachment 2, Section 3.0. **FORWARD** this procedure to the Supervisor - Reactor Engineering for review and approval to this point.

—

- 5.1.7 Supervisor - Reactor Engineering **REVIEW** this procedure to this point for completeness and accuracy. **COMPLETE** Attachment 1 and **FORWARD** the procedure to the OS/CRS for review to this point.

—

- 5.1.8 OS/CRS **REVIEW** this procedure to this point and **COMPLETE** Attachment 1.

—

- 5.1.9 WHEN Reactor Power is 10-8 amps, as indicated on the Intermediate Range NIS, THEN **COMPLETE** Attachment 1, Steps 9.1 - 9.3.3.

5.2 Completion and Review

- ___ 5.2.1 **COMPLETE** Attachment 2, Section 1.0 and 2.0, and **FORWARD** this procedure to the OS/CRS for review.
- ___ 5.2.2 OS/CRS **REVIEW** this procedure for completeness and **COMPLETE** Attachment 2, Section 4.0.

END OF PROCEDURE SECTION

6.0 **RECORDS**

6.1 Retain the following IAW NC.NA-AP.ZZ-0011(Q), Records Management Program:

- ◆ Attachment 1
- ◆ Attachment 2

7.0 **REFERENCES**7.1 **Cross-References:**

7.1.1 Technical Specifications (T/S):

- A. Section 4.1.1.1.c, Reactivity Control Systems - Boration Control
- B. Section 3.1.3.5, Reactivity Control Systems - Control Rod Insertion Limits

7.1.2 Procedures:

- A. NC.NA-AP.ZZ-0011(Q), Records Management Program
- B. SC.RE-RA.ZZ-0002(Q), Inverse Count Rate Ratio During Control Rod Withdrawal
- C. S1(2).OP-IO.ZZ-0003(Q), Hot Standby to Minimum Load
- D. SC.RE-IO.ZZ-0002(Q), Low Power Physics Testing and Power Ascension
- E. S1(2).RE-RA.ZZ-0012(Q), Figures
- F. SC.RE-SO.NIS-0001(Q), BEACON Operation & Calculation Verification

7.2 **Commitments:**

C0498, NSO INCI 93-058

ATTACHMENT 1
ESTIMATED CRITICAL POSITION WORKSHEET
Page 1 of 6

NOTE

See procedure Section 5.1 for comprehensive directions for completing this attachment. The attachment itself no longer contains the applicable Figure numbers. This information is now contained in Section 5.1 of the procedure.

1.0 PREVIOUS CRITICAL CONDITIONS

1.1 Date: 11-4-2002 Time 1200

1.2 Power Level 100 %RTP

1.3 Boron Concentration 600 ppm

1.4 Control Bank Position Bank C 225 steps
Bank D 217 steps

1.5 Cycle Exposure 13000 MWD/MTU

2.0 SHUTDOWN CONDITIONS

2.1 Reactor Trip Date 11-4-2002 Time 2000
OR
Orderly Shutdown Date N/A Time N/A

Approximate Shutdown Rate N/A %/min

2.2 Power Level Prior to Shutdown 100 %RTP

3.0 INTENDED CRITICAL CONDITIONS

3.1 Date 11-6-2002 Time 20:00

3.2 Control Bank Position Bank C 223 steps
Bank D 95 steps

3.3 Cycle Exposure 13000 MWD/MTU

ATTACHMENT 1
ESTIMATED CRITICAL POSITION WORKSHEET
Page 2 of 6

4.0 REACTIVITY WORTHS AT PREVIOUS CRITICAL CONDITIONS

- 4.1 Integral Rod Worth at Position in (1.4) (+) 20 pcm
- 4.2 Power Defect at Power in (1.2) and Boron Concentration in (1.3) (+) 1880 pcm
- 4.3 Xenon Reactivity at Time in (1.1) (-) 2525 pcm

NOTE

If previous conditions were steady state, use Figure 10 A, B, C.

- 4.4 Samarium Reactivity at Time in (1.1) (-) 935 pcm

5.0 REACTIVITY WORTHS AT INTENDED CRITICAL CONDITIONS

- 5.1 Integral Rod Worth at Position in (3.2) (+) 700 pcm

5.2 Xenon Reactivity

- 5.2.1 Elapsed Time from (2.1) to (3.1) 48 hrs

- 5.2.2 Xenon Reactivity at Time in (5.2.1) and Power in (2.2) (-) 525 pcm

5.3 Samarium Reactivity

- 5.3.1 Elapsed Time from (2.1) to (3.1) 48 hrs

- 5.3.2 Samarium Reactivity at Time in (5.3.1) and Power in (2.2) (-) 1018 pcm

ATTACHMENT 1
ESTIMATED CRITICAL POSITION WORKSHEET

Page 3 of 6

CORRECT
VALUES

6.0 REACTIVITY CHANGES AND SUM

6.1 Integral Rod Worth (4.1)-(5.1)

- 680 pcm

6.2 Power Defect (4.2)

+ 1880 pcm

6.3 Xenon Reactivity (5.2.2)-(4.3)

- 2000 pcm (+2000)

6.4 Samarium Reactivity (5.3.2)-(4.4)

83 pcm (-83)

6.5 SUM (6.1)+(6.2)+(6.3)+(6.4)

- 717 pcm (3117)

7.0 INTENDED CRITICAL BORON CONCENTRATION DETERMINATION

7.1 Correction to Previous Boron due to Burnup Differences between Previous and Intended Critical Conditions

7.1.1 HFP ARO Equilibrium Poison Boron
Concentration at Burnup in (1.5)

650 ppm

7.1.2 HFP ARO Equilibrium Poison Boron
Concentration at Burnup in (3.3)

650 ppm

7.1.3 Boron Concentration Difference
(7.1.1)-(7.1.2)

0 ppm

7.1.4 Corrected Previous Boron Concentration
(1.3)-(7.1.3)

600 ppm

7.2 First Estimate of Boron Concentration Change

7.2.1 Differential Boron Worth at Concentration in (7.1.4) and
Burnup in (3.3) for $T_{avg}=547^{\circ}\text{F}$

- 7.85 pcm/ppm

7.2.2 Boron Concentration Change
(6.5)÷(7.2.1)

91 ppm (-397)

ATTACHMENT 1
ESTIMATED CRITICAL POSITION WORKSHEET
Page 4 of 6

7.3	Second Estimate of Boron Concentration Change			CORRE VALUE
7.3.1	$[2 \times (7.1.4) - (7.2.2)] \div 2$	<u>555</u>	ppm	(799)
7.3.2	Differential Boron Worth at Concentration in (7.3.1) and Burnup in (3.3) for $T_{avg}=547^{\circ}\text{F}$	<u>-7.9</u>	pcm/ppm	(-7.7)
7.3.3	Boron Concentration Change (6.5)÷(7.3.2)	<u>90.8</u>	ppm	(-40)
7.4	Intended Critical Boron Concentration (7.1.4)-(7.3.3)	<u>509</u>	ppm	(+1002)
8.0	<u>LIMITS ON INTENDED CRITICAL CONTROL ROD POSITION</u>			
8.1	Rod Insertion Limit (TS 3.1.3.5)	Bank C	<u>58</u>	steps
8.2	Intended Position + 1000 pcm (Mode 2)			
8.2.1	Integral Rod Worth (5.1) + 1000		<u>1700</u>	pcm
8.2.2	Control Bank Position at Worth in (8.2.1)	Bank C	<u>85</u>	steps
		Bank D	<u>0</u>	steps
8.3	Intended Position + 500 pcm			
8.3.1	Integral Rod Worth (5.1) + 500		<u>1200</u>	pcm
8.3.2	Control Bank Position at Worth in (8.3.1)	Bank C	<u>158</u>	steps
		Bank D	<u>30</u>	steps
8.4	Intended Position + 400 pcm			
8.4.1	Integral Rod Worth (5.1) + 400		<u>1100</u>	pcm
8.4.2	Control Bank Position at Worth in (8.4.1)	Bank C	<u>173</u>	steps
		Bank D	<u>45</u>	steps

ATTACHMENT 1 **ESTIMATED CRITICAL POSITION WORKSHEET**

Page 5 of 6

8.5 Intended Position + 300 pcm

8.5.1 Integral Rod Worth (5.1) + 300

1000 pcm

8.5.2 Control Bank Position at Worth
in (8.5.1)

Bank C 183 steps

Bank D 55 steps

8.6 Intended Position - 300 pcm

8.6.1 Integral Rod Worth (5.1) - 300

400 pcm

8.6.2 Control Bank Position at Worth
in (8.6.1)

Bank C 225 steps

Bank D 152 steps

8.7 Intended Position - 400 pcm

8.7.1 Integral Rod Worth (5.1) - 400

300 pcm

8.7.2 Control Bank Position at Worth
in (8.7.1)

Bank C 225 steps

Bank D 170 steps

8.8 Intended Position - 500 pcm

8.8.1 Integral Rod Worth (5.1) - 500

200 pcm

8.8.2 Control Bank Position at Worth
in (8.8.1)

Bank D 185 steps

Completed By: Francis K. K.

Date 11-6-02 Time 1900

Verified By: _____

Date _____ Time _____

Approved By: _____

Date _____ Time _____

Supervisor - Rx. Eng.

Reviewed By: _____

Date _____ Time _____

OS/CRS

ATTACHMENT 1
ESTIMATED CRITICAL POSITION WORKSHEET

Page 6 of 6

9.0 CONFIGURATION AT 10-8 AMPS

9.1 Date _____

Time _____

9.2 Boron Concentration

RCS _____ ppm

PZR _____ ppm

9.3 Control Bank Position

9.3.1 Actual Position

Bank C _____ steps

Bank D _____ steps

9.3.2 Minimum Position (8.1)

Bank C _____ steps

9.3.3 Maximum Position (8.8.2)

Bank D _____ steps

Completed By: _____

Date _____

Time _____

Reviewed By: _____

Date _____

Time _____

OS/CRS

ATTACHMENT 2
COMPLETION/SIGN-OFF SHEET
Page 1 of 1

1.0 COMMENTS:

(Procedure deficiencies shall be documented with corrective actions in this section.)

2.0 SIGNATURES:

Name (Print)	Initials	Signature	Date
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
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3.0 INDEPENDENT VERIFICATION:

Name (Print)	Initials	Signature	Date
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

4.0 FINAL REVIEW AND APPROVAL:

This procedure with Attachments 1 and 2 has been reviewed for completion. All deficiencies with their associated corrective actions are clearly recorded in the COMMENTS section above.

Reviewed By: _____ Date: _____
OS/CRS

Rev. 0

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 – **KEY**

REACTOR OPERATOR: _____

QUESTION #2 (2.1.1)

QUESTION:

You were on loan to the procedures group and stood no watches from June 15 through October 10. Tonight is your first night back with your regular shift.

What requirements must be met before you can assume licensed duties?

ANSWER:

Stand minimum of 40 hours of shift functions under the direction of an Operator; including guided plant tours and supervised shift turnover, all documented on Form SH.OP-DD.ZZ-0067-5.* In addition, supervision must complete Form SH.OP-DD.ZZ-0067-7.

General compliance with Underline* required for SAT

RESPONSE:

REFERENCE:

SH.OP-DD.ZZ-0067, Personnel Qualification and Training, Rev. 1, Page 16 of 31, B. and F.

- B. Actively performing the function of a Reactor Operator (NCO) or Senior Reactor Operator (SRO), means that an individual carries out and is responsible for the duties of a position on the shift that requires a license as identified in the Technical Specifications. For an SRO, this is accomplished in the OS or Unit CRS positions. For an NCO, this is accomplished in one of the two NCO positions. To satisfy the performance requirements, completion of a minimum five 12-hour shifts per calendar quarter is necessary. Those licensed operators not assigned to a shift crew but are actively performing license functions, should document their watch standing using FORM SH.OP-DD.ZZ-0067-5, Licensed Operator/Shift Technical Advisor/Nuclear Equipment Operator Watch Standing Documentation. Watch standing requirements shall be met beginning the calendar quarter after the quarter in which the license was issued.
- C. Only active SRO's can supervise refueling activities. If they are not active, they must stand one 12-hour shift under direction from an active licensed SRO before performing SRO duties limited to fuel handling. The SRO should document this using FORM SH.OP-DD.ZZ-0067-5.
- D. If a licensee has not been actively performing the function of an NCO or SRO, (as defined in Section 5.6.1.B), then his/her license is considered inactive. The licensee shall not replace any Technical Specification minimum RO or SRO position of the on-duty operating crew until the provisions of Section 5.6.1 and 5.7 are met.
- E. If an SRO licensed individual does not perform the function of an SRO but does perform the function of a RO during a calendar quarter such that the requirements of 5.6.2 are met only for Operator functions, then the license should be considered active for RO functions but inactive for SRO functions. This status is based on the current operations shift assignments and Operations Department logs. The actions of Section 5.7 shall be performed when necessary to reactivate the SRO function. The operator shall be trained and examined as a SRO.
- F. To reactivate an inactive license, an individual must stand a minimum of 40 hours of shift functions under the direction of an Operator or Senior Operator, as appropriate for the individual's license, within the same calendar quarter. This time must include guided plant tours and supervised shift turnover. It shall be documented using FORM SH.OP-DD.ZZ-0067-5 and SH.OP-DD.ZZ-0067-7, Reactivation Checklist of Previously Inactive Licensed Operators.
- G. The Operations Manager may determine that a training program in conjunction with watch standing is to be used to return the operator to active watch standing status. Such a program should be performance-based and individualized to maximize its effectiveness. Tasks that are not normally selected for requalification training because of a high frequency of performance by active watch standers should be considered for inclusion in this training. Additionally, Operations line management may decide to assess the performance of an inactive watch stander in either the simulator, the plant, or both before allowing the individual to perform active watch standing duties in other than a training status.

5.6.2 Shift Technical Advisors (STA)

- A. Regardless of whether the STA is or is not a Licensed RO or SRO, the STA shall satisfactorily participate in the Licensed Operator Requalification Program. The STA should participate in the requalification training as a member of the operating crew to which the STA is normally assigned.
- B. In accordance with Regulatory Guide 1.8, the STA shall stand three shifts per calendar quarter as the STA. STAs not assigned to a shift crew should document watch standing using FORM SH.OP-DD.ZZ-0067-5.
- C. Shift Technical Advisors who do not perform at least three shifts per quarter as an STA or are not active in STA Continuing Training are considered inactive.
- D. To reactivate a Shift Technical Advisor, an individual shall:
 - Receive training sufficient to ensure that the STA is cognizant of facility and procedure changes that occurred during the absence, OR the STA is currently participating in annual requalification training,
 - Complete a dynamic simulator evaluation in the STA position(if not performed during the current or previous year)
 - Stand two watches under the direction of a qualified STA
- E. Document the completion of the requirements to reactivate an STA on FORM SH.OP-DD.ZZ-0067-6, Reactivation of an Inactive Shift Technical Advisor.

5.6.3 Nuclear Equipment Operator (NEO)

- A. All Nuclear Equipment Operators shall be actively enrolled in the NEO Continuing Training Program. Enrollment and satisfactory participation in the Continuing Training Program are required to maintain proficiency in their qualified Watch stations.
- B. To maintain Building Watch Qualifications, the individual shall stand one 12-hour shift as the Building Watch semi-annually (per calendar year). NEO building Watches for Hope Creek - Reactor, Auxiliary, Turbine and Yard. NEO building Watches for Salem - Primary, Secondary, and Circ/Service Water Operator. During periods when the unit is in shutdown and building watches are combined (Hope Creek ONLY), credit can be taken for standing both buildings in the same watch.
- C. To regain building watch proficiency for an individual actively enrolled and satisfactory participating in the NEO Continuing Training Program, the individual shall stand 1, 12-hour watch under instruction with a currently qualified watch stander on each watch station on each watch station for which proficiency is to be regained. Document the watches using FORM SH.OP-DD.ZZ-0067-5.

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 – **KEY**

REACTOR OPERATOR: _____

QUESTION #1 (2.1.3)

QUESTION:

Unit 1 is at 100% power. You are returning to work after being on vacation for two weeks (a total of 14 days off) and will be assuming the 0700-1900 Unit 1 PO watch.

What are your pre-turnover, turnover, and post-turnover log review requirements?

ANSWER:

- Pre-turnover – prior 72 hours*
- Turnover – Control Room Narrative*, red-circled readings*, TSAS Log, Tmod Log (changes only)
- Post-turnover – prior 5 days* (unless already transmitted for archiving)

Underline * required for SAT

RESPONSE:

REFERENCE:

SH.OP-AP.ZZ-0107, Shift Turnover Responsibilities, Rev.2, Step 5.3.1 and Attachment 14

- 3.9 The Operations Superintendent, until properly relieved, shall remain in the control room at all times during accident situations to direct the activities of the control room operators. [CD-418Y, CD-147Y]
- 3.10 (Salem) The Information Systems Department is responsible for modifying the shift turnover database (SOTOC) whenever the shift turnover forms are modified.
- 4.0 **PROCESS DESCRIPTION**
- This procedure gives detailed guidelines to be utilized by shift personnel during shift relief to ensure a complete and proper turnover of information and equipment pertaining to their operating stations. The turnover should consist of, at a minimum, appropriate log/document reviews, oral briefings, and completion of applicable checklists.
- 5.0 **PROCEDURE**
- 5.1 **Shift/Individual Relief and Turnover**
[CD-206C]
- 5.1.1 Turnover is the presentation of plant-related information by the off-going operator to the oncoming operator. The turnover can take place any time prior to relief, as long as it does not interfere with the off-going operators' ability to perform their assigned duties. Turnover is to consist of the following as a minimum: [CD-825B]
- Log reviews (narratives and red-circled items)
 - Oral briefing
 - Special Instructions
 - Assurance that critical plant parameters are within allowable limits (parameters and allowable limits shall be described on the checklist, e. g. out of spec readings on NEO and RO/PO Logs, etc.). [CD-421Y]
 - Assurance of the availability and proper alignment of all systems essential to the prevention and mitigation of operational transients and accidents (e.g. by a check of the Main Control Boards, surveillance logs, etc.). [CD-421Y, CD-408A]
 - Identification of systems and components that are in a degraded mode of operation permitted by the Technical Specifications. [CD-421Y]
- 5.1.2 The plant should be in a STABLE CONDITION before beginning the shift turnover process. [CD-217B]

- 5.1.3 When turnover must occur during non-stable conditions, one off-going RO/PO should maintain responsibility for monitoring the control boards while the other shift crew members turn over their watches. Once an oncoming RO/PO has completed the turnover, that oncoming RO/PO should then assume responsibility for monitoring the control boards while the last off-going RO/PO turns over the watch.

5.2 Off-going Shift Personnel

- 5.2.1 Prior to shift relief, the off-going personnel should give an oral briefing to their watch-station relief by discussing important items affecting plant operation. This should include the condition, status, and steps of any procedure or surveillance in progress.
- 5.2.2 Each off-going operator should prepare a listing highlighting planned evolutions, comments, equipment abnormalities, and other items affecting plant operations to aid in the turnover. The appropriate attachment should be used to document this information.
- 5.2.3 (Hope Creek only) At the end of each shift, the RO/PO should audit the placement of the keys for keylock control switches on Panels 10C650, 10C651, 1AC633, 1BC633, and 10C607. These keys are individually labeled according to their own unique control switch function and are normally removed from their respective keylock switches during operation. The Rx Mode Switch and the Scram Discharge Volume Hi Level Scram Bypass Switch must be inserted into their keylock switches. The 4 RPS Channel Switches must be inserted into their keylock switches. The remaining keys must be affixed to the control room panels with magnetic strips. The RO/PO should report any problems to the CRS and should make note of the completed audit on Attachment 6, Equipment Status Checklist. (Hope Creek only) [CD-105A, CD-239X, CD-359X, CD-379X, CD-639X]

5.3 Oncoming Shift Personnel

- 5.3.1 Prior to assuming the shift, the oncoming individuals should review various logs which pertain to the assigned watch stations. The review prior to watch assumption should include material generated since the last time on shift or within the past 72 hours, whichever is shorter. Except as noted below, the balance of unreviewed material generated within the previous 5 days should be reviewed after turnover is complete. Material not available in the Control Room due to previous transmittal need not be retrieved for review. Available unexpired operational Night Orders generated since the individual's last time on shift should be reviewed.

5.3.2 Control Board Walk-Downs

All oncoming licensed operators (except the OS as described below) should WALK-DOWN the control boards under their cognizance with the off-going operator verifying checklist items. Discussions should include, but are not limited to:

- Status of safety-related systems [CD-787D]
- Running equipment and train alignments
- Inoperable equipment and Limiting Conditions for Operations, including surveillance requirements
- Reasons for annunciator alarms
- Tagged equipment including any surveillance or equipment work in progress at time of shift relief
- Unusual occurrences during the last 24 hours

5.3.3 The oncoming OS should walk-down the control room boards within four hours following the turnover.

ATTACHMENT 14

(Page 1 of 1)

DATE ____/____/____

SHIFT (Check one)

☐ 0700-1900 ☐ 1900 - 0700

SALEM - UNIT 1 REACTOR/PLANT OPERATOR TURNOVER CHECKLIST

Page 1 of ____

DOCUMENT REVIEW	Initials
Control Room Narrative Logs	
Control Room Operating Log (out of specification readings only)	
Aux. Alarm Summary (unexplained alarms only)	
Technical Specification Action Statement Log	
Temporary Modification Log (Changes Only)	
Shutdown Safety Assessment Checklist (Attachment 27)	

OPERATING STATUS			
Mode		Radioactive Gas	
Reactor Power		Release in Progress	
Gross MWe		Liquid Release	
RCS Boron		In Progress	
Safety System Status		Safety System	
		Status Basis	

Initials

CONTROL BOARD WALKDOWN (Including OHA / Panels / Lamps)	
--	--

1. ABNORMAL SYSTEM OPERATIONS and/or ALIGNMENTS
2. MAJOR EVOLUTIONS / WORK ACTIVITIES IN PROGRESS (From CRS)
3. MAJOR EVOLUTIONS / WORK ACTIVITIES COMPLETED LAST SHIFT (From CRS)

_____ Off-going Reactor Operator	_____ Date	_____ Oncoming Reactor Operator	_____ Date
-------------------------------------	---------------	------------------------------------	---------------

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 – **CANDIDATE COPY**

REACTOR OPERATOR: _____

QUESTION:

Unit 1 is at 100% power. You are returning to work after being on vacation for two weeks (a total of 14 days off) and will be assuming the 0700-1900 Unit 1 PO watch.

What are your pre-turnover, turnover, and post-turnover log review requirements?

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 – **CANDIDATE COPY**

REACTOR OPERATOR: _____

QUESTION:

You were on loan to the procedures group and stood no watches from June 15 through October 10. Tonight is your first night back with your regular shift.

What requirements must be met before you can assume licensed duties?

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Select the blocking points for tagging MOV 2SJ1 with SAP out of service.

TASK NUMBER: 1145370104

INITIAL CONDITIONS:

1. Unit 2 is in Mode 1.
2. SAP/WCM is out of service
3. 2SJ1 failed to close after it was inadvertently opened.
4. The Operations Manager has authorized Manual Tagging for the 2SJ1.

NOTE: Need an "Examination Tagging Package" for this JPM

INITIATING CUE:

Prepare a blocking point list for valve repairs using Manual Tagging IAW SH.OP-NA.ZZ-0015. Work is to be performed on 2SJ1 valve motor operator only.

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.

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Administrative

TASK: Clear, tag and manually close an MOV

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME:			
	1	Candidate reviews NC.NA-AP.ZZ-0015. and/or SH.OP-AP.ZZ-0015 for manual tagging instructions.	Locates and reviews Section 5.8, <u>MANUAL TAGGING</u> , of SH.OP-AP.ZZ-0015.		
	5.8.1, Step 1	Notifies all Clearing Agents to report to WCC	CUE: All Clearing Agents have reported to WCC..		
*		Establishes a Manual Tagging File in WCC	CUE: Manual Tagging File has been established.		
*		Maintains all existing WCD's and Manual WCD's in the Manual Tagging File.	CUE: All WCD's are being maintained.		
		Initiates new Manual Tagging Index, Form 6 and sequentially numbers new manually created WCD's beginning with number 'M001'.	CUE: Manual Tagging Index has been initiated at Work Control Center and is maintained there, this will be WCD 'M001'.		
		Refers to Manual Tagging file AND last generated Off-normal Position Reports.	CUE: Off-normal Position Reports have been generated and reviewed. No information impacts this WCD.		
		Performs tagging operations as directed in appropriate sections of procedure.	Locates and reviews Section 5.1, <u>WCD INITIATION</u> , of the procedure.		
	5.1.1 Step 1	Evaluates Order, Notification, Equipment Restriction or Procedure Requirement for Required Tagging	CUE: Tagging is required.		
	5.1.1 Step 2	If Tagging is not required exit procedure	Does not exit procedure.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Administrative

TASK: Clear, tag and manually close an MOV

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.1 Step 3	Apply the following for non-station tagging evolutions,.....	Tagging is on station equipment, does not apply Step 5.3		
	5.1.2	Determine Blocking Points and Tag Types	Reviews section 5.1.2		
	5.1.2 Step 1	Review the following	Reviews items in Step 1		
		Scheduled activities for system or component to be tagged	CUE: 2SJ1 Motor Operator is to be repaired.		
		Work performed from SAP Orders	Determines SAP is not in service		
		Notifications	Determines SAP is not in service		
		Procedure requirements.	Determines there are no Procedure Requirements		
		Controlled Documents and Drawings from TDR or DCRMS.	CUE: Use Controlled Documents and Drawings in the room		
		Locates Drawing in classroom	Locates Drawing 222485, 2C WEST VALVES & MISC. 230V. VITAL CONTR. CTR. ONE LINE Provide Candidate with copy of drawing.		
		Main Control Room Drawings for changes	CUE: There are no changes on drawings		
		Uncontrolled Documents and Drawings	CUE: No uncontrolled Documents and Drawings are to be used		

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Administrative

TASK: Clear, tag and manually close an MOV

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Historical, Standard or Template WCD's	Determines SAP is not in service		
	5.1.2 Step 2	Performs the following	Performs items in Step 2		
		For ESO switching orders,.....	Determines there are no ESO switching orders		
		Resolve Technical and Work Scope problems	CUE: There are no problems		
		If any of the following components will be used as blocking points.....	Determines a Motor Operated Valve is to be worked and locates MOV rules on page 2 of Attachment 2 Also determines a Bezel and Control Room Control is affected and locates bezel rules on page 13 of Attachment 2		
		Refer to Attachment 3 for rules on tag types	Determines Red Blocking Tags are required for WCD on Page1 of Attachment 3		
*		Select blocking points and tag types	Determines that breaker 2SJ1-MTRY (from Drawing 222485), and 2SJ1 bezel control need Red Blocking Tags applied. May determine valve handwheel will have Red Blocking Tag though this is not critical to task. NOTE: Candidate may elect to use "TRIS" identifier 2CY2AX2A for breaker, this information is in a table on the drawing		NOTE: After Candidate locates drawing, Examiner will provide a copy for student to mark up.

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Administrative

TASK: Clear, tag and manually close an MOV

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Ensure blocking points will not adversely impact other systems or components. (i.e., air isolations)	Determines there are no air isolations		
		Ensure equipment within the tagging boundary is protected from damage due to inadvertent operation.	Determines blocking points will adequately afford protection		
	5.1.3	Create Tagging Package	Reviews Section 5.1.3		
	5.1.3 Step 1	Perform the following	Performs steps		
		Mark up Drawings and Documents, showing blocking points within the WCD boundary	Marks up drawing circling the breaker for valve 2SJ1.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Administrative

TASK: Clear, tag and manually close an MOV

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		Initiate the WCD in SAP, use Forms 1&4 if the WCM is unavailable.	<p>Determines WCM is unavailable, locates forms</p> <p>EVALUATOR- Provide forms after Candidate locates them in procedure</p> <p>Candidate fills out appropriate sections of Forms 1</p> <p>Candidate fills out Form 4 identifying</p> <ul style="list-style-type: none"> • *230V Brkr for 2SJ1 and RBT • 2SJ1 Handwheel and RBT (not critical) • *2SJ1 Bezel Control and RBT 		
		STOP TIME:			

Terminating Cue: When the Candidate completes Form 4 state "This JPM is complete".

INITIAL CONDITIONS:

1. Unit 2 is in Mode 1.
2. SAP/WCM is out of service.
3. 2SJ1 failed to close after it was inadvertently opened.
4. The Operations Manager has authorized Manual Tagging for the 2SJ1.

INITIATING CUE:

Prepare a blocking point list for valve repairs using Manual Tagging IAW SH.OP-NA.ZZ-0015. Work is to be performed on 2SJ1 valve motor operator only.

5.8 <u>MANUAL TAGGING</u>	
<p>5.8.1 Prepare for/ Recover from Manual Tagging (WCCS)</p>	<p>1. <u>IF</u> the WCM becomes unavailable, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Notify all Clearing Agents to report to the WCC to manually sign on all active WCDs under which they are performing work. <input type="checkbox"/> Establish a Manual Tagging File in the WCC. <input type="checkbox"/> Maintain all existing WCDs that are being modified in any way AND all manually created WCDs in the Manual Tagging File until WCM is available and updated. <input type="checkbox"/> Initiate a new Manual Tagging Index, Form 6, for the Manual Tagging File, sequentially number new manually created WCDs beginning with the WCD number 'M001'. <input type="checkbox"/> Refer to the Manual Tagging file AND the last generated Off-Normal Position Reports for configuration control information. <input type="checkbox"/> Perform tagging operations as directed in the appropriate sections of this procedure. <p>2. <u>WHEN</u> the WCM becomes available, <u>THEN</u>, perform the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Enter all outstanding transactions into the WCM. <input type="checkbox"/> Replace the manual created WCDs with electronically generated WCDs. <input type="checkbox"/> Generate a new Off-Normal Position Report <u>AND</u> compare to the last generated report; resolve all discrepancies. <input type="checkbox"/> Retain all manually generated tagging paperwork with electronically generated WCD packages.
<p><u>NOTE</u></p> <p>Implementation of Manual Tagging requires approval of the Operations Manager or designee and should be kept to a minimum. In an emergency the on-duty OS may authorize manual tagging required to move the plant to a safer condition without the approval of the Operations Manager.</p>	
<p>5.8.2 Create Manual Tags (WCC)</p>	<p><input type="checkbox"/> <u>IF</u> the WCM is unavailable, <u>THEN</u> hand write blocking tag information on a blank tag sticker in the following format:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Unit____ WCD # _____</p> <p>Blocking Point _____</p> <p>Description _____</p> <p>Position _____</p> <p>Tagged For _____</p> </div>

5.0 PROCEDURE

- Reference to (Note) throughout this procedure indicates that detailed instructions and SAP manipulations are available in the SH.WM-DG.ZZ-0015, Work Clearance Management Desk Guide

5.1 WCD INITIATION

5.1.1 Evaluate for Required Tagging (Initiator)

♦ Perform the following:

1. Evaluate Order, Notification, Equipment Restriction, or Procedure Requirement for Required Tagging using Attachment 1.
2. IF Tagging is NOT required,
THEN EXIT this procedure.
3. Apply the following for tagging evolutions on non-station equipment located outside the protected areas of Salem and Hope Creek:
 - These tagging evolutions are conducted using the Manual Tagging method when WCM identifiers and station labeling do not support the use of WCM for tag preparation.
 - The Hope Creek WCC will maintain a non-station tagging file (containing both WCM and Manual tagouts) and an index for non-station tagging done using the Manual Tagging method. Manual tagout numbers will be issued in the YY-XXX format with YY being the year (2001=01) and XXX being a sequential number.
 - Fire Protection shall prepare the tagout for Manual non-station tags, or obtain assistance from the WCC for non-station tagging that can be accomplished using WCM.
 - Fire Protection supervisor shall be the approving and authorizing supervisor for non-station tagging.
 - Non-station tagouts shall be logged at the WCC prior to implementation, filed at the WCC during use, and logged off at the WCC upon release.
 - Fire Protection Operators are Qualified Operators for all non-station tagging.
 - All blocking points used for non-station tagging shall be evaluated by the Fire Protection supervisor and the WCC supervisor for labeling and inclusion in the WCM.

<p>5.1.2 Determine BlockingPoints and Tag Types (Initiator)</p>	<p>1. Review the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Scheduled activities for the system or component to be tagged. <input type="checkbox"/> Work to be performed from SAP Orders (Note) <input type="checkbox"/> Notifications (must be converted to a SAP order IAW NC.WM-AP.ZZ-0001(Q)). <input type="checkbox"/> Procedure Requirements <input type="checkbox"/> Controlled Documents and Drawings from the TDR or DCRMS (Note) <input type="checkbox"/> Main Control Room Drawings for any outstanding Drawing Changes <input type="checkbox"/> Uncontrolled Documents and Drawings that have received an independent field verification <input type="checkbox"/> Historical, Standard, or Template WCDs for system or component to be tagged (Note)
<p><u>NOTE</u></p> <p>Detailed instructions and SAP manipulations are available in SH.WM-DG.ZZ-0015, Work Clearance Management Desk Guide.</p>	<p>2. Perform the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> For ESO switching orders, translate switching order designators to the corresponding WCM blocking point designators. <input type="checkbox"/> Resolve Technical and Work Scope problems with: <ul style="list-style-type: none"> • Scheduler • Planner • Implementing Shops • WCCSs <input type="checkbox"/> <u>IF</u> any of the following components will be used as blocking points, <u>OR</u> will be worked on inside the tagging boundary, <u>THEN</u> Refer to Attachment 2 for rules: <ul style="list-style-type: none"> • Vents and Drains • Grinnell-Saunders Diaphragm Valves • Repacking Valves on the Backseat • Motor Operated Valves • Air Operated Valves and Dampers • Blank Flanges • Freeze Seals • Electrical Disconnects, Grounds, Equipment w/ YPTs, Breakers, Cubicles, Handswitches, Control Circuits • Fuses • Bailey Fuses • Bezels and Control Room/Remote Shutdown Panel Controls <input type="checkbox"/> Refer to Attachment 3 for rules on tag types. <input type="checkbox"/> Select blocking points and tag types. <input type="checkbox"/> Ensure selected blocking points will not adversely impact other systems or components. (i.e., air isolations) <input type="checkbox"/> Ensure equipment within the tagging boundary is protected from damage due to inadvertent operation.

<p>5.1.3 Create Tagging Package (Initiator)</p>	<p>1. Perform the following:</p> <ul style="list-style-type: none"> □ Mark-up Drawings and Documents: (Note) <ul style="list-style-type: none"> • Show blocking points, vent paths, and section of the system within the WCD boundary • For system outages, identify order numbers for components to be worked on the drawings □ Initiate the WCD in SAP ((Note), use Forms 1 & 4 if the WCM is unavailable): <ul style="list-style-type: none"> • Refer to Attachment 4 for rules/guidance on the following: <ul style="list-style-type: none"> ➢ Temporary Blocking Points ➢ Long Text and Special Instructions ➢ Sequencing blocking points ➢ For ESO WCDs, include the ESO switching order number in the WCD header text • Identify required Discipline Reviews for the following ((Note), list on Form 1 if the WCM is unavailable): <ul style="list-style-type: none"> ➢ Logic circuits, control circuits, or complex electrical blocking points less than 480V ➢ Bailey blocking points ➢ Blocking points under the jurisdiction of another Department (i.e., fire protection, chemistry, Radwaste) ➢ Blocking points with the potential to cause a valid ESF initiation/actuation □ Permit WCD to the orders ((Note), list on Form 5 if the WCM is unavailable). □ Perform final verification that the WCD provides adequate isolation for the given job. □ Assemble the Tagging Package (drawings, documents, list of orders, WCD header page, and tagging list, ESO switching orders). □ Forward the tagging package or WCD information for the following: <ul style="list-style-type: none"> • Qualified Operator field verification • Discipline Reviews • Review and pre-approval by an Approving Supervisor
<p><u>NOTE</u></p> <p>Detailed instructions and SAP manipulations are available in SH.WM-DG.ZZ-0015, Work Clearance Management Desk Guide.</p>	

SH.OP-AP.ZZ-0015(Q)

**ATTACHMENT 2
COMPONENT TAGGING RULES
(Page 13 of 13)**

<p>BEZELS AND CONTROL ROOM/REMOTE SHUTDOWN PANEL CONTROLS (970103114)</p>	<ul style="list-style-type: none"> • Control Room and Remote Shutdown Panel controls shall be considered remote operators and shall be tagged with the appropriate 'safety tag' (RBT, WBT, YPT, or WCT) whenever that control station will remain operational or become operational while the field tags relating to that component are in place. • <u>IF</u> ALARA conditions prohibit the tagging of MOV handwheels, <u>THEN</u> a RBT should be placed on the remote operator for the MOV that denotes the required position for the WCD. • <u>WHEN</u> equipment is tagged and the associated Control Room or Remote Shutdown Panel control is not, and will not become operational (application of 'safety tag' not required per the above rule), <u>THEN</u> the NCO shall install a bezel block and annotate the WCD 'Untagging Text' to ensure removal upon release of the WCD. An "INF" type tag may be used to track application of the bezel block. • Bezel Stations that are tagged may be removed from the Control Console for the purpose of checking proper indication/bulbs (with OS/CRS permission), provided the tagged position is verified when the bezel station is reinstalled. • Bezel and Control Room/Remote Shutdown Panel Control RBTs may be used as the sole isolation point when establishing a TEST BOUNDARY. • <u>IF</u> a bezel block is used, <u>THEN</u> it will be attached in such a manner as not to obstruct the view of other components on the bezel.
<p align="center"><u>NOTE</u></p> <p>A bezel RBT shall not be used as the sole isolation if a personnel or equipment hazard can exist due to energized sources.</p>	

ATTACHMENT 2
COMPONENT TAGGING RULES
(Page 2 of 13)

MOTOR OPERATED VALVES (MOV)	<ul style="list-style-type: none">• <u>WHEN</u> an MOV is used as a mechanical blocking point, <u>THEN</u> a RBT shall be placed on both the associated MOV breaker and on the MOV manual handwheel.• Restrictive ALARA conditions may prohibit the tagging of MOV handwheels. Determination of these conditions shall be made jointly by the OS/CRS, Clearing Agent, Job Technician, and the on-duty Radiation Protection Technician.• <u>IF</u> ALARA conditions prohibit the tagging of MOV handwheels, <u>THEN</u> a RBT shall be placed on the remote operator and breaker for the MOV that denotes the required position for the WCD. MOVs shall be verified in the proper position per the WCD prior to tagging.• <u>WHEN</u> an MOV is manually seated or backseated, <u>THEN</u> administrative controls shall be used to ensure the valve is manually unseated prior to stroking the valve electrically. (refer to NC.NA-AP.ZZ-0005(Q) for additional guidance)• Prior to working on the motor operator of an MOV, that has a RBT on the handwheel, an Engineer or Clearing Agent (trained on MOVs) must evaluate the work to ensure the valve position will not change from the tagged position. The following rules apply:<ul style="list-style-type: none">➤ Engineer or Clearing Agent doing the work will review valve design.➤ <u>IF</u> there is any chance the MOV will change position, <u>AND</u> the work must be completed, <u>THEN</u> an alternate means of maintaining the valve in the closed position will be installed and tagged.➤ The Clearing Agent doing the work, the Engineer and the Tagging Authority, will agree upon the method of maintaining valve position.➤ The clutch shall not be operated.➤ The Engineer and/or Clearing Agent will enter all relevant information including engineer's name in the long text of the associated WCD.➤ The Clearing Agent will document a discipline review of the associated WCD.
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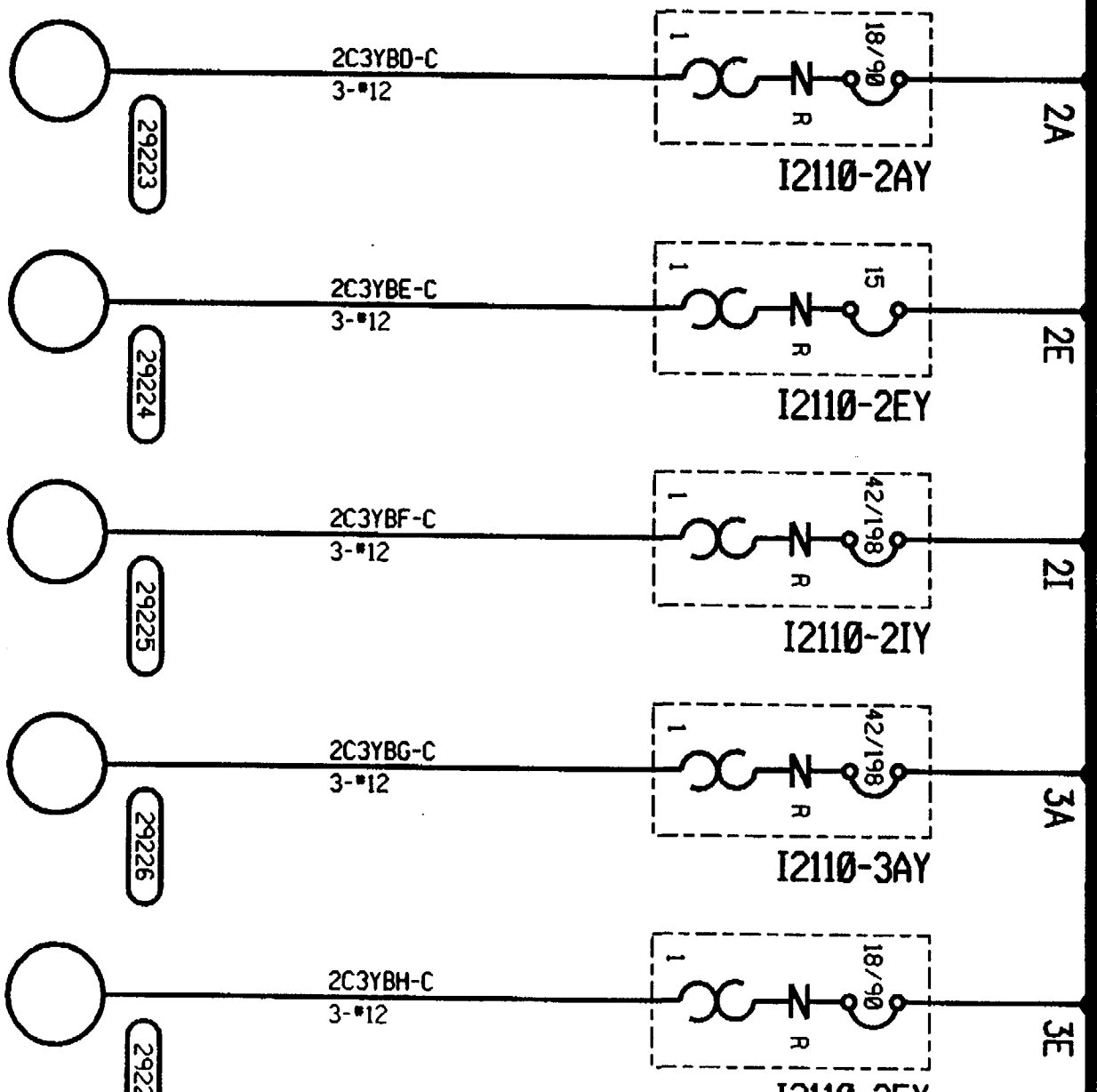
2SJ1 R. W. S. T. TO CHARGING
 PUMPS STOP VALVE
2SJ1-MTRY

2CS17 - SPRAY ADDITIVE
 TANK DISCHARGE VALVE
2CS17-MTRY

22CS2 - CONTAINMENT SPRAY
 PUMP DISCHARGE VALVE
22CS2-MTRY

2CV140 - CHARGING PUMP
 RECIRC. STOP VALVE
2CV140-MTRY

22SJ33 - SAFETY INJECTION
 SUCTION VALVE
22SJ33-MTRY



ATTENTION: ANY REVISION TO THIS DRAWING
SHALL BE MADE ONLY BY CAED

SALEM NUCLEAR GENERATING STATION
NO. 2 UNIT-AUXILIARY BUILDING
2C WEST VALVES & MISC. 230V. VITAL CONTR. CTR. ONE-LINE
DIAGRAM MK. NO. I-2110 ELECTRICAL

PSEG NUCLEAR, L.L.C.

DRAWN K. R. LEWIS CHECKED R. C. HSU SCALE NONE
DATE 12-08-86 EXAMINED A. THOMSON
AUTH N1000 APPROVED R. T. STANLEY

222485 A 1779 -47

10

11

A

CONT. -
ELEC. -

9771 A 284SSS

551-18

INSTRUMENT DESCRIPTION

FIRST LINE (SEE NOTE 10)	SECOND LINE	THIRD LINE
2CY2AX1A	2SJ30 - RWST TO S.I. PUMP	STOP VALVE
2CY2AX1E	2SJ67 - SAFETY INJECTION PUMP	MINIFLOW TO RWST V
2CY2AX1I	SPARE	MMIS NUMBER: I2110
2CY2AX1L	INCOMING	
2CY2AX2A	2SJ1 - RWST TO CHARGING PUMP	STOP VALVE
2CY2AX2E	2CS17 - SPRAY ADDITIVE TANK	DISCHARGE VALVE
2CY2AX2I	22CS2 - CONTAINMENT SPRAY PUMP	DISCHARGE VALVE

- '6D' TO THE '2C' EAST VALVE CONTROL CENTER.
6. STARTERS SHOWN IN POS. 1I, 4E, 7I, 8A, 8E, 8I, & CIRC. BKR. IN POS. '6D' ARE TO BE RELOCATED FROM THE '2C' EAST VALVE CONTROL CENTER.
 7. DELETED
 8. SEE NOTE *6 ON DWG. *222490-B-9551
 9. BUS VOLTAGE LISTED AS 230 VOLTS ARE NOMINAL AND ARE IN FACT 240 VOLTS.
 10. THIS IS THE TRIS DATABASE DESIGNATOR.

RAWINGS:

MISC. 230V. VITAL CONTROL CENTER	— — — — —	DWG. *222483-A-177
MISC. 230V. VITAL CONTROL CENTER	— — — — —	DWG. *222484-A-177
MISC. 230V. VITAL CONTROL CENTER WIRING DIAG.	— — —	DWG. *203712-A-885
UNITS WIRING DIAGRAM	— — — — —	DWG. *220802-A-140
SYMBOL LIST	— — — — —	DWG. *601658-B-955
HTR. ELEMENTS FOR SAFETY RELATED MOV'S	— — — — —	CALC. ES-18.006

SH.OP-AP.ZZ-0015(Q)

FORM 1 WORK CLEARANCE DOCUMENT: <i>M001</i> ESO NUMBER:	
EQUIPMENT UNAVAILABLE/Reference object: <i>25J1</i>	
COMMENTS:	
SPECIAL INSTRUCTIONS FOR TAGGING: <i>VALUE MUST BE</i> <i>CLOSED MANUALLY</i>	
INITIATED BY: <i>CANDIDATE</i>	DATE:
PRE-APPROVED BY:	
WCD AUTHORIZED BY: (ON-DUTY OS/CRS/WCCS)	DATE:
SPECIAL INSTRUCTIONS FOR RELEASE:	
WCD RELEASE APPROVED BY:	DATE:
RELEASED CONFIRMED (IF WCM WAS UNAVAILABLE UPON REQUEST)	

FORM 4

TAGGING/UNTAGGING WORK LIST

☒ REQUEST
☐ RELEASE TYPE (circle one) FULL PARTIAL TEMPORARY

DISCIPLINE REVIEWS: N/A

WORK CLEARANCE DOCUMENT NUMBER: 1001 This Worksheet: Page 1 of 1

[illegible]

TAGGED BY: CA DATE/TIME: _____ VERIFIED BY: _____ DATE/TIME: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Administrative Section Examination

TASK: Perform control room actions for a fuel handling incident in the Fuel Handling Building (FHB)

TASK NUMBER: 1140170401

JPM NUMBER: 2002 GOLF NRC RO A3

ALTERNATE PATH: ☐ **K/A NUMBER:** 2.3.10

IMPORTANCE FACTOR: 2.9 3.3
RO SRO

APPLICABILITY:
EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform or Control Room/Simulate

REFERENCES: S2.OP-AB.FUEL-0001, Rev. 3

TOOLS AND EQUIPMENT: NONE

VALIDATED JPM COMPLETION TIME: 15 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

[Signature]
TRAINING SUPERVISOR
or designee

[Signature]
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: 15 Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A

JPM PERFORMED BY: _____ **GRADE:** ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Fuel Handling Incidents (APE 036)**TASK:** Perform control room Actions for a fuel handling incident in the Fuel Handling Building (FHB)**TASK NUMBER:** 1140170401**INITIAL CONDITIONS:**

1. Core re-load is in progress on Unit 2.
2. The transfer canal gate valve is open.
3. The transfer cart is in the Fuel Handling Building (FHB).
4. There are 8 people in the FHB.

SIMULATOR SETUP:

Any IC with RCS de-pressurized and appropriate equipment running or simulate performance in the Simulator.

INITIATING CUE:

You are the Control Board Operator. A refueling Crew member in the FHB reports that a fuel assembly has been dropped in the transfer canal. Assume that radiation levels are rising in the FHB but are <1R/hr and no one has been injured. Implement S2.OP-AB.FUEL-0001, Fuel Handling Incident.

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Fuel Handling (034)

TASK: Perform Control Room actions for a fuel handling incident in the Fuel Handling Building (FHB)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME:			
		Evaluator provides a copy of S2.OP-AB.FUEL-0001.			
	3.1	Initiate Attachment 1, Continuous Action Summary			
		a. If at any time radiation levels in the FHB or CNMT reach 1 R/hr then evacuate all personnel from the affected area.	Radiation levels < 1 R/hr as noted in Initial Conditions		
		b. If at any time radiation protection airborne sample results indicate iodine activity in CNMT then operate iodine removal Units as follows - - -	CUE: No sample results available yet.		
	3.2	Notify personnel at the scene of the incident to:			
		• Stop all fuel transfers in process.			
		• Evacuate all non-essential personnel from the scene.	Pages or otherwise contacts FHB and provides specified direction.		
			CUE: Acknowledge order.		
	3.3	Has the incident occurred in the FHB?	Answers YES.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Fuel Handling (034)

TASK: Perform Control Room actions for a fuel handling incident in the Fuel Handling Building (FHB)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.4	Notify personnel in the FHB to place any fuel assembly being handled into the emergency rack X-3 or designated location, whichever takes less time.	Pages or otherwise contacts FHB and provides specified direction.		
			CUE: Acknowledge order.		
			CUE: The assembly being handled was the one that dropped.		
*	3.5	PRESS FHB VENTILATION, EXH FLTR TRAINS, HEPA 22 PLUS CHAR pushbutton.	<u>Depresses FHB VENTILATION, EXH FLTR TRAINS, HEPA 22 PLUS CHAR pushbutton*</u> and verifies change in status or verifies already running.		
	3.6	Ensure the following:	Verifies:		
		<ul style="list-style-type: none"> All available FH Exhaust Fans are running. 	<ul style="list-style-type: none"> 21 and 22 FHB Exhaust Fans I/S 		
		<ul style="list-style-type: none"> HEPA 22 PLUS CHAR and SEQUENCE COMPLETE lights illuminate. 	<ul style="list-style-type: none"> HEPA 22 PLUS CHAR and SEQUENCE COMPLETE lights illuminated. 		
		<ul style="list-style-type: none"> HEPA 21 ONLY and SEQUENCE COMPLETE lights extinguish. 	<ul style="list-style-type: none"> HEPA 21 ONLY and SEQUENCE COMPLETE lights extinguished. 		
		<ul style="list-style-type: none"> Record time I/S in SC.OP-AP.ZZ-0004(Q), Cyclic Data Monitoring Program. 	CUE: Mark the time to log the information later and continue with the procedure.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Fuel Handling (034)

TASK: Perform Control Room actions for a fuel handling incident in the Fuel Handling Building (FHB)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.12	Notify Radiation Protection of the following:	Contracts RP to provide as much information as is available and directs a survey and sample of the FHB.		
		• Location of the incident			
		• Details of the incident			
		• Affected personnel, if any			
		• Survey the area to determine radiological conditions			
		• Sample the area for airborne activity and contamination	CUE: Acknowledge order.		
*	3.13	If fuel transfer cart is in the FHB or Fuel Transfer Canal, then return the fuel transfer cart to CNMT.	May contact both FHB and CNMT and [direct return of the Fuel Transfer Cart to the CNMT]*.		
			CUE: Acknowledge order.		
			CUE: Fuel Transfer Cart has been moved to the CNMT.		
*	3.14	If the fuel transfer canal gate valve is open, then close the valve to isolate the Spent Fuel Pool from CNMT.	Contacts FHB and directs NEO to close gate valve.		
			CUE: Acknowledge order.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Fuel Handling (034)

TASK: Perform Control Room actions for a fuel handling incident in the Fuel Handling Building (FHB)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3.15	Notify all personnel at the scene of the incident to perform the following:	Pages or otherwise contacts FHB and provides specified directions.		
		• Evacuate the affected area	CUE: Acknowledge order. The NEO will evacuate as soon as the gate valve is closed.		
		• Close all doors upon exiting			
		• Report to the Control Point			
		Terminate JPM			
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete".

INITIAL CONDITIONS:

1. Core re-load is in progress on Unit 2.
2. The transfer canal gate valve is open.
3. The transfer cart is in the Fuel Handling Building (FHB).
4. There are 8 people in the FHB.

INITIATING CUE:

You are the Control Board Operator. A refueling Crew member in the FHB reports that a fuel assembly has been dropped in the transfer canal. Assume that radiation levels are rising in the FHB but are $<1\text{R/hr}$ and no one has been injured. Implement S2.OP-AB.FUEL-0001, Fuel Handling Incident.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Administrative Section Examination

TASK:

TASK NUMBER:

JPM NUMBER: 2002 GOLF NRC RO A4 Questions

ALTERNATE PATH: ☐ K/A NUMBER: See Questions

IMPORTANCE FACTOR:

APPLICABILITY:

EO ☐ RO ☒ STA ☐ SRO ☐ RO SRO

EVALUATION SETTING/METHOD: Room with references

REFERENCES: See questions

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: N/A

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

Francis F. K...
TRAINING SUPERVISOR
or designee

Ed Gallagher for Telecom
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: Minutes

ACTUAL TIME CRITICAL COMPLETION: Minutes

JPM PERFORMED BY: GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: DATE:

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.4 – KEY

REACTOR OPERATOR: _____

QUESTION #1 (2.4.33)

QUESTION:

Unit 2 is at 100% power. The Emergency Coordinator declared an UNUSUAL EVENT (UE) at 0645 then upgraded to an ALERT at 0710 due to a problem with the Overhead Annunciator System.

What is the latest clock time by which ERDS is required to be activated?

ANSWER:

0810 – ERDS must be activated within 60 minutes after declaration of an ALERT.

RESPONSE:

REFERENCE:

SALEM ECG, Attachment 8, Secondary Communicator Log, Rev. 7, Step A.3.b

ATTACHMENT 8

SECONDARY COMMUNICATOR LOG

Table of Contents

Pages

- 1 - 2 Notifications & Data Collection/Transmission
- 3 - 4 Incoming Calls (BNE, DEMA, OEM, AAAG, etc.)
- 5 Major Equipment & Electrical Status (MEES) form
- 6 Operational Status Board (OSB) form
- 7 - 8 Station Status Checklist (SSCL) form
- 9 Common Site UNUSUAL EVENT – Station Status Checklist form

Emergency Classification: (circle)	UE	ALERT	SAE	GE
Name: _____		Position: CM2 /TSC2/ EOF2		
(Print)		(circle)		

A. NOTIFICATIONS

NOTE

A new Attachment 8 is required to be implemented if the classification or protective action recommendation (PAR) changes.

- | | |
|--|-----------------|
| | <u>Initials</u> |
|--|-----------------|
1. OBTAIN a copy of Attachment 6 and ASSIST Primary Communicator with 15-minute notifications, as necessary. CM2/TSC2/E
 2. DIRECT the Shift Rad Pro Tech (SRPT) (x2644) to implement **SC.EP-EP.ZZ-0301(Q)**, Shift Radiation Protection Technician Response. (N/A for Common Site).

Name: _____	Time: _____	CM2
-------------	-------------	-----
 3. For an ALERT or higher emergency:
 - () a. CALL OUT an additional SRO and have him/her report to the OSC.

Name: _____	Time: _____	CM2
-------------	-------------	-----
 - b. ACTIVATE **ERDS** within 60 minutes from the Affected Unit's SPDS terminal.
 - 1) PRESS <UNIT MASTER MENU> key.
 - 2) PRESS <ERDS> key
 - 3) FOLLOW screen prompts

CM2

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.4 – KEY

REACTOR OPERATOR: _____

QUESTION #2 (2.4.33)

QUESTION:

A SGTR caused a reactor trip and safety injection on Unit 2. The Emergency Coordinator declared a Site Area Emergency. Several minutes ago, Unit 2 SPDS failed.

What is the data transmission requirement with SPDS failed?

ANSWER:

Complete and transmit the Operational Status Board Form every 15 minutes.

RESPONSE:

REFERENCE:

SALEM ECG, Attachment 8, Secondary Communicator Log, Rev. 7, Step B.2 (from B.3.b)

Initials

B. DATA COLLECTION/TRANSMISSION (cont'd)

2. IF requested by the TSC,
THEN COMPLETE the **Operational Status Board (OSB)** Form every 15 minutes,
(TSS may modify the frequency or data list as appropriate) :

- () a. OBTAIN Licensed Operator review.
() b. FAX to Group C.

CM2

3. ENSURE the Facility OSB and MEES Status Boards are updated as follows:

- () a. OBTAIN OSB Data from **SPDS** "Unit Master Menu."
() b. IF SPDS is Out of Service,
THEN REQUEST CM2 to perform step B.2, above. (data set and frequency
of updates may be revised by the TSS based on event circumstances)
() c. WHEN significant changes in plant status occur,
THEN REQUEST CM2 to perform step B.1, above.

TSC2/EOF2

4. WHEN the emergency is terminated.
THEN FORWARD this document and all completed Forms to the OS (TSS/SSM).

CM2/TSC2/EOF2

C. INCOMING CALLS

STATE OFFICIALS

1. IF Notifications authority has transferred.
THEN DIRECT the caller to contact the TSC (or EOF if activated)

CM2/TSC2

2. WHEN contacted by any State Agency Officials (listed here),

DEMA - Delaware Emergency Management Agency
AAAG - Delaware Accident Assessment Advisory Group
BNE - NJ Bureau of Nuclear Engineering
DEP - NJ Department of Environmental Protection
OEM - NJ Office of Emergency Management

PERFORM the following:

- () a. OBTAIN and RECORD:

<u>Agency</u>	<u>Caller's Name</u>	<u>Phone #</u>
_____	_____	_____
_____	_____	_____

- () b. READ the latest EC approved SSCL.

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.4 – **CANDIDATE COPY**

REACTOR OPERATOR: _____

QUESTION:

Unit 2 is at 100% power. The Emergency Coordinator declared an UNUSUAL EVENT (UE) at 0645 then upgraded to an ALERT at 0710 due to a problem with the Overhead Annunciator System.

What is the latest clock time by which ERDS is required to be activated?

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.4 – CANDIDATE COPY

REACTOR OPERATOR: _____

QUESTION:

A SGTR caused a reactor trip and safety injection on Unit 2. The Emergency Coordinator declared a Site Area Emergency. Several minutes ago, Unit 2 SPDS failed.

What is the data transmission requirement with SPDS failed?

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Administrative

TASK: Evaluate a shift staffing situation and take corrective action IAW administrative procedures

TASK NUMBER: 1210020302

JPM NUMBER: GOLF NRC – SRO A.1

ALTERNATE PATH: ☐

K/A NUMBER: 2.1.4

IMPORTANCE FACTOR:	2.3	3.4
	RO	SRO

APPLICABILITY:

EO ☐RO ☐STA ☐SRO ☒

EVALUATION SETTING/METHOD: Room with references

REFERENCES: NC.NA-AP.ZZ-0005

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 12 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

APPROVAL:

N/A

BARGAINING UNIT
REPRESENTATIVE



TRAINING SUPERVISOR
or designee



OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION: _____ N/A

JPM PERFORMED BY: _____ GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative**TASK:** Evaluate a shift staffing situation and take corrective action IAW administrative procedures**TASK NUMBER:** 1210020302**INITIAL CONDITIONS:**

1. Both units are at 100% power
2. It is 1500 on Christmas Day
3. You are the Unit 1 CRS
4. The Unit 2 CRS has become ill and must be relieved as soon as possible
5. Other than the watch crew, there is no one on site with an active SRO license
6. The only available, qualified person is the 1900-0700 Unit 1 CRS, Ed Gallagher. Ed has worked five consecutive 12 hour night shifts. However, he will "stand by", waiting for a call to relieve early.

SIMULATOR SETUP: N/A**INITIATING CUE:**

Complete the actions required to provide a relief for the Unit 1 CRS.

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Evaluate a shift staffing situation and take corrective action IAW administrative procedures

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME:			
	1	Locates and reviews "Working Hour Guidelines" in NC.NA-AP.ZZ-0005 (Section 5.10) 2and/or Technical Specifications	Determines that only available relief will exceed 24 working hours in a 48 hours period and 72 hours in a seven day period		
	2	Locates NC.NA-AP.ZZ-0005 Form-1, WORKING HOUR GUIDELINE DEVIATION/AUTHORIZATION	CUE: Provide a copy of Form-1 after it is located in NC.NA-AP.ZZ-0005		
		Completes Form-1:			
*	3	Enter NAME of relief	Enters Ed Gallagher		
*	4	Enter CODE	Enters Guideline Code 3 and 4 per the Working Hour Guideline Deviation/Authorization Code Table		
*	5	Enter JUSTIFICATION	Illness of Unit 1 CRS and unavailability of any other qualified watch relief		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: **Administrative**TASK: **Evaluate a shift staffing situation and take corrective action IAW administrative procedures**

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	6	Enter LAST SCHEDULED DAY OFF	CUE: Ed's last scheduled day off was 12/19 Enters 12/19		
	7	Enter NEXT SCHEDULED DAY OFF	CUE: Ed's next scheduled day off is 12/27 Enters 12/27		
*	8	Sign, date and print name as REQUESTING SUPERVISOR	Candidate signs, dates and prints his/her own name		
*	9	Obtain signature or TELECON approval from DEPARTMENT MANAGER	Locates number and calls or beeps Department Manager CUE: Role play the conversation and grant approval via phone call Signs, dates and prints name of Department Manager and notes date and time of the call		
	10	Obtain signature or TELECON approval from DIRECTOR-OPERATIONS	Locates number and calls or beeps Director-Operations CUE: There is no answer		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Evaluate a shift staffing situation and take corrective action IAW administrative procedures

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	11	Obtain signature or TELECON approval from DIRECTOR-OPERATIONS	Locates number and calls or beeps Vice President-Operations CUE: Role play the conversation and grant approval via phone call Signs, dates and prints name of Vice President-Operations and notes date and time of the call		
*	12	Candidate indicates he/she would now call Ed Gallagher with approval for exceeding the "Working Hours Guideline"	TERMINATE JPM		
		STOP TIME:			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

INITIAL CONDITIONS:

1. Both units are at 100% power
2. It is 1500 on Christmas Day
3. You are the Unit 1 CRS
4. The Unit 2 CRS has become ill and must be relieved as soon as possible
5. Other than the watch crew, there is no one on site with an active SRO license
6. The only available, qualified person is the 1900-0700 Unit 1 CRS, Ed Gallagher. Ed has worked five consecutive 12 hour night shifts. However, he will "stand by", waiting for a call to relieve early.

INITIATING CUE:

Complete the actions required to provide a relief for the Unit 1 CRS.

FORM - 1
WORKING HOUR GUIDELINE DEVIATION / AUTHORIZATION

Working Hour Guideline Deviation / Authorization Code Table

Guideline Code	Description
1	More than 16 hours in a work period
2	More than 16 hours in a 24 hour period
3	More than 24 hours in a 48 hour period
4	More than 72 hours in any seven day period
5	Less than 8 hours off between work periods

NAME	Code	Justification	Last Scheduled Day Off	Next Scheduled Day Off
ED GALLAGHER	3, 4	UNIT 1 CRS IS ILL AND THERE ARE NO OTHER QUALIFIED	12/19	12/27
		WATCH RELIEFS AVAILABLE		

CANDIDATE

Requesting Supervisor (sign)

Date

Requesting Supervisor (print)

PER TELECON

Department Manager (sign)

Date

Department Manager (print)

VP PER TELECON

Director - Operations (sign)

Date

Director - Operations (print)

NOTE In the event that the Director - Operations is unavailable to provide this approval the "Director - Operations" approval should only be delegated upward to a VP level position.

5.9 Operating Plant Status**[CD-174A, CD-515A, CD-483F, CD-883X, CD-424Y, CD-418Y]**

- 5.9.1 The Control Room Operator and the OS/CRS shall be aware of all activities affecting plant equipment.
- 5.9.2 The Control Room Operator and the OS/CRS should be notified of changes in plant status, abnormalities or difficulties encountered in performing assigned tasks that may affect safe operations.
- 5.9.3 Supervisors are responsible for the performance of all personnel assigned to them who could affect plant safety.

NOTE 5.10

The guidelines established within this section are in place to limit the working hours of those personnel who perform safety related functions (e.g., Licensed Senior Reactor Operators, Licensed Reactor Operators, Radiation Protection Technicians, Equipment Operators, Chemistry Technicians, and Key Maintenance Personnel (See Definition 7.3). **[HC/SA T/S - 6.2.2]**

The objective of the Working Hour Guidelines are to prevent situations where fatigue could reduce an individual's mental awareness and decision making ability, thereby jeopardizing reactor safety. **[CD-419Y, CD-128D]**

5.10 Working Hour Guidelines**[CD-093D, HC/SA T/S - 6.2.2]**

- 5.10.1 Adequate shift coverage shall be maintained without the routine heavy use of overtime.
- 5.10.2 The expectation is that all personnel will work nominal 40 hour work weeks while the units are operating.

Continued on next page

5.10, (Continued)

- 5.10.3 PRIOR TO performance of overtime in excess of the guidelines listed in step 5.10.4, authorization shall be obtained from the Department Manager and the Director - Operations (In the event that the Director - Operations is unavailable to provide this approval the "Director - Operations" approval should only be delegated upward to a VP level position.

Authorization shall be documented on Form - 1, Working Hour Guideline Deviation / Authorization.

Approvals may be obtained by telecon as follows:

- Sign for the approval authority
- Document the statement "per telecon"
- Record the name of the individual granting approval
- Record the time and date the approval was received

Completed forms should be retained by the initiating department (Time Administrator) and made available for NRC review for a full operating cycle.

- 5.10.4 In the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance, or major unit modifications, on a temporary basis the following guidelines shall be followed by - Licensed Senior Reactor Operators, Licensed Reactor Operators, Radiation Protection Technicians, Equipment Operators, Chemistry Technicians, and Key Maintenance Personnel (See Definition 7.3):

- An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).
- An individual should not be permitted to work more than 16 hours in any 24 hour period, nor more than 24 hours in any 48 hour period, nor more than 72 hours in any seven day period (all excluding shift turnover time).
- A break of at least eight hours should be allowed between work periods (including shift turnover time).
- Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on shift.

- 5.10.5 The Director - Operations or designee shall review individual overtime monthly to ensure that excessive hours have not been assigned. [CD-419Y]

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE
SALEM

STATION:

SYSTEM:

Administrative Section Examination

TASK:

TASK NUMBER:

NUMBER:

2002 GOLF NRC SRO A1 Questions

ALTERNATE PATH:

☐

K/A NUMBER:

See Questions

IMPORTANCE FACTOR:

RO

SRO

APPLICABILITY:

EO

☐

RO

☐

STA

☐

SRO

☒

EVALUATION SETTING/METHOD:

Room with references

REFERENCES:

See Questions

TOOLS AND EQUIPMENT:

None

VALIDATED JPM COMPLETION TIME:

N/A

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:

N/A

APPROVAL:

*N/A*BARGAINING UNIT
REPRESENTATIVE*James T. Keen*TRAINING SUPERVISOR
or designee*CD Hall*OPERATIONS
MANAGER
or designee

CAUTION:

No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME:

Minutes

ACTUAL TIME CRITICAL COMPLETION:

Minutes

JPM PERFORMED BY:

GRADE:

☐

SAT

☐

UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE:

DATE:

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 - KEY

SENIOR REACTOR OPERATOR: _____

QUESTION #1 (2.1.12)

QUESTION:

Both units are at 100% power when 1R1B-1, Control Room Air Intake Radiation Monitor, fails high. The following Control Area Ventilation (CAV) alignment is noted:

- 11 and 21 EACS Fans are operating
- The Outside Air Intake Dampers on Unit 1 and Unit 2 are closed

What Technical Specification Action Statement(s) must be entered?

ANSWER:

Enter the TSAS for the failed radiation monitor on each unit and the TSAS for the failed damper/interlock on Unit 2. The Unit 2 Outside Air Intake Damper should not close on failure of 1R1B-1.

- Unit 1 RMS – 3.3.3.1 Action b, Instrument 3, Action 24
- Unit 2 RMS – 3.3.3.1 Action b, Instrument 3, Action 27
- Unit 2 CAV – 3.7.6.b, Action e

RESPONSE:

REFERENCE:

S1 and S2.OP-SO.CAV-0001, Precautions and Limitations step 3.12
Unit 1 and Unit 2 Technical Specifications

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 - **KEY**

SENIOR REACTOR OPERATOR: _____

QUESTION #2 (2.1.23)

You are the Unit 2 CRS for a rod withdrawal reactor startup at MOL. The Estimated Critical Position (ECP) is Control Bank D-135 steps. The ICRR has been predicting an earlier criticality. With rod motion stopped and an ICRR of .125, the Reactor Engineer on-duty informs you that the plot predicts criticality at Control Bank D-60 steps.

What action is required?

ANSWER:

Permission to continue the startup must be obtained from the Reactor Engineer and the Operations Manager. With D@60 steps, the Predicted Critical Rod Position differs from the ECP by >400 pcm but <500 pcm.

Underlined required for SAT

RESPONSE:

REFERENCE:

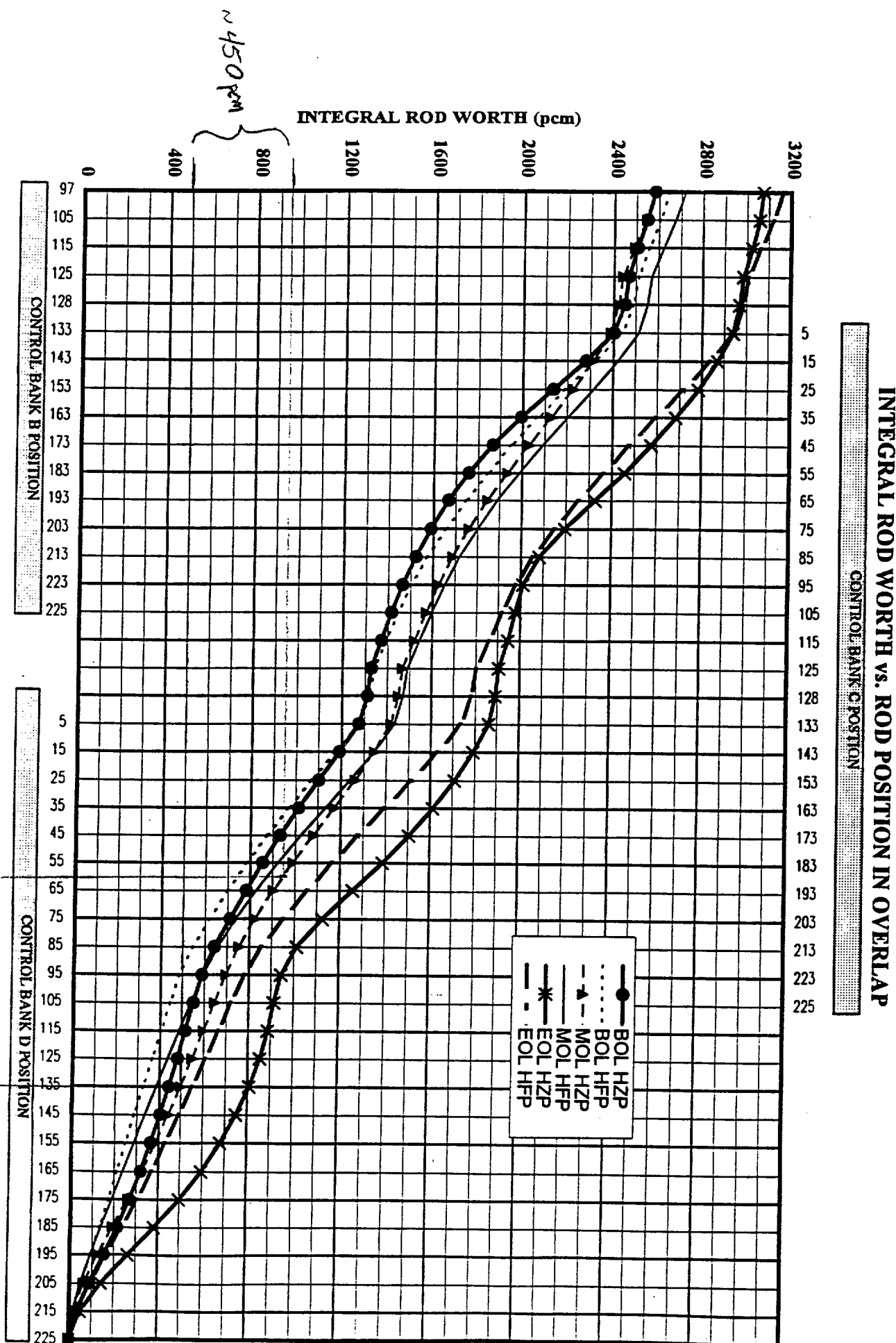
S2.OP-IO.ZZ-0003, Rev. 16, Step 5.3.15.H.3

Figure 4, INTEGRAL ROD WORTH vs. ROD POSITION IN OVERLAP from
S2.RE-RA.ZZ-0012, Rev. 59

SALEM UNIT 2 CYCLE 13

FIGURE 4

S2.RE-RA.ZZ-0012(Q)



5.3.15 (continued)

NOTE

The 8-Fold Rod Position occurs at the condition when the highest reading source range channel has increased by three doublings OR eight times the initial count rate prior to control bank withdrawal. This position is equivalent to an ICRR value of 0.125.

- G. **WITHDRAW** Control Banks A, B and C STOPPING at the following hold points to obtain ICRR data:
 - ♦ CBA Fully Withdrawn
 - ♦ RIL Position
 - ♦ CBB Fully Withdrawn
 - ♦ 8-Fold Rod Position
- H. When the ICRR value reaches 0.125, **DETERMINE** the deviation between the Estimated Critical Rod Position (ECP) and Predicted Critical Rod Position (from the ICRR), and take appropriate action:
 - 1. IF the ICRR plot indicates Predicted Critical Rod Position is below the Zero Power Rod Insertion Limit (RIL), THEN INITIATE Rapid Boration, **INSERT** Control Rod Banks AND RECALCULATE the ECP.
 - 2. IF the ICRR plot indicates Predicted Critical Rod Position differs from the ECP by > 300 pcm but < 400 pcm, THEN CONTINUE the Reactor Startup, AND EVALUATE the post startup data for trend.
 - 3. IF the ICRR plot indicates Predicted Critical Rod Position differs from the ECP by > 400 pcm but < 500 pcm, THEN OBTAIN permission from the Reactor Engineer and the Operations Manager prior to continuing with the Startup.

(step continued on next page)

5.3.15 (continued)

- 4. IF the ICRR plot indicates Predicted Critical Rod Position differs from the ECP by > 500 pcm but < 1000 pcm, THEN:
- a. **INSERT** the Control Rod Banks, AND RECALCULATE the ECP prior to withdrawing Control Rods.
- b. IF the ICRR plot still indicates Predicted Critical Rod Position differs from the ECP by > 500 pcm but < 1000 pcm on the second attempt, THEN OBTAIN permission from the Reactor Engineering Supervisor and the Operations Manager prior to continuing with the Startup.
- 5. IF the ICRR plot indicates Predicted Critical Rod Position differs from the ECP by > 1000 pcm, THEN INSERT the Control Rod Banks. The reactor shall NOT be made critical.
- I. **WITHDRAW** Control Bank D STOPPING at the following hold points to obtain ICRR data:
- ◆ ≤ 50 step increments
 - ◆ 8-Fold Rod Position
- J. IF P-6 (Source Range Permissive) green light energizes, as indicated on 2RP4 1/2 IR channels at 10⁻¹⁰ amps, prior to criticality, THEN:
- 1. **SELECT** one pen of NR-45 to an Intermediate Range channel and the other pen to a Power Range channel.
- 2. **BLOCK** Source Range High Flux Trip by depressing both "BLOCK SOURCE RANGE A" AND "BLOCK SOURCE RANGE B" pushbuttons on console.
- 3. **ENSURE** Source Range Trains A&B TRIP BLOCKED blue light is illuminated on 2RP4 AND OHA E-5, SR DET VOLT TRBL alarms.

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 – CANDIDATE COPY

SENIOR REACTOR OPERATOR: _____

QUESTION:

Both units are at 100% power when 1R1B-1, Control Room Air Intake Radiation Monitor, fails high. The following Control Area Ventilation (CAV) alignment is noted:

- 11 and 21 EACS Fans are operating
- The Outside Air Intake Dampers on Unit 1 and Unit 2 are closed

What Technical Specification Action Statement(s) must be entered?

GOLF GROUP NRC EXAMINATION

ADMINISTRATIVE SECTION A.1 - CANDIDATE COPY

SENIOR REACTOR OPERATOR: _____

QUESTION:

You are the Unit 2 CRS for a rod withdrawal reactor startup at MOL. The Estimated Critical Position (ECP) is Control Bank D-135 steps. The ICRR has been predicting an earlier criticality. With rod motion stopped and an ICRR of .125, the Reactor Engineer on-duty informs you that the plot predicts criticality at Control Bank D-60 steps.

What action is required?

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: ADMINISTRATIVE

TASK: Review a completed surveillance procedure for a MDAFW Pump

TASK NUMBER: 1230300302

JPM NUMBER: GOLF NRC – SRO A2

ALTERNATE PATH: ☐

K/A NUMBER: 2.2.12

IMPORTANCE FACTOR:

3.0	3.4
RO	SRO

APPLICABILITY:

EO ☐

RO ☐

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Room with references

REFERENCES: S2.OP-ST.AF-0001, Rev. 14
S2.RA-ST.AF-0001, Rev. 5

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 12 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

Francis V. Ke...
TRAINING SUPERVISOR
or designee

QD Hall...
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A

JPM PERFORMED BY: GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: DATE:

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE

TASK: Review a completed surveillance procedure for a MDAFW Pump

TASK NUMBER: 1230300302

INITIAL CONDITIONS:

1. Unit 2 is sub-critical at 547°F, 2235 PSIG. All shutdown bank control rods are fully withdrawn.
2. S2.OP-ST.AF-0001(Q), INSERVICE TESTING-21 AUXILIARY FEEDWATER PUMP was completed at the end of the previous shift. The procedure has just been submitted to the control room.
3. 21 AFW Pump has been left in service to provide feed while preparations are in progress for performing S2.OP-ST.AF-0002.

SIMULATOR SETUP: N/A

INITIATING CUE:

You are the Unit 2 CRS. Review S2.OP-ST.AF-0001(Q), INSERVICE TESTING-21 AUXILIARY FEEDWATER PUMP.

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.

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: **ADMINISTRATIVE**TASK: **Review a completed surveillance procedure for a MDAFW Pump**

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Evaluator provides a marked up S2.OP-ST.AF-0001 and a copy of the current revision of S2.RA-ST.AF-0001 START TIME:			
	1	Verifies current revision of the procedure was used for the ST	Verifies revision at Examiner's discretion		
	2	Step 5.3.2 CRS PERFORM the following: A. Review this procedure with Attachments 1-4 for completeness and accuracy.			
	3	Checks all PREREQUISITES (2.0) and PRECAUTIONS AND LIMITATIONS (3.0) initialed	No errors		
*	4	Checks all PROCEDURE steps (5.0) initialed or properly N/A'd	Recognizes that Step 5.1.5 should NOT be N/A. The Unit is in Mode 3 – TSAS 3.7.1.2 should have been entered. Specifies that a NOTF should be written. CUE: Assume the NOTF has been written. Continue reviewing the procedure.		
	5	Reviews Attachment 1	Verifies all blocks completed, instrument calibration dates are current		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: **ADMINISTRATIVE**

TASK: **Review a completed surveillance procedure for a MDAFW Pump**

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	6	Reviews Attachment 2	<ul style="list-style-type: none"> Verifies all blocks completed Compares collected data to S2.RA-ST.AF-0001 acceptance criteria Determines Vibration Position 3V is in Alert Range* 		
	7	Reviews Attachment 3	Notes 23 and 24AF21 are throttled, supplying feed to the SG's		
	8	Reviews Attachment 4	Reviews Section 1.0 for COMMENTS and 2.0 for SIGNATURES		
*	9	Completes Section 5.3.2	<p>Specifies that 5.3.2.C applies:</p> <ul style="list-style-type: none"> Pump is operable but in ALERT range Initiate a change to increase test frequency IAW NC.WM-AP.ZZ-0003 <p>CUE: Change is being initiated by another Operator.</p>		
	10	Complete Attachment 4, Section 3.0	Signs and dates		
	11	Forwards procedure to STA	TERMINATE JPM		
		STOP TIME:			

Terminating Cue: State "This JPM is complete"

INITIAL CONDITIONS:

1. Unit 2 is sub-critical at 547°F, 2235 PSIG. All shutdown bank control rods are fully withdrawn.
2. S2.OP-ST.AF-0001(Q), INSERVICE TESTING-21 AUXILIARY FEEDWATER PUMP was completed at the end of the previous shift. The procedure has just been submitted to the control room.
3. 21 AFW Pump has been left in service to provide feed while preparations are in progress for performing S2.OP-ST.AF-0002.

INITIATING CUE:

You are the Unit 2 CRS. Review the completed S2.OP-ST.AF-0001(Q), INSERVICE TESTING-21 AUXILIARY FEEDWATER PUMP.

PSEG NUCLEAR L.L.C.

SALEM/OPERATIONS

S2.OP-ST.AF-0001(Q) - REV. 14

INSERVICE TESTING - 21 AUXILIARY FEEDWATER PUMP

USE CATEGORY : **I**

REVISION SUMMARY:

Biennial Review Performed: Yes ___ No √ NA ___

Attachment 2 - Moved vibration point 3A from Technical Specification Acceptance Criteria to Non-Technical Specification Acceptance Criteria. The ASME O&M 10 code, to which we are committed, does not require monitoring of Axial Vibrations on the line bearings of pumps in the IST program. (80024023)

The following changes deal with the removal and replacement of the Panametric Ultra Sonic Flow Monitor with the Controlotron. All references to the Panametrics Ultra Sonic Flow monitor have been deleted. These changes are editorial in nature as previously approved in S1.OP-ST.AF-0001(Q). (80019923)

- ◆ 2.6 - changed procedure from Panametrics to Controlotron.
- ◆ 5.1.3 - added step for the Maintenance Technician to perform a zero flow adjustment for Controlotron.
- ◆ 5.1.17 - added step to turn Controlotron power off.
- ◆ 7.5.2.F - replaced Panametrics procedure with Controlotron procedure.
- ◆ Attachment 1, 4.0 - added recording of Controlotron Data following zero adjustment.
- ◆ Attachment 2, 2.0 - replaced Panametrics with Controlotron.
- ◆ Attachment 2, 3.0 - replaced Panametrics with Controlotron.

IMPLEMENTATION REQUIREMENTS

None

PSE&G
CONTROL
COPY # 27

Effective Date

April 4, 01

APPROVED:

3
4/2/01For
Operations Manager - Salem4/2/01
Date

INSERVICE TESTING - 21 AUXILIARY FEED PUMP

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3570
10710
16

1.0 **PURPOSE**

- 1.1 Provides instructions necessary to perform Inservice Inspection and Testing IAW Technical Specification 4.0.5 for the following components: [C0265]

- ◆ 21 Auxiliary Feed Pump
- ◆ 21AF4 Check Valve (Partial Open)

This requirement is applicable in Modes 1-3.

- 1.2 Perform Technical Specification Surveillance 4.7.1.2.b.1 (Developed Head). This requirement is applicable in Modes 1-3. [C0265]

- 1.3 Performance of this procedure is required at least once per 92 days in Modes 1-3 on a STAGGERED TEST BASIS, prior to entry into Mode 3 if NOT previously performed in the last 92 days, or as otherwise specified in post-maintenance operational retest requirements.

2.0 **PREREQUISITES**

- FSL* 2.1 **IDENTIFY** sections of this procedure NOT to be performed with "N/A".
- FSL* 2.2 **REVIEW** components "Off Normal and Off-Normal Tagged" List(s) for system and support system(s) associated with evolution to be performed in this procedure.
- FSL* 2.3 **ENSURE** the applicable SAP Order number(s) and Reason for Test are recorded on Attachment 1, Section 1.0.
- FSL* 2.4 **IF** this surveillance is being performed to verify post-maintenance operability of 21 Auxiliary Feedwater Pump OR to establish new baseline data, **THEN NOTIFY** the IST Implementation Engineer. [C0583]
- FSL* 2.5 **ATTACH** a copy of S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria.

REL 2.6 ENSURE Maintenance Technician is available to perform the following:

- ◆ Vibration Data Collection of 21 Auxiliary Feedwater Pump utilizing a DLI Watchman DC-7 Data Collector.
- ◆ SC.IC-DC.ZZ-0003(Q), Controlotron Model 960 and 990 Flow Computer Zero Adjustment.

REL 2.7 Direct Maintenance Technician to **PERFORM** the following:

REL ◆ **PROGRAM** the DLI Watchman DC-7 Data Collector to record 21 Auxiliary Feedwater Pump vibration. [C0600]

REL ◆ **RECORD** calibration data for the M&TE and Vibration Data Collection Equipment listed in Attachment 1, Section 2.0 and 3.0. [C0289]

REL ◆ **INSTALL** Temporary Test Equipment as specified in Attachment 1, Section 3.0

3.0 PRECAUTIONS AND LIMITATIONS

REL 3.1 Procedure Use and adherence policy as found in NC.NA-AP.ZZ-0001(Q), Nuclear Procedure System, is applicable to this procedure.

REL 3.2 Steps identified with a dollar sign (\$) are those items required to meet Technical Specification acceptance criteria. Such steps, if not satisfactorily completed, may have reportability requirements and should be brought to immediate attention of the OS/CRS.

REL 3.3 22 AND 23 AF Pumps are NOT in operation.

REL 3.4 Do NOT operate 21 AF Pump if suction pressure is < 8.2 psig.

REL 3.5 21 AF Pump is to be stopped should the motor winding temperature exceed 266°F.

REL 3.6 21 AF Pump oil levels are to be maintained at 1/2 to 3/4 full.

REL 3.7 IF in Modes 1-3 and Auxiliary Feedwater System is NOT required, THEN S2.OP-PT.AF-0002(Q), Auxiliary Feedwater Backleakage is to be performed 30 to 60 minutes following pump shutdown. [C0270]

NIA
IST 3.8 IF substitution of Measuring and Test Equipment (M&TE) is required, THEN the IST Implementation Engineer has specified range, accuracy and documented substitution in the Comments Section of Attachment 4.

- RSK* 3.9 IF the indicating needle of a test gauge used for obtaining pump performance data is operating erratically due to hydraulic (i.e., flow or pressure) fluctuations, THEN gauge indication may be dampened by throttling the instrument root valve to reduce indicated fluctuations. When this dampening technique is utilized, the operator shall alternately open and close the instrument root valve several times to verify unobstructed pressure communication while observing the instrument reading.
- RSK* 3.10 Pump flow is required to be established at the reference value indicated in S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria (as close as reasonably achievable) prior to acquisition of pump performance data. The indicated allowable band ($\pm 2\%$ of Reference Value) was specifically incorporated to allow for instrument fluctuations about the Reference Value, and is NOT intended to be utilized as an allowable flow adjustment band.

4.0 EQUIPMENT/MATERIAL REQUIRED

4.1 M&TE:

- ◆ DLI Watchman DC-7 Data Collector
- ◆ DLI Triaxial Accelerometer
- ◆ One (1) Heise Gauge or equivalent, range 0-60 psig, accuracy $\pm 0.1\%$ of full scale and total uncertainty of ± 0.06 psig or better.
- ◆ One (1) Heise Gauge or equivalent, range 0-3000 psig, accuracy $\pm 0.1\%$ of full scale and total uncertainty of ± 3.0 psig or better.

4.2 Additional Tools and Equipment:

- ◆ JA Master Key

4.3 Procedure(s):

- ◆ Copy of S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feed Pump Acceptance Criteria

5.0 **PROCEDURE**5.1 **IST of 21 AF Pump**

FSL 5.1.1 **PLACE** No. 2 Aux Feed Tank Heater Pump in STOP.

FSL 5.1.2 **IF** 21 AF Pump is in service,
THEN:

FSL A. **ENSURE** 23 and 24 Steam Generators have sufficient level to stop auxiliary feed supply for duration of this test.

FSL B. **STOP** 21 AF Pump.

FSL 5.1.3 Direct Maintenance Technician to:

FSL A. **PERFORM** Controlotron Zero Flow Adjustment IAW SC.IC-DC.ZZ-0003(Q), Controlotron Model 960 and 990 Flow Computer Zero Adjustment.

FSL B. **RECORD** Controlotron calibration data **AND** completion data in Attachment 1, Section 4.0.

FSL 5.1.4 **ENSURE** the following valves are OPEN:

FSL A. 21AF101, AF PUMP RECIRC ISOL

FSL B. 21AF40, AF PMP RECIRC V

N/A 5.1.5 **IF** in Modes 1-3,
THEN ENTER T/S 3.7.1.2 for 21 Auxiliary Feedwater Pump.

FSL 5.1.6 **DECREASE** the following valve demands to 0%:

◆ 23AF21, STEAM GENERATOR INLET VALVE

◆ 24AF21, STEAM GENERATOR INLET VALVE

CAUTION

When starting 21 AF Pump, the "21 START" pushbutton must be pressed for at least five (5) seconds to preclude an inadvertant S/G Blowdown and Sample isolation.

FSL 5.1.7 **START** 21 AF Pump.

FSL 5.1.8 **ENSURE** 21AF40, AF PMP RECIRC V, modulating valve is OPEN.

FSL 5.1.9 **CLOSE** 21AF40-A/S, AIR SUPPLY TO 21AF40 (2SV537),
AND **VENT** air supply at regulator petcock.

- FSL 5.1.10 UNLATCH 21AF40 handwheel AND THROTTLE 21AF40 to obtain the reference value for flow identified in S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria as indicated on the Controlotron.

NOTE

After pump conditions are as stable as the system permits, 21 AF Pump is required to be operated for at least 2 minutes prior to acquiring "Vibration Readings" and "Pump Performance Data".

- FSL 5.1.11 When 21 Auxiliary Feed Water Pump has operated for >2 minutes at stable conditions, **PERFORM** the following:
- FSL ♦ Direct Maintenance Technician to **OBTAIN** "Vibration Readings" on 21 Auxiliary Feedwater Pump utilizing the DLI Watchman DC-7 Data Collector.
 - FSL ♦ **RECORD** "Pump Performance Data" on Attachment 2, Section 2.0.
- FSL 5.1.12 Direct Maintenance Technician to **PERFORM** the following:
- FSL A. **DOWNLOAD** the DLI Watchman DC-7 Data Collector to the ALERT Computer.
 - N/A B. IF a DLI Printer is available, THEN:
 - N/A 1. **PRINT** 21 Auxiliary Feedwater Pump vibration results.
 - N/A 2. **ATTACH** a copy of the 21 Auxiliary Feedwater Pump vibration results to this procedure.
 - FSL C. IF a DLI Printer is NOT available, THEN RECORD 21 Auxiliary Feedwater Pump vibration readings from the DLI Computer on Attachment 2, Section 1.0.
 - FSL D. **REMOVE** Temporary Test Equipment specified in Attachment 1, Section 3.0.
 - N/A E. IF Electronic Pressure Modules (digital) were NOT used, THEN COMPLETE Attachment 1, Section 4.0, Post Test Calibrations.

FSL 5.1.13 POSITION 21AF40 handwheel to NEUTRAL AND LATCH handwheel.

FSL 5.1.14 CLOSE 21AF40 air supply regulator petcock AND OPEN 21AF40-A/S.

FSL
\$ 5.1.15 RECORD 21AF4 PARTIAL OPEN "Test Results" by initialing SAT or UNSAT column using Acceptance Criteria in Attachment 2, Section 3.0.

N/A 5.1.16 IF 21 AF Pump is NOT required to maintain Steam Generator levels, THEN:

N/A A. STOP 21 AF Pump.

N/A B. RAISE demand to 98% for following valves:

◆ 23AF21, STEAM GENERATOR INLET VALVE

◆ 24AF21, STEAM GENERATOR INLET VALVE

— C. IF in Modes 1-3,
THEN PERFORM S2.OP-PT.AF-0002(Q), Auxiliary Feedwater Backleakage, 30 to 60 minutes following pump shutdown. [C0270]

FSL 5.1.17 PLACE Controlotron Power Supply Switch to OFF position.

FSL 5.1.18 IF 21 AF Pump is required to maintain steam generator water level, THEN ADJUST the valve demands to the following valves, as required:

◆ 23AF21, STEAM GENERATOR INLET VALVE

◆ 24AF21, STEAM GENERATOR INLET VALVE

FSL 5.1.19 PLACE No. 2 Aux Feed Tank Heater Pump in AUTO.

N/A 5.1.20 IF in Modes 1-3,
THEN EVALUATE T/S 3.7.1.2 for continued applicability.

FSL 5.1.21 Direct a second Operator to **PERFORM** Independent Verification of the following:

◆ Calculations performed in Attachment 2. [C0284]

◆ Valve positions in Attachment 3. [C0290]

FJA
\$

5.1.22

IF this surveillance is being performed as a regular scheduled surveillance
OR to verify post-maintenance operability,
THEN RECORD "Test Results" by initialing SAT or UNSAT column using
 Acceptance Criteria in Attachment 2, Sections 1.0, 2.0 and 3.0.

N/A
\$

5.1.23

IF this surveillance is being performed to establish new baseline data,
THEN IST Implementation Engineer **PERFORM** the following:

N/A
IST

A. **EVALUATE** the data AND DETERMINE if the specified components
 meet minimum design requirements.

N/A
\$ IST

B. **RECORD** "Test Results" by initialing SAT or UNSAT column using
 the Acceptance Criteria in Attachment 2, Sections 1.0, 2.0 and 3.0.

5.2 Acceptance CriteriaFSA
\$

- 5.2.1 This surveillance is satisfactory when Attachment 2 is completed with equipment listed meeting the Technical Specification Acceptance Criteria (ASME) stated in the attachment.

OR

N/A

- 5.2.2 This surveillance is unsatisfactory.

N/A

- A. **INITIATE** NOTF(s) to correct unsatisfactory condition(s).

N/A

- B. **RECORD** NOTF number(s), and reason for unsatisfactory completion on Attachment 4 in the Comments Section.

5.3 Completion and Review

FSA

- 5.3.1 **COMPLETE** Attachment 4, Sections 1.0 and 2.0, **AND FORWARD** this procedure to the CRS for review.

CANDIDATE
INITIALS

- 5.3.2 CRS **PERFORM** the following:

CANDIDATE

- A. **REVIEW** this procedure with Attachments 1-4 for completeness and accuracy.

CANDIDATE N/A'S

- B. IF all pump Technical Specification Acceptance Criteria (ASME) parameters are SAT AND in the ACCEPTABLE RANGE, THEN:

— ♦ **DECLARE** Pump OPERABLE.

— ♦ IF pump is currently on an increased test frequency, THEN EVALUATE conditions required to return the pump to normal test frequency IAW NC.WM-AP.ZZ-0003(Q), Regular Maintenance Process and NC.NA-AP.ZZ-0070(Q), Inservice Testing Program.

CANDIDATE
INITIALS \$

- 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:

— ♦ **DECLARE** pump OPERABLE.

— ♦ IF pump is currently on a normal test frequency, THEN INITIATE a change to place pump on increased test frequency IAW NC.WM-AP.ZZ-0003(Q), Regular Maintenance Process and NC.NA-AP.ZZ-0070(Q), Inservice Testing Program.

(step continued on next page)

5.3.2 (continued)

CANDIDATE
N/A'S

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 NC.WM-AP.ZZ-0000(Q), Notification Process.
- ___ ♦ RECORD NOTF number(s) on Attachment 4 in the Comments Section.

CANDIDATE
N/A'S

E. IF ANY pump Non-Technical Specification Acceptance Criteria (Non-ASME) parameter is SAT AND in the ALERT RANGE, THEN:

- ___ ♦ INITIATE a NOTF IAW NC.WM-AP.ZZ-0000(Q), Notification Process.
- ___ ♦ RECORD NOTF number(s) on Attachment 4 in the Comments Section.
- ___ ♦ NOTIFY the Vibration Program Manager.
- ___ ♦ NOTIFY the IST Implementation Engineer.

CANDIDATE
N/A'S

F. IF ANY pump Non-Technical Specification Acceptance Criteria (Non-ASME) parameter is UNSAT, in REQUIRED ACTION RANGE, THEN:

- ___ ♦ INITIATE a NOTF IAW NC.WM-AP.ZZ-0000(Q), Notification Process.
- ___ ♦ RECORD NOTF number(s) on Attachment 4 in the Comments Section.
- ___ ♦ NOTIFY the Vibration Program Manager to promptly evaluate the test data.
- ___ ♦ NOTIFY the IST Implementation Engineer.

(step continued on next page)

5.3.2 (continued)

CANDIDATE G. IF Technical Specification Acceptance Criteria (ASME) for
N/AS ANY Check Valve is UNSAT,
THEN:

- ___ ♦ **DECLARE** the Check Valve inoperable.
- ___ ♦ **EVALUATE** Technical Specifications for system operability.
- ___ ♦ **INITIATE** a NOTF IAW NC.WM-AP.ZZ-0000(Q),
Notification Process.
- ___ ♦ **RECORD** NOTF number(s) on Attachment 4 in the
Comments Section.

CANDIDATE
INITIALS

___ H. **COMPLETE** Attachment 4, Section 3.0.

___ I. **FORWARD** this procedure to the STA for review.

___ 5.3.3 **STA PERFORM** the following:

___ A. **REVIEW** this procedure with Attachments 1-4 for
completeness and accuracy.

___ B. **COMPLETE** Attachment 4, Section 3.0.

___ C. **FORWARD** this procedure to the OS/CRS for review and approval.

___ 5.3.4 **OS/CRS PERFORM** the following:

___ A. **REVIEW** this procedure with Attachments 1-4 for
completeness and accuracy.

___ B. **COMPLETE** Attachment 4, Section 3.0.

___ C. **PLACE** this procedure in the IST IMPLEMENTATION ENGINEER
REVIEW REQUIRED mail slot.

END OF PROCEDURE SECTION

6.0 RECORDS

6.1 Retain the following IAW NC.NA-AP.ZZ-0011(Q), Records Management Program:

- ◆ Attachment 1-4
- ◆ Copy of S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feed Pump Acceptance Criteria, if applicable
- ◆ Pump DLI Vibration Analyzer Printout

7.0 REFERENCES

7.1 Updated Final Safety Analysis Report:

- 7.1.1 3.9.4, Inservice Testing of Pumps and Valves
- 7.1.2 10.4.7.2, Auxiliary Feedwater System
- 7.1.3 15.2.8, Loss of Normal Feedwater

7.2 Drawings:

- 7.2.1 205336, No. 2 Unit Auxiliary Feedwater

7.3 Procedures:

- 7.3.1 NC.WM-AP.ZZ-0000(Q), Notification Process
- 7.3.2 NC.WM-AP.ZZ-0001(Q), Work Management Process
- 7.3.3 NC.WM-AP.ZZ-0002(Q), Performance Improvement Process
- 7.3.4 NC.NA-AP.ZZ-0022(Q), Measuring & Test Equipment, Lifting & Rigging and Tool Control
- 7.3.5 NC.NA-AP.ZZ-0050(Q), Station Testing Program
- 7.3.6 SH.RA-AP.ZZ-0105(Q), IST Program Management

7.4 Others:

- 7.4.1 OM-6, Inservice Testing of Pumps in Light-Water Reactor Power Plants (1988 Edition)
- 7.4.2 OM-10, Inservice Testing of Valves in Light-Water Reactor Power Plants (1988 Edition)
- 7.4.3 Salem Generating Station IST Manual
- 7.4.4 NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants

7.5 Cross-References:

7.5.1 Technical Specifications - Unit 2:

- A. 4.0.5, Inservice Inspection and Testing
- B. 4.7.1.2.b.1, Auxiliary Feedwater System

7.5.2 Procedures:

- A. NC.NA-AP.ZZ-0011(Q), Records Management Program
- B. NC.WM-AP.ZZ-0003(Q), Regular Maintenance Process
- C. NC.NA-AP.ZZ-0070(Q), Inservice Testing Program
- D. S2.OP-PT.AF-0002(Q), Auxiliary Feedwater Backleakage
- E. SC.OP-AP.ZZ-0106(Q), Operability Determination
- F. S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feed Pump Acceptance Criteria
- G. SC.IC-DC.ZZ-0003(Q), Controlotron Model 960 and 990 Flow Computer Zero Adjustment.

7.6 Commitments:

- 7.6.1 C0265 - NSO LER 311/89-015-00
- 7.6.2 C0270 - NRC GL 88-03
- 7.6.3 C0275 - NRC INSP 90-03
- 7.6.4 C0283 - NRC VIOL 311/87-18-0
- 7.6.5 C0284 - NRC VIOL 272/90-014-00
- 7.6.6 C0289 - INSTRUMENT CALIBRATION REQUIREMENTS
- 7.6.7 C0290 - NRC INFO 84-51
- 7.6.8 C0583 - NRC VIOL 50-272/94-21
- 7.6.9 C0600 - NLR-N89196, Salem IST Conduct

ATTACHMENT 1
(Page 1 of 2)

INSTRUMENT AND TEST EQUIPMENT DATA

1.0 SAP ORDER DATA

SAP Order Number(s): _____ <u>30035515</u>	Reason for Test <input checked="" type="checkbox"/> Scheduled Surveillance <input type="checkbox"/> Post-Maintenance Operability <input type="checkbox"/> Establish New Baseline Data <input type="checkbox"/> Other (Explain in Comments)
--	---

2.0 VIBRATION DATA COLLECTION EQUIPMENT:

Instrument/Test Equipment	Description	Calibration Due Date	Initials
	DLI Watchman DC-7 Data Collector	1-27-03	RH
	DLI Triaxial Accelerometer	1-27-03	RH

3.0 TEMPORARY TEST EQUIPMENT

Temporary Test Equipment	ID Number &	Installation Point	Installation		Removal	
	Cal. Due Date		Initials	Date	Initials	Date
Heise CM or equivalent 0-60 psig	# 151	Instr. Vent for 2PL8647 (suction pressure)	GA (1)(2)	11-01-02		
	Date: 6-15-03					
Heise CM or equivalent 0-3000 psig	# 207	Instr. Vent for 2PL1678 (discharge pressure)	GA (1)(2)	11-01-02		
	Date: 7-1-03					

- (1) Installation of suction and discharge pressure gauges at same elevation ensures consistent pump performance data.
- (2) Maintenance Technician shall ensure the pressure gauge sensing line is filled and vented during installation.

ATTACHMENT 1

(Page 2 of 2)

INSTRUMENT AND TEST EQUIPMENT DATA

4.0 CONTROLOTRON DATA

Description	ID Number	Calibration Overdue Date
Controlotron	2FL14752	4-27-03
SC.IC-DC.ZZ-0003(Q), Controlotron Model 960 and 990 Flow Computer Zero Adjustment has been completed.		
Performed By: <u>Gary Assimos</u> Date: <u>11-01-02</u> Time: <u>0930</u>		

5.0 POST TEST CALIBRATION RESULTS

Instrument/Test Equipment	ID Number	SAT	UNSAT	Initials
Heise CM or equivalent 0-60 psig (1)				N/A
Heise CM or equivalent 0-3000 psig (1)				N/A

(1) Post-Test Calibration is NOT required when Electronic Pressure Modules (digital) are used.

Performed by Gary Assimos Date 11-01-02
M&TE Technician

Performed by Tim Roche Date 11-1-02
M&TE Supervisor

ATTACHMENT 2

(Page 1 of 2)

21 AUXILIARY FEEDWATER PUMP SURVEILLANCE DATA

1.0 VIBRATION READINGS:

Vibration Position 1: MOTOR OUTBOARD
 Vibration Position 2: MOTOR INBOARD
 Vibration Position 3: PUMP INBOARD
 Vibration Position 4: PUMP OUTBOARD

21 AF Pump Vibration Results		Test Results		
		Acceptable Range SAT	Alert Range SAT	Required Action UNSAT
Non-Technical Specification Acceptance Criteria (Non-ASME)				
Vibration Position 1A	0.015 in/sec (1)	FK		
Vibration Position 1H	0.12 in/sec (1)	FK		
Vibration Position 1V	0.017 in/sec (1)	FK		
Vibration Position 2A	0.150 in/sec (1)	FK		
Vibration Position 2H	0.12 in/sec (1)	FK		
Vibration Position 2V	0.05 in/sec (1)	FK		
Vibration Position 3A	0.37 in/sec (1)	FK		
Technical Specification Acceptance Criteria (ASME)				
\$ Vibration Position 3H	0.635 in/sec (1)	FK		
\$ Vibration Position 3V	0.655 in/sec (1)	FK		
\$ Vibration Position 4A	0.55 in/sec (1)	FK		
\$ Vibration Position 4H	0.685 in/sec (1)	FK		
\$ Vibration Position 4V	0.51 in/sec (1)	FK		
Acceptance Criteria: Vibration Results for the 21 Auxiliary Feedwater Pump are within bands specified in S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria <u>OR</u> data represents new baseline data as determined by the IST Implementation Engineer.				

- (1) Vibration data is only required to be recorded, when a DLI Vibration Analyzer Printout is NOT available.

ATTACHMENT 2
(Page 2 of 2)

21 AF PUMP SURVEILLANCE DATA

2.0 PUMP PERFORMANCE DATA:

Pump Performance Parameter	Parameter Value	Test Results		
		Acceptable Range SAT	Alert Range SAT	Required Action UNSAT
Pump Suction Pressure RUNNING (Heise Gauge) (A)	23 psig	N/A	N/A	N/A
Pump Discharge Pressure (Heise Gauge) (B)	1405 psig	FSK	N/A	
Differential Pressure (B) - (A) = psid	1382 psid	FSK		
Pump Recirc. Flow Rate (2FL14752)	161 gpm	FSK	N/A	
Technical Specification Acceptance Criteria (ASME): Measured values are within bands specified in S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria <u>OR</u> data represents new baseline data as determined by the IST Implementation Engineer.				
Independent Verification of Calculation Performed By: <i>Ed Gallagher</i>				[C0284]

3.0 CHECK VALVE DATA:

Check Valve	Stroke	Technical Specification Acceptance Criteria (ASME)	Test Results	
			SAT	UNSAT
21AF4	PARTIAL OPEN	Flow is \geq the minimum value identified in the Acceptable Range of S2.RA-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feedwater Pump Acceptance Criteria, as indicated on the Controlotron.	FSK	

ATTACHMENT 3
(Page 1 of 1)

INDEPENDENT VERIFICATION

Component	Description	Normal Position	IV
21AF40	AF PMP RECIRC V	Handwheel LATCHED in NEUTRAL position	EG
21AF40-A/S	AIR SUPPLY TO 21AF40 (2SV537)	O	EG
21AF40 Regulator Petcock	Regulator downstream of 21AF40-A/S supplying 2SV537	X	EG
23AF21	STEAM GENERATOR INLET VALVE	Demand 98% (1)	EG
24AF21	STEAM GENERATOR INLET VALVE	Demand 98% (1)	EG

(1) Valve may be throttled as required for S/G level control when AFW System is in service.

ATTACHMENT 4

(Page 1 of 2)

COMPLETION SIGN-OFF SHEET

1.0 COMMENTS: (Include test deficiencies and corrective actions.)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

ATTACHMENT 4
(Page 2 of 2)

COMPLETION SIGN-OFF SHEET

2.0 SIGNATURES:

Print	Initials	Signature	Date
<u>FRANK KAMINSKI</u>	<u>FK</u>	<u>Frank Kaminski</u>	<u>11-1-08</u>
<u>ED GALLAGHER</u>	<u>EG</u>	<u>Edward M. Gallagher</u>	<u>11-1-08</u>
<u>CHUCK ASSINOS</u>	<u>CA</u>	<u>Chuck Assinos</u>	<u>11-1-08</u>
<u>TIM ROCHE</u>	<u>TR</u>	<u>Timothy Roche</u>	<u>11-1-08</u>
_____	_____	_____	_____
_____	_____	_____	_____

INDEPENDENT VERIFICATION:

<u>ED GALLAGHER</u>	<u>EG</u>	<u>Edward M. Gallagher</u>	<u>11-1-08</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3.0 STA REVIEW AND OS/CRS FINAL REVIEW AND APPROVAL:

This procedure with Attachments 1-4 is reviewed for completeness and accuracy. All deficiencies, including corrective actions, are clearly recorded in the COMMENTS Section of this attachment. Technical Specification compliance, procedure compliance, and Acceptance Criteria are evaluated. [C0283]

Signature: _____ Date: _____
CRS

Signature: _____ Date: _____
STA

Signature: _____ Date: _____
OS/CRS

4.0 IST IMPLEMENTATION ENGINEER REVIEW:

Test Results are reviewed for acceptability. If required, revision of Acceptance Criteria and test frequency change is initiated. Forward completed procedure to Operations Staff.

Signature: _____ Date: _____
IST Implementation Engineer

PSEG Internal Use Only

IST GROUP
S2.RA-ST.AF-0001(Q) - REV. 5

Page 1 of 1

INSERVICE TESTING
21 AUXILIARY FEED PUMP
ACCEPTANCE CRITERIA

USE CATEGORY : **II**

REVISION SUMMARY

Biennial Review performed: Yes ☒ No ☐

- ◆ The following OTSC's were evaluated for incorporation into this Revision: None
- ◆ 80024023, changed designation of Vibration point 3A to Non Technical Specification acceptance criteria, and added change to Reference Section.
- ◆ Revision bars have been utilized to indicate changes.

IMPLEMENTATION REQUIREMENTS

- ◆ Effective Date 4/26/01

APPROVED:


Manager - Reliability Programs

4/26/01
Date

S2.RA-ST.AF-0001(Q)

INSERVICE TESTING
21 AUXILIARY FEED PUMP
ACCEPTANCE CRITERIA

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S2.RA-ST.AF-0001(Q)

1.0 PURPOSE

To provide the acceptance criteria necessary to evaluate the Inservice Testing data IAW Technical Specifications 4.0.5 and 4.7.1.2.b.1 relative to performance of S2.OP-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feed Pump. [C0265]

2.0 PREREQUISITES

None

3.0 PRECAUTIONS AND LIMITATIONS

None

4.0 EQUIPMENT/MATERIAL REQUIRED

None

5.0 PROCEDURE

None

END OF PROCEDURE SECTION

6.0 **RECORDS**

None

7.0 **REFERENCES**

7.1 **Updated Final Safety Analysis Report:**

7.1.1 Section 3.9.4, Inservice Testing of Pumps and Valves

7.1.2 Section 10.4.7.2, Auxiliary Feedwater System

7.1.3 Section 15.2.8, Loss of Normal Feedwater

7.2 **Technical Specifications - Unit 2:**

7.2.1 3.7.1.2, Auxiliary Feedwater System

7.3 **Drawings:**

7.3.1 205336, No. 2 Unit Auxiliary Feedwater

7.4 **Procedures:**

7.4.1 NC.NA-AP.ZZ-0050(Q), Station Testing Program

7.4.2 NC.NA-AP.ZZ-0070(Q), Inservice Testing Program

7.4.3 NC.WM-AP.ZZ-0000(Q), Notification Process

7.4.4 NC.WM-AP.ZZ-0001(Q), Work Management Process

7.4.5 NC.WM-AP.ZZ-0002(Q), Performance Improvement Process

7.4.6 NC.WM-AP.ZZ-0003(Q), Regular Maintenance Process

7.5 Others:

- 7.5.1 NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants
- 7.5.2 Salem Generating Station IST Manual
- 7.5.3 ASME Section XI Subsection IWP (1989 Edition)
- 7.5.4 ASME Standard OMa-1988, Part 6
- 7.5.5 NOTF #20001328, Potential Non-Conservative Technical Specification (AFW)
- 7.5.6 NFS 99-288, Salem Units 1 & 2 Degraded Flow Head Curves for AFW Pumps
- 7.5.7 Design Calculation F-C-AF-MDC-0445, Auxiliary Feedwater Hydraulic Analysis
- 7.5.8 80024023, Changed to IST Acceptance Criteria

7.6 Cross-References:

- 7.6.1 Technical Specifications - Unit 2:
 - A. 4.0.5, Inservice Inspection and Testing
 - B. 4.7.1.2.b.1, Auxiliary Feedwater System
- 7.6.2 Procedures:
 - A. S2.OP-ST.AF-0001(Q), Inservice Testing - 21 Auxiliary Feed Pump
 - B. SH.RA-AP.ZZ-0105(Q), IST Program Management

7.7 Commitments:

- 7.7.1 C0265 - NSO/LER/89-015-00

S2.RA-ST.AF-0001(Q)

ATTACHMENT 1

21 AF PUMP SURVEILLANCE DATA ACCEPTANCE CRITERIA

(Page 1 of 2)

1.0 PUMP VIBRATION READINGS:

21 AF Pump Vib. Pos.	Reference Value (in/sec)	Date	Acceptance Range SAT	Alert Range SAT	Required Action Range UNSAT
1A (2)	0.14	11/14/1999 (1)	0.0 - 0.280	> 0.280 - 0.700	> 0.700
1H (2)	0.17		0.0 - 0.306	> 0.306 - 0.700	> 0.700
1V (2)	0.05		0.0 - 0.125	> 0.125 - 0.300	> 0.300
2A (2)	0.11		0.0 - 0.275	> 0.275 - 0.660	> 0.660
2H (2)	0.18		0.0 - 0.324	> 0.324 - 0.700	> 0.700
2V (2)	0.09		0.0 - 0.225	> 0.225 - 0.540	> 0.540
3A (2)	0.44		0.0 - 0.640	> 0.640 - 0.765	> 0.765
3H (3)	0.53		0.0 - 0.730	> 0.730 - 0.855	> 0.855
3V (3)	0.40		0.0 - 0.600	> 0.600 - 0.700	> 0.700
4A (3)	0.42		0.0 - 0.620	> 0.620 - 0.745	> 0.745
4H (3)	0.63		0.0 - 0.830	> 0.830 - 0.955	> 0.955
4V (3)	0.35		0.0 - 0.525	> 0.525 - 0.700	> 0.700

- (1) Reference values collected under Order # 50007044
- (2) Non-Technical Specification (Non-ASME) Acceptance Criteria.
- (3) Technical Specification (ASME) Acceptance Criteria.

ATTACHMENT 1

21 AF PUMP SURVEILLANCE DATA ACCEPTANCE CRITERIA

(Page 2 of 2)

2.0 PUMP HYDRAULIC DATA:

Pump Performance Parameter	Reference Value	Date	Test Results				
			Acceptable Range SAT	Alert Range SAT		Required Action UNSAT	
				Low	High	Low	High
Suction Pressure Pump Running (A)	24 psig	05/05/93 (4)	N/A	N/A		N/A	
Pump Discharge Pressure (B)	1420.0 psig		≥ 1305.0 (5)	N/A		< 1305.0 (5)	N/A
Differential Pressure (B) - (A) = psid	1396.0 psid		1369 - 1536	N/A	N/A	< 1369 (7)	> 1536
Pump Recirc Flow Rate	160.0 gpm		157 - 163	N/A		< 157 (6)	> 163 (6)

- (4) Reference values collected under WO #930406034.
- (5) The 1305.0 psig minimum discharge pressure is the Technical Specification 4.7.1.2.b.1 minimum pump discharge pressure while in recirculation flow of ≥ 1275 psig plus 30 psig for instrument uncertainty (PR #970821298).
- (6) Values outside of those listed in the acceptance range do not necessarily make the pump inoperable, but do invalidate performance of the procedure.
- (7) Minimum pump differential pressure at 160 gpm is ≥ 1369 psid IAW F-C-AF-MDC-0445, Rev 2, Auxiliary Feedwater Hydraulic Analysis.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM
SYSTEM: ADMINISTRATIVE (Waste Gas)
TASK: Review a radioactive gaseous waste release form
TASK NUMBER: 0710050302
JPM NUMBER: GOLF NRC – SRO A3

ALTERNATE PATH: ☐

K/A NUMBER: 2.3.6

IMPORTANCE FACTOR: RO 3.1
SRO

APPLICABILITY:

EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Room with references

REFERENCES: S1.OP-SO.WG-0009, Rev. 25

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 13 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

Thomas F. K...
TRAINING SUPERVISOR
or designee

...
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A Minutes

JPM PERFORMED BY: GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: DATE:

NAME: _____

DATE: _____

SYSTEM: ADMINISTRATIVE (Waste Gas)

TASK: Review a radioactive gaseous waste release form

TASK NUMBER: 0710050302

INITIAL CONDITIONS:

1. Unit 1 is at 100% power
2. A release from 12 Gas Decay Tank is planned for this shift. The previous shift initiated the paperwork.
3. The release will continue until 12 Gas Decay Tank is completely depressurized in order to allow replacement of the relief valve
4. RMS Channel 1R41D is inoperable

SIMULATOR SETUP: N/A

INITIATING CUE:

You are the Unit 1 CRS. S1.OP-SO.WG-0009, Attachment 2 – 12 GDT RADIOACTIVE GASEOUS RELEASE FORM, has been submitted for your approval.

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.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: **ADMINISTRATIVE (Waste Gas)**

TASK: **Review a radioactive gaseous waste release form**

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	1	Provide a copy of S1.OP-SO.WG-0009, Attachment 2 completed up to the OS/CRS signature line START TIME:	CUE: Review Attachment 2 only. Assume that the other sections of S1.OP-SO.WG- 0009 have been completed properly.		
		Attachment 2 review:			
	2	Ensure Section 1.0 (SAMPLE REQUEST) completed correctly	Verifies all lines initialed, blanks filled in and signature by OS/CRS		
	3	Ensure Section 2.0 (SAMPLE POINT) is completed correctly	Both lines initialed/signed		
*	4	Ensure Section 3.0 (DOSE, VOLUME ESTIMATES AND APPROVAL- Chemistry) is completed correctly	Determines that Estimated Final Pressure should be 0 PSIG not 10 PSIG* If necessary CUE : Completely review the document before returning it to Chemistry Determines that line reading "IF RMS Channel 2R41 A, B, or D is inoperable - - -" should NOT be N/A*		

OPERATOR TRAINING PROGRAM

NAME:

JOB PERFORMANCE MEASURE

DATE:

SYSTEM: ADMINISTRATIVE (Waste Gas)

TASK: Review a radioactive gaseous waste release form

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5	Ensure Section 4.0 (RELEASE REVIEW AND APPROVAL-Operations) completed correctly	Verifies release rate >32 SCFM NOTE: If at the plant or in the simulator, the Evaluator can elect to have the candidate point out the indication related to 4.2 and 4.3 CUE: The information in 4.2, Ventilation Configuration, and 4.3, Radiation Monitor Release Data/Source Check/Channel Operable, matches indications 4.5 - Does NOT sign* – returns to Chemistry for corrective action		
	6	STOP TIME:			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

INITIAL CONDITIONS:

1. Unit 1 is at 100% power
2. A release from 12 Gas Decay Tank is planned for this shift. The previous shift initiated the paperwork.
3. The release will continue until 12 Gas Decay Tank is completely depressurized in order to allow replacement of the relief valve
4. RMS Channel 1R41D is inoperable

INITIATING CUE:

You are the Unit 1 CRS. S1.OP-SO.WG-0009, Attachment 2 – 12 GDT RADIOACTIVE GASEOUS RELEASE FORM, has been submitted for your approval.

PSEG NUCLEAR L.L.C.

SALEM/OPERATIONS

S1.OP-SO.WG-0009(Q) - REV. 25

DISCHARGE OF 12 GAS DECAY TANK TO PLANT VENT

USE CATEGORY : **I**PSE&G
CONTROL
COPY # 27

REVISION SUMMARY:

Biennial Review Performed: Yes ☒ No ☐ NA ☐


- ◆ The following changes to this procedure are incorporated IAW Technical Specification Amendment 234. (800186)
- Step 1.2 - changed "4.3.3.9, Table 4.3-13, Item 1a", to "6.8.4.g.1."
 - Steps 2.3, 2.4, 2.5, 2.6, 3.9, 3.10, 5.2.2, 5.2.2.A.1, 5.2.2.A.2, 5.2.3.A, 5.2.4, 5.2.5, 5.2.6, Attachment 2, Attachment 3, and Attachment 4 - changed references from Technical Specification 3.3.3.9, Radioactive Gas Effluent Monitoring Instrumentation, to the Offsite Dose Calculation Manual.
 - Steps 3.7 and 5.2.4 - changed references from Technical Specification 3.11.2, Gaseous Effluents, to the Offsite Dose Calculation Manual.
 - Added Step 3.8 - to provide program requirement guidance for the changes implemented by Technical Specification Amendment 234.
 - Added Technical Specification Amendment 234 to references.
 - Added Technical Specification 6.8.4.g, Radioactive Effluent Controls Program, to references.
 - Added GL 89-01, Implementation of Programmatic Controls for Radiological Effluents, Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program, to references.

IMPLEMENTATION REQUIREMENTS

Effective Date 11/21/11

- ◆ Technical Specification Amendment 234

APPROVED:


Operations Manager - Salem11/21/11
Date

PSEG NUCLEAR L.L.C.

SALEM/OPERATIONS

S1.OP-SO.WG-0009(Q) - REV. 25

DISCHARGE OF 12 GAS DECAY TANK TO PLANT VENT

USE CATEGORY : **I**

REVISION SUMMARY:

- Added Offsite Dose Calculation Manual, to references.
- Deleted Technical Specification 3.3.3.9, Radioactive Gas Effluent Monitoring Instrumentation, from references.
- Deleted Technical Specification 3.11.2.1, 3.11.2.2, 3.11.2.3, and 3.11.2.4, Gaseous Effluents.
- ◆ The following editorial changes delete redundant Chemistry, Radiation Department, and O/S signature and recording data steps. Previously approved in S1.OP-SO.WL-0001(Q). (RR1409)
 - Old step 5.2.8 and Attachment 2, Section 4.4 - deleted Radiation Protection Supervisor approval.
 - Old step 5.2.10 and Attachment 2, Section 4.7 - deleted O/S final approval.
 - Step 5.3.1 - added step to complete and attach additional chemistry paperwork.
 - Attachment 5, Section 3.0 - deleted the step to forward procedure to Technical Supervisor - Chemistry for completion.
 - Attachment 2, Sections 2.0 and 3.0 - revised to align with SC.CH-TI.ZZ-0146(Q).
 - Attachment 2, Old Section 3.0 - deleted Dose Estimates table. Data redundant to Radioactive Gaseous Release Initiation Form.
 - Attachment 2, Step 6.0 - deleted Chemistry signoff.

PSEG NUCLEAR L.L.C.

SALEM/OPERATIONS

S1.OP-SO.WG-0009(Q) - REV. 25

DISCHARGE OF 12 GAS DECAY TANK TO PLANT VENT

USE CATEGORY : **I**

REVISION SUMMARY:

- ◆ The following changes to this procedure contain only editorial enhancements as described in NC.DM-AP.ZZ-0001(Q):
 - Upgraded to the latest administrative standards.
 - Changed "NCO" to "RO/PO."
 - Deleted WG MECH 001 - Gaseous Waste Disposal System Mechanical System Alignment, from references.
 - Step 3.9 - Changed NC.NA-AP.ZZ-0006(Q) to NC.WM-AP.ZZ-0002(Q), Performance Improvement Process.
 - Added NC.WM-AP.ZZ-0002(Q), Performance Improvement Process, in references.
 - Changed NC.NA-AP.ZZ-0003(Q), Document Management Program, to NC.NA-AP.ZZ-0011(Q), Records Management Program.
- ◆ Note prior to Step 5.2.11.H - revised because pressure fluctuates between "0" psig and "10" psig to during the opening of WG41. (RR1372)
- ◆ Steps 5.1.1.B, 5.1.1.C, 5.2.7, and Attachment 1, Section 1.0 - added Pre-Release Verification to ensure correct valve lineup if the release paperwork is delayed. (R22342)
- ◆ Step 5.1.3 - added to provide a termination path if the release is not to be completed. (80019587)

DISCHARGE OF 12 GAS DECAY TANK TO PLANT VENT

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1.0 **PURPOSE**

- 1.1 To provide instructions necessary to:
- 1.1.1 Place 12 Gas Decay Tank (GDT) in Holdup.
 - 1.1.2 Conduct a controlled Radioactive Gas Release from 12 GDT. [C0160]
- 1.2 This procedure satisfies Technical Specification 6.8.4.g.1 for Channel Operable and Source Check prior to each release.

2.0 **PREREQUISITES**

- FK* 2.1 **REVIEW** Components "Off Normal and Off-Normal Tagged" List(s) for system and support system(s) associated with the evolution to be performed in this procedure.
- FK* 2.2 The following systems are in service:
- FK* 2.2.1 Auxiliary Building Ventilation IAW S1.OP-SO.ABV-0001(Q),
Auxiliary Building Ventilation Operation
 - FK* 2.2.2 Fuel Handling Building Ventilation System IAW S1.OP-SO.FHV-0001(Q),
Fuel Handling Building Ventilation Operation.
- FK* 2.3 **ENSURE** Noble Gas Activity Monitor (1R41A & D OR 1R16) are OPERABLE (IAW the ODCM).
- FK* 2.4 **ENSURE** Plant Vent Flow Rate Monitor and Sample Flow Rate Monitor are OPERABLE (IAW the ODCM).
- FK* 2.5 **ENSURE** Noble Gas Activity Monitor 1R41A & D is OPERABLE (IAW the ODCM).
- FK* 2.6 **ENSURE** Iodine Sampler and Particulate Sampler (Chemistry Dept.) are OPERABLE (IAW the ODCM).

3.0 **PRECAUTIONS AND LIMITATIONS**

- FK* 3.1 Procedure Use and adherence policy as found in NC.NA-AP.ZZ-0001(Q), Nuclear Procedure System, is applicable to this procedure.
- FK* 3.2 DO NOT release more than one GDT at a time.
- FK* 3.3 DO NOT Purge Unit 1 Containment during the GDT Release.
- FK* 3.4 DO NOT Purge/Release Unit 1 VCT during the GDT Release.

- FSL* 3.5 DO NOT transfer Waste Gas from one GDT to another during the GDT release.
- FSL* 3.6 The actual maximum GDT release rate is 32 SCFM based on system design. The calculated maximum allowable release rate shall be >32 SCFM. Tanks with a calculated maximum allowable release rate of ≤ 32 SCFM shall not be released.
- FSL* 3.7 GDT Release shall be terminated if pressure downstream of 1WG38, Gas Decay Tank Vent Pressure Control Valve, is >8.0 psig. This will ensure the actual release rate does not exceed 32 SCFM (IAW the ODCM).
- FSL* 3.8 The program requirements of Radiological Effluent Technical Specifications (RETS) are located in the Offsite Dose Calculation Manual (ODCM) and Process Control Program (PCP). (80018643)
- FSL* 3.9 Inoperability of the Noble Gas Activity Monitor (1R16, 1R12A, 1R41A & D), Iodine Sampler, Particulate Sampler, Flow Rate Monitor, or Sampler Flow Rate Monitor for >30 days is reportable IAW NC.WM-AP.ZZ-0002(Q), Performance Improvement Process (IAW the ODCM).
- FSL* 3.10 The Independent Verification requirements contained in the ODCM SHALL BE PERFORMED prior to the release of radioactive waste gas to the environment. (970630118)

4.0 EQUIPMENT/MATERIAL REQUIRED

None

5.0 **PROCEDURE**5.1 **12 Gas Decay Tank (GDT) Release Preparation**RL 5.1.1 **ALIGN 12 GDT for Holdup as follows:**

- RL A. **OBTAIN** a CRS Tagging Request for 12WG31, GDT INLET VALVE, in the CLOSED position and with specific instructions that this tag should only be released IAW this procedure.
- RL B. **PERFORM** 12 GDT Holdup Alignment IAW Attachment 1, Section 1.0.
- RL C. **DIRECT** second operator to complete Independent Verification (IV) of 12 GDT Holdup Alignment IAW Attachment 1, Section 1.0.

RL 5.1.2 **INITIATE 12 GDT Radioactive Gaseous Release Form as follows:**

- RL A. **COMPLETE** Attachment 2, Section 1.0.
- RL B. **FORWARD** entire procedure to Chemistry Department for completion of Attachment 2, Sections 2.0 and 3.0.

N/A 5.1.3 **IF Chemistry has NOT granted permission for the release, OR the release is no longer required, THEN:**

- A. **OBTAIN** a CRS Tagging Release for 12WG31, GDT INLET VALVE.
- B. **TERMINATE** this procedure.

5.2 12 Gas Decay Tank Release

— 5.2.1 **ENSURE** Attachment 2, Sections 2.0 and 3.0, are complete with approval for Radioactive Gaseous Release.

— 5.2.2 IF at least one of the following Radiation Monitors is OPERABLE, THEN ENSURE the following IAW the ODCM:

— A. IF 1R41A & D, Plant Vent Noble Gas monitor is OPERABLE, THEN:

- 1. **ENSURE** in calibration, set to alarm, and will close 1WG41, Gas Decay Tank Vent Control Valve (IAW the ODCM).
- 2. **ENSURE** 1R41 sample system flow control is OPERABLE (IAW the ODCM). [C0332, C0333]
- 3. **PERFORM** a source check and channel check (visual inspection of monitor read out).
- 4. **ENSURE** 1ND17572 - 1WG41 Waste Gas Decay Tank in NORMAL.

OR

— B. IF 1R16, Plant Vent In Line Noble Gas Monitor, is OPERABLE, THEN PERFORM 1R16 source check and channel check (visual inspection of monitor read out).

— 5.2.3 IF RMS Channel 1R41A or D is inoperable, THEN:

— A. **ENSURE** Chemistry Department has documented completion of the following contingency actions on Attachment 2, Section 3.4 (IAW the ODCM):

- 1. **ANALYZE** at least two independent samples of 12 GDT contents.
- 2. **INDEPENDENTLY VERIFY** release rate calculations by at least two technically qualified members of the Facility Staff.
- 3. IF RMS Channel 1R16 is inoperable, THEN OBTAIN grab samples at least once per 8 hours, AND ANALYZE for gross activity within 24 hours.

— B. **PLACE** 1ND17572 - 1WG41 Waste Gas Decay Tank in BLOCK.

- ___ 5.2.4 **IF** Iodine Sampler **OR** Particulate Sampler is inoperable,
THEN ENSURE Chemistry Department is collecting a continuous sample of
the effluent release pathway with auxiliary sampling equipment
(IAW the ODCM).
- ___ 5.2.5 **IF** Plant Vent Flow Rate Monitor is inoperable,
THEN ESTIMATE the Plant Vent Flow Rate at least once per 4 hours
IAW Attachment 4 and the ODCM.
- ___ 5.2.6 **IF** Sampler Flow Rate Monitor is inoperable,
THEN ENSURE Chemistry Department is estimating flow rate at least once
per 4 hours IAW SC.CH-AB.ZZ-1102(Q) and the ODCM.
- ___ 5.2.7 **PERFORM** Pre-Release Verification of 12 GDT Holdup Alignment IAW
Attachment 1, Section 1.0.
- ___ 5.2.8 **RECORD** the following on Attachment 2:
- ◆ Section 4.1, Release Verification
 - ◆ Section 4.2, Ventilation Configuration
 - ◆ Section 4.3, Radiation Monitor Release Data
 - ◆ Section 4.4, Release Review
- ___ 5.2.9 **OS/CRS REVIEW AND COMPLETE** Attachment 2, Section 4.5.

CAUTION

DO NOT release 12WG31, GDT INLET VALVE, until commencing the release.

- ___ 5.2.10 **OBTAIN** the CRS Tagging Release for 12WG31.
- ___ 5.2.11 **PERFORM** the following preparations at Panel 104-1 for the GDT release:
- ___ A. **ENSURE** 12 GDT is **NOT** in service.
 - ___ B. **ENSURE** 12 GDT is **NOT** selected for "Standby".
 - ___ C. **RECORD** 12 GDT "Initial Pressure" (PIS1037) on Attachment 3.

(step continued on next page)

5.2.11 (continued)

___ D. **LATCH AND SET 1WG41, GDT VENT CONT VALVE**, as follows:

NOTE

1WG41 Controller (1HIC-14) must be set to <0% or 1WG41 will NOT latch.

- ___ 1. **TURN** controller fully counterclockwise until indicator <0%.
- ___ 2. **POSITION** Selector Switch to OPEN AND **RELEASE** to AUTO position. (Spring return to AUTO).
- ___ 3. **TURN** controller clockwise until indicator $\geq 100\%$.

NOTE

1WG41 will begin to open when the indicator is $\approx 20\%$.

- ___ 4. **ENSURE** with Unit 1 Control Room that 1WG41 valve has lost the **CLOSED** indication **AND** audible alarm received.
- ___ 5. **TURN** controller fully counterclockwise until indicator <0%.
- ___ 6. **ENSURE** with Unit 1 Control Room that 1WG41 has closed indication.

___ E. **PERFORM** an Independent Verification of the 1WG41 valve position controller,
AND RECORD the Independent Verification on Attachment 1, Section 2.0.

___ F. **NOTIFY** Unit 1 Control Room to mark 1R41 and 1R16 Chart Recorders with the following information in preparation for the GDT release:

- ◆ 12 GDT
- ◆ Date/Time
- ◆ RO/PO Initials

___ G. **OPEN 12WG31, GDT INLET VALVE.**

(step continued on next page)

5.2.11 (continued)

NOTE

While 1WG41 is opening, pressure downstream of 1WG38 will fluctuate between "0" psig and "10" psig until 1WG41 is fully open (100%). Once 1WG41 is fully open, 1WG38 will throttle to maintain <8 psig during the release. (20016988)

___ H. Slowly **OPEN** 12WG34.

___ I. **RECORD** Independent Verification (IV) of 12 GDT discharge valves 12WG31 and 12WG34 on Attachment 1, Section 3.0, prior to commencing 12 GDT release.

___ 5.2.12 **COMMENCE** 12 GDT release as follows:

___ A. **POSITION** 1WG41 Selector Switch to **OPEN** AND **RELEASE** to AUTO position. (Spring return to AUTO).

___ B. **SLOWLY SET** 1WG41 controller to $\leq 100\%$ position which corresponds to a maximum release rate of 32 SCFM.

___ C. **PERFORM** an Independent Verification of the positioning of 1WG41 on Attachment 1, Section 4.0.

___ D. **RECORD** In Progress Release Data on Attachment 2, Section 5.1.

___ 5.2.13 **PERFORM** the following during 12 GDT release:

NOTE

An operator should be stationed at Panel 104-1 to immediately close 12WG34 upon receipt of a High Radiation Alarm or indication of 1WG41 closure.

___ A. **CALCULATE** 12 GDT Average Release Rate every 10 minutes on Attachment 3, AND **ADJUST** 1WG41 controller position as required based on results.

___ B. IF Plant Vent Flow Rate Monitor is inoperable, THEN **RECORD** Plant Vent Flow Rate Discharge Estimation on Attachment 4 at least once every four hours during GDT release.

(step continued on next page)

5.2.13 (continued)

- ___ C. **RECORD** Meteorological Data in Attachment 2, Section 5.2.
- ___ ♦ IF Meteorological Monitor is NOT OPERABLE,
THEN NOTIFY the OS/CRS (UFSAR 7.7.2.12).
- ___ D. IF at any time during the release pressure downstream of 1WG38 is
>8.0 psig (1PL8678),
OR 1WG41 CLOSES,
THEN TERMINATE the GDT release as follows:
- ___ 1. **TURN** 1WG41 controller fully counter-clockwise until indicator
is <0%.
- ___ 2. **PLACE** 1WG41-SWT in CLOSE position,
AND ENSURE 1WG41 is CLOSED.
- ___ 3. **CLOSE** 12WG34.
- ___ 4. **RECORD** Final Release Data in Attachment 2, Section 5.3.
- ___ 5. **INITIATE** an Action Request to correct the malfunction.
- ___ 5.2.14 When 12 GDT pressure \approx 10 psig OR as directed by OS/CRS,
SECURE the GDT release:
- ___ A. **TURN** 1WG41 controller fully counter-clockwise until indicator is
<0%.
- ___ B. **PLACE** 1WG41-SWT in CLOSE position,
AND ENSURE 1WG41 is CLOSED.
- ___ C. **CLOSE** 12WG34.
- ___ D. **RECORD** Final Release Data in Attachment 2, Section 5.3.
- ___ 5.2.15 IF GDT release is completed,
THEN OPEN 12WG28, 12 Waste Gas Decay Tank Inlet Valve.
- ___ 5.2.16 IF 1ND17572 - 1WG41 Waste Gas Decay Tank is in BLOCK,
THEN PLACE 1ND17572 in NORMAL.
- ___ 5.2.17 Direct second operator to **PERFORM** Independent Verification of valves
manipulated in this procedure IAW Attachment 1, Section 5.0.

5.3 Completion and Review

- ___ 5.3.1 **COMPLETE** any additional paperwork required by the Chemistry Department AND ATTACH it with this procedure.
- ___ 5.3.2 **COMPLETE** Attachment 5, Sections 1.0 and 2.0, AND FORWARD this procedure to OS/CRS for review and approval.
- ___ 5.3.3 OS/CRS **PERFORM** the following:
 - ___ A. **COMPLETE** Attachment 2, Section 5.4
 - ___ B. **REVIEW** this procedure with Attachments 1-5 for completeness and accuracy.
 - ___ C. **COMPLETE** Attachment 5, Section 3.0.
 - ___ D. **FORWARD** completed procedure to Technical Supervisor - Chemistry for completion and record retention.

END OF PROCEDURE SECTION

6.0 RECORDS

- 6.1 Retain entire procedure IAW NC.NA-AP.ZZ-0011(Q), Records Management Program.

7.0 REFERENCES

7.1 Salem Generating Station Updated Final Safety Analysis Report:

- 7.1.1 Section 11.3, Gaseous Waste System
- 7.1.2 Section 11.4, Radiological Monitoring
- 7.1.3 Section 9.4, Heating, Ventilation, and Air Conditioning Systems
- 7.1.4 15.3.6.3, Gas Decay Tank Rupture Analysis

7.2 Technical Specifications - Unit 1:

- 7.2.1 3.7.7.1 Auxiliary Building Exhaust Filtration System
- 7.2.2 3.9.12 Fuel Handling Area Ventilation System

7.3 Procedures:

- 7.3.1 NC.NA-AP.ZZ-0020(Q), Control of Nonconforming Components and Structures
- 7.3.2 SC.OP-AP.ZZ-0102(Q), Use of Procedures
- 7.3.3 SC.OP-DL.ZZ-0030(Q), Radwaste Monitoring & Control Program
- 7.3.4 S1.OP-DL.ZZ-0002(Q), Control Room Readings (Modes 5, 6 & Defueled)
- 7.3.5 S1.OP-DL.ZZ-0003(Q), Control Room Readings (Modes 1-4)
- 7.3.6 S1.OP-SO.ABV-0001(Q), Auxiliary Building Ventilation System Operation
- 7.3.7 S1.OP-SO.CA-0001(Q), Control Air System Operation
- 7.3.8 S1.OP-SO.CVC-0010(Q), Establishing VCT Atmosphere
- 7.3.9 S1.OP-SO.FHV-0001(Q), Fuel Handling Building Ventilation Operation
- 7.3.10 S1.OP-SO.RM-0001(Q), Radiation Monitoring System Operation
- 7.3.11 S1.OP-SO.WG-0003(Q), Waste Gas Disposal System Operation
- 7.3.12 S1.OP-SO.WG-0006(Q), Containment Purge to Plant Vent
- 7.3.13 S1.OP-SO.WG-0007(Q), Transfer of Waste Gas

7.4 Drawings:

- 7.4.1 203461, No.1 Relay Room Terminal Block Rack
- 7.4.2 205237, Auxiliary Building - Ventilation
- 7.4.3 205240, Waste Disposal - Gas
- 7.4.4 246548, RMS Plant Ventilation Monitor, Flow and Velocity Comparator

7.5 Others:

- 7.5.1 DCP 1EE-0205, 1WG41 Valve Modification to Mechanically Restrict Flow to ≤ 32 SCFM
- 7.5.2 DCP 1EC-3244, RMS Channel 1R41 Replacement
- 7.5.3 DE-CB.ABV-0022(Q), Configuration Baseline Documentation for Auxiliary Building Ventilation System
- 7.5.4 DE-CB.FHV-0021(Q), Configuration Baseline Documentation for Fuel Handling Building Ventilation System
- 7.5.5 DEF-DES-91-00064, PUP-90-0073 (File: 670), Design Basis for Gaseous Radwaste Release Path Components 1WG41, 1WG38, 2WG41, and 2WG38
- 7.5.6 PIR 970630118, Independent Verification Missed on Liquid Release.
- 7.5.7 SER Section 11.0, Radioactive Waste Management
- 7.5.8 SER Supplement 1, Section 11.0, Radioactive Waste Management
- 7.5.9 Reg. Guide 1.33, Quality Assurance Program Requirements (Operations)
- 7.5.10 Reg. Guide 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants
- 7.5.11 SC-WG001-01, Salem Unit 1, 2 Gas Decay Tank Pressure - Alarm and Recorder (Setpoint Calc & Scaling)
- 7.5.12 10CFR50, Appendix I
- 7.5.13 Technical Specification Amendment 234

7.6 Cross References:

- 7.6.1 Updated Final Safety Analysis Report:
 - A. Section 7.7.2.12, Seismic Monitoring Instrumentation
- 7.6.2 Technical Specifications - Unit 1:
 - A. 6.8.4.g - Radiological Effluent Controls Program
- 7.6.3 Others:
 - A. GL 89-01, Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program
 - B. Offsite Dose Calculation Manual

7.6.4 Procedures:

- A. NC.NA-AP.ZZ-0001(Q), Nuclear Procedure System
- B. NC.NA-AP.ZZ-0011(Q), Records Management Program
- C. NC.WM-AP.ZZ-0002(Q), Performance Improvement Process
- D. SC.CH-AB.ZZ-1102(Q), Response to Inoperable Technical Specification Effluent Monitors and Equipment
- E. SC.CH-TI.ZZ-0146(Q), Radiological Gaseous Effluent Discharges

7.7 Commitments:

- 7.7.1 C0160 - AR M29-89-124 Quality Assurance Audit Radioactive Effluents and Controls
- 7.7.2 C0317 - NSO Incident Report 89-679
- 7.7.3 C0332 - NSO LER 90-016-00
- 7.7.4 C0333 - NSO LER 88-026-00

ATTACHMENT 1

(Page 1 of 2)

12 GAS DECAY TANK ALIGNMENT/VERIFICATION

1.0 PRE - RELEASE ALIGNMENT/VERIFICATION

VALVE NO.	DESCRIPTION	POSITION	OPER INITIALS	IV INITIALS	PRE-RELEASE VERIF
12WG31	GDT INLET V	*CLOSED			
12WG32	GDT PRESS TAP	OPEN			
11WG34	GDT STOP TO PLNT V	CLOSED			
12WG34	GDT STOP TO PLNT V	CLOSED			
13WG34	GDT STOP TO PLNT V	CLOSED			
14WG34	GDT STOP TO PLNT V	CLOSED			
12WG35	GDT STOP V TO HUT	CLOSED			
12WG28	WG GDT INLET V	CLOSED			
12WG29	GDT INLET CONT V	CLOSED			
12WG56	GDT DR V	CLOSED			
12WG60	N2 SUP TO GDT STOP	CLOSED			
1WG41	GDT VENT CONT V	CLOSED			
1WG928	GDT TO VENT HDR STOP V	CLOSED			
1WG81	WG VENT PRESS TAP	OPEN			
12WG131 [C0317]	GDT PRESS TRANS V	OPEN			

* Cleared and Tagged for CRS.

2.0 1WG41 VALVE POSITION CONTROLLER

VALVE NO.	DESCRIPTION	POSITION	IV INITIALS
1WG41	GDT VENT CONT V	0%	

ATTACHMENT 1

(Page 2 of 2)

12 GAS DECAY TANK ALIGNMENT/VERIFICATION

3.0 PRE-RELEASE VERIFICATION

VALVE NO.	DESCRIPTION	POSITION	IV INITIALS
12WG31	GDT INLET V	OPEN	
12WG34	GDT STOP TO PLNT V	OPEN	

4.0 IN-PROGRESS VERIFICATION

VALVE NO.	DESCRIPTION	POSITION	IV INITIALS
1WG41	GDT VENT CONT V	≤100%	

5.0 POST RELEASE VERIFICATION

COMPONENT	DESCRIPTION	POSITION	IV INITIALS
12WG28	WG GDT INLET V	OPEN	
12WG31	GDT INLET V	OPEN	
12WG34	GDT STOP TO PLNT V	CLOSED	
1WG41	GDT VENT CONT V	CLOSED	
1ND17572	1WG41 WASTE GAS DECAY TANK	NORMAL	

ATTACHMENT 2

(Page 1 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. 2002 - 0121.0 SAMPLE REQUEST (Operations)

FK 1.1 12 GDT has not been added to since (time) 1200 (date) 46 Days Ago
and is at 90 PSIG as indicated by 1PIS1037.

FK 1.2 A pre-release sample of 12 GDT and release rate computation is requested.

Signature: Steven J. Sauer Date Today's Date
(OS/CRS)

2.0 SAMPLE POINT (Chemistry)

FP 2.1 **PERFORM** gaseous discharge process IAW SC.CH-TI.ZZ-0146(Q),
Radiological Gaseous Effluent Discharges.

FP 2.2 After completion of SC.CH-TI.ZZ-0146(Q), **COMPLETE** Parts 3.1 through 3.4.

3.0 DOSE, VOLUME ESTIMATES AND APPROVAL (Chemistry)

3.1 Instrumentation:

FP ♦ **INDICATE** if the following instruments are in service for release:

INSTRUMENTATION	IN SERVICE
Iodine Sampler	<u>FP</u>
Particulate Sampler	<u>FP</u>
Sampler Flow Rate Monitor	<u>FP</u>

ATTACHMENT 2

(Page 2 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. 2002-0123.0 DOSE, VOLUME ESTIMATES AND APPROVAL (continued)

3.2 Pressure:

FP ♦

COMPLETE the following required data for 12 GDT:

Isolated Pressure 90 (PSIG)**NOTE**

Final pressure is assumed to be 10 PSIG. If maintenance is to be performed and a complete release of tank contents is necessary, then final pressure is assumed to be 0 PSIG.

Estimated Final Pressure 10 (PSIG)

3.3 Volume:

FP ♦

ESTIMATE total volume of Waste Gas to be released:

525 (CUFT)

ATTACHMENT 2
(Page 3 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. 2003-012

3.0 DOSE, VOLUME ESTIMATES AND APPROVAL (continued)

3.4 Approval:

NOTE

Calculated maximum allowable release rate must be > 32 SCFM. Tanks with a calculated maximum allowable release rate of ≤ 32 SCFM cannot be released.

- FP ♦ Approval is granted to release 12 GDT at the Calculated Maximum Allowable Release Rate of 250 SCFM.
- FP ♦ This Release is consistent with the Limits set forth in the Offsite Dose Calculation Manual.
- N/A ♦ IF RMS Channel 1R41A or D is inoperable,
THEN the following have been completed (IAW the ODCM):
- N/A A. At least two independent samples of 12 GDT contents have been analyzed.
- N/A B. Release rate calculations have been independently verified by at least two technically qualified members of the Facility Staff.
- N/A C. IF RMS Channel 1R16 is inoperable,
THEN grab samples are being obtained at least once per 8 hours,
AND analyzed for gross activity within 24 hours.
- N/A ♦ IF Iodine Sampler or Particulate Sampler is inoperable,
THEN a continuous sample of the effluent release pathway is being collected with auxiliary sampling equipment IAW SC.CH-AB.ZZ-1102(Q), Response to Inoperable Technical Specification Effluent Monitors and Equipment.
- N/A ♦ IF Sampler Flow Rate Monitor is inoperable,
THEN flow rate is being estimated at least once per 4 hours IAW SC.CH-AB.ZZ-1102(Q), Response to Inoperable Technical Specification Effluent Monitors and Equipment.
- FP ♦ All Chemistry requirements for 12 GDT release to the Plant Vent are satisfied and authorization given.
- Signature: Frank Pillsbury Time 1 hour Ago Date TODAY'S DATE
Chemistry
- FP ♦ **FORWARD** this Radioactive Gaseous Release Form to OS/CRS.

ATTACHMENT 2

(Page 4 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. 2002-012

4.0 RELEASE REVIEW AND APPROVAL (Operations)

4.1 Release Verification:

DS ♦ Calculated Maximum Allowable Release Rate from Section 3.4:
> 50 SCFM.

DS ♦ Calculated Maximum Allowable Release Rate is > 32 SCFM.

4.2 Ventilation Configuration:

Total number of Auxiliary Building Exhaust Fans In Service	Total Number of Fuel Handling Building Exhaust Fans In Service	Pressure Relief In Service (Yes/No)
<u>2</u>	<u>1</u>	<u>NO</u>

4.3 Radiation Monitor Release Data/Source Check/Channel Operable:

Time	Date	Radiation Monitor	Source Check	Monitor Prior to Release
<u>1 hr. Ago</u>	<u>TODAY'S DATE</u>	<u>1R16</u>	<u>OP/INOP</u>	<u>200</u> CPM
<u>N/A</u>		<u>1R41A</u>	<u>OP/INOP</u>	<u>N/A</u> $\mu\text{Ci/cc}$
<u>N/A</u>		<u>1R41D</u>	<u>N/A</u>	<u>N/A</u> $\mu\text{Ci/sec}$

4.4 Release Review

David Smith Time One hour ago Date Today's Date
RO/PO

4.5 All requirements in Section 3.0 and subsections 4.1 thru 4.4 are met to authorize the release of the tank.

OS/CRS Time _____ Date _____

ATTACHMENT 2

(Page 5 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. _____

5.0 RELEASE DATA (Operations)

5.1 In Progress Release Data:

____ ♦ Release started: Time _____ Date _____

____ ♦ Pressure downstream of 1WG38:

1PL8678
PSIG*

* Shall be maintained ≤ 8.0 psig to ensure GDT release rate ≤ 32 SCFM.____ ♦ **PERFORM** an Independent Verification of:____ IV ♦ 1WG38 pressure (1PL8678) ≤ 8.0 psig.____ IV ♦ 1WG41 controller positioned $\leq 100\%$ (corresponds to a maximum gaseous release rate of ≤ 32 SCFM).____ Date _____ Time _____
Independent Verifier

5.2 Meteorological Data.

____ ♦ Meteorological conditions at time of Release.
(El. 33' is preferred channel and should be used if available)

____ ♦ Wind Speed _____ MPH at El. _____'

____ ♦ Wind Direction _____ ° at El. _____'

____ ♦ ΔT (_____ ' - 33 ') _____ C°

ATTACHMENT 2
(Page 6 of 6)

12 GDT RADIOACTIVE GASEOUS RELEASE FORM

RELEASE NO. _____

5.0 RELEASE DATA (continued)

5.3 Final Release Data:

Time	Date	Radiation Monitor	Highest Reading during release	1PIS1037
		1R16	CPM	PSIG
		1R41A	$\mu\text{Ci/cc}$	
		1R41D	$\mu\text{Ci/sec}$	

___ ♦ Plant Vent Flow during Release (average):

_____ SCFM

5.4 12 GDT Radioactive Gaseous Release conducted under supervision of:

_____ Date _____
 (OS/CRS)

ATTACHMENT 3

(Page 1 of 1)

12 GDT RELEASE RATE CALCULATION

Initial Pressure = _____ psig (1PIS1037)

Time _____

Time (Min)	GDT Pressure (psig)	Average Release Rate (psig/min) *	Initials
+10			
+20			
+30			
+40			
+50			
+60			
+70			
+80			
+90			
+100			
+110			
+120			
+130			
+140			
+150			
+160			
+170			
+180			

$$\text{Average Release Rate} = \frac{\text{Initial GDT Pressure} - \text{GDT Pressure}}{\text{Time (Min)}}$$

* Maintain Average Release Rate ≤ 1.0 psig/min by reducing 1WG41 valve position. Average Release Rate at end of GDT release shall NOT exceed 1.0 psig/min (IAW the ODCM).

ATTACHMENT 4

(Page 1 of 1)

PLANT VENT FLOW RATE
DISCHARGE ESTIMATION1.0 ESTIMATED FLOW RATE**NOTE**

If Plant Vent Flow Rate Monitor is inoperable, Plant Vent Flow Rate shall be estimated at least once per four hours (IAW the ODCM).

AUX BLDG EXHAUST FANS IN SERVICE	# FHB EXHAUST FANS IN SERVICE	PRESS RELIEF IN SERVICE	EST. PLANT VENT FLOW RATE
2	1	N	68,540 (SCFM)
2	1	Y	70,940 (SCFM)
2	2	N	78,540 (SCFM)
2	2	Y	80,940 (SCFM)

- 1.1 IF Plant Vent Flow Rate Monitor is inoperable,
THEN RECORD estimated flow rate at least once every 4 hours.

Time	Date	Estimated Plant Vent Flow Rate
		SCFM
		SCFM
		SCFM
		SCFM
		SCFM
		SCFM

ATTACHMENT 5

(Page 1 of 2)

COMPLETION SIGN-OFF SHEET

1.0 COMMENTS:

(Include procedure deficiencies and corrective actions.)

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page.

ATTACHMENT 5

(Page 2 of 2)

COMPLETION SIGN-OFF SHEET

2.0 SIGNATURES:

Print	Initials	Signature	Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

INDEPENDENT VERIFICATION:

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3.0 OS/CRS FINAL REVIEW AND APPROVAL:

This procedure with Attachments 1-5 is reviewed for completeness and accuracy.
All deficiencies, including corrective actions, are clearly recorded in the COMMENTS Section of this attachment.

Signature: _____ Date: _____
(OS/CRS)

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 (G-ESG-1)

TASK NUMBER: 1240020502

JPM NUMBER: GOLF NRC – SROA.4 (ESG-1)

ALTERNATE PATH: ☐ K/A NUMBER: 2.4.38

IMPORTANCE FACTOR: N/A 4.0

APPLICABILITY: RO SRO

EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: Salem ECG

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

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

James T. L...
TRAINING SUPERVISOR
or designee

D. J. ...
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____

ACTUAL TIME CRITICAL COMPLETION: _____

JPM 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 (G-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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

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.

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Emergency Plan

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

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume OS duties	CUE: The regulatory commitment time clock has started		
	1	Reviews ECG to classify event	NOTE: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event as an ALERT and refers to ECG Attachment 2		
	3	Fills out Section A of the Attachment	<ul style="list-style-type: none"> • Unit: 2 • EAL#(s): 3.2.2.b • Time: Current Time • Date: Today's Date • Initials as EC 		

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 (G-ESG-1)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	4	Call communicators to the Control Room	Pages communicators CUE: I am the Primary Communicator		
*	5	Complete the ICMF CUE: For purposes of the examination, if a release occurred during the event then check the "radiological release in progress" block. The OS would have checked that block if the ECG had been done in real time. KEY ATTACHED	<u>Fills out Section II:</u> <ul style="list-style-type: none"> *Checks block for the emergency classification Time: Current Time Date: Today's Date EAL#(s): 3.2.2.b *Description of Event: Brief description capturing the major elements <u>Fills out Section III:</u> <ul style="list-style-type: none"> *Checks block for no release in progress <u>Fills out Section IV:</u> CUE: Wind direction is from 265°, 12 mph <u>Initials for approval to transmit</u>		
*	6	Provide the ICMF to the Primary Communicator (CM1) and direct the CM1 to implement ECG Attachment 6	Provides ICMF to CM1 within 15 minutes of START TIME COMPLETION TIME: _____		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

Key ESG-1

ATTACHMENT 2

ALERT

103
1701
=

0124
Initials

I. EMERGENCY COORDINATOR (EC) LOG SHEET

A. DECLARE AN ALERT AT SALEM UNIT 2

EAL # 3.2.2.6 Declared at Current Time hrs on Today's Date
time date EC

B. NOTIFICATIONS

- | | |
|--|-----------------|
| 1. CALL communicators to the Control Room. | <u> </u> |
| | EC |
| 2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF)
(last page of this attachment). | <u> </u> |
| | EC |
| 3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the
CM1 to implement ECG Attachment 6 . | <u> </u> |
| | EC |
| 4. DIRECT the Secondary Communicator (CM2) to implement ECG
Attachment 8 for an ALERT. | <u> </u> |
| | EC |
| 5. LOCATE the confidential envelope in the Operations Superintendent
(O.S.) Desk marked "Emergency Callout". Remove the card that contains
the Emergency Callout System activation steps; follow the directions.
When complete return to this procedure. | <u> </u> |
| | OS |
| | (EP96-003) |
| 6. IMPLEMENT EPEP 102 for OS, EDO or ERM. | <u> </u> |
| | EC |

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. 2.

II. ☐ THIS IS NOTIFICATION OF AN ALERT WHICH WAS
DECLARED AT CURRENT Time ON TODAY'S DATE.
(Time - 24 HR CLOCK) (DATE)

EAL # 3.2.2 b DESCRIPTION OF EVENT: LARGE BREAK
LOCA - SUBCOOLING IS 0° AS A
RESULT OF RCS LEAKAGE

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

IV. 33 FT. LEVEL WIND DIRECTION (From): 265 WIND SPEED: 12
(From MET Computer) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE:

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

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 (G-ESG-2)

TASK NUMBER: 1240020502

JPM NUMBER: GOLF NRC – SROA.4 (ESG-2)

ALTERNATE PATH: ☐ K/A NUMBER: 2.4.38

IMPORTANCE FACTOR:

N/A	4.0
RO	SRO

APPLICABILITY: EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: Salem ECG

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

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

James V. Kanki
TRAINING SUPERVISOR
or designee

JD Hallmyr
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____

ACTUAL TIME CRITICAL COMPLETION: _____

JPM 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 (G-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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

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.

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Emergency Plan

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

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume OS duties	CUE: The regulatory commitment time clock has started		
	1	Reviews ECG to classify event	NOTE: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event as an ALERT and refers to ECG Attachment 2		
	3	Fills out Section A of the Attachment	<ul style="list-style-type: none"> • Unit:2 • EAL#(s): 3.2.3.a • Time: Current Time • Date: Today's Date • Initials as EC 		

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 (G-ESG-2)

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	4	Call communicators to the Control Room	Pages communicators CUE: I am the Primary Communicator		
*	5	Complete the ICMF CUE: For purposes of the examination, if a release occurred during the event then check the "radiological release in progress" block. The OS would have checked that block if the ECG had been done in real time. KEY ATTACHED	Fills out Section II: <ul style="list-style-type: none"> *Checks block for the emergency classification Time: Current Time Date: Today's Date EAL#(s): 3.2.3.a *Description of Event: Brief description capturing the major elements Fills out Section III: <ul style="list-style-type: none"> *Checks block for no release in progress Fills out Section IV: CUE: Wind direction is from 265°, 12 mph <u>Initials for approval to transmit</u>		
*	6	Provide the ICMF to the Primary Communicator (CM1) and direct the CM1 to implement ECG Attachment 6	Provides ICMF to CM1 within 15 minutes of START TIME COMPLETION TIME: _____		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

Key ESG-2

ATTACHMENT 2

ALERT

I. EMERGENCY COORDINATOR (EC) LOG SHEET

1100
LINE
117301
=

0124
Initials

A. DECLARE AN ALERT AT SALEM UNIT 2

EAL # 3-2-3a Declared at CURRENT Time hrs on TODAY'S DATE
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room.
EC
2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF)
(last page of this attachment).
EC
3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the
CM1 to implement **ECG Attachment 6**.
EC
4. DIRECT the Secondary Communicator (CM2) to implement **ECG**
Attachment 8 for an ALERT.
EC
5. **LOCATE** the confidential envelope in the Operations Superintendent
(O.S.) Desk marked "Emergency Callout". Remove the card that contains
the Emergency Callout System activation steps; follow the directions.
When complete return to this procedure.
(EP96-003) OS
6. IMPLEMENT EPEP 102 for OS, EDO or ERM.
EC

Key ESG-2

ECG
ATT 2
Pg. 2 of 2

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. 2.

II. ☐ THIS IS NOTIFICATION OF AN ALERT WHICH WAS
DECLARED AT Current Time ON TODAY'S DATE.
(Time - 24 HR CLOCK) (DATE)

EAL # 3.2.3 a DESCRIPTION OF EVENT: One CENTRIFUGAL

CHARGING PUMP CANNOT MAINTAIN PZR
LEVEL > 17% AND A STEAM GENERATOR
IMBC RUPTURE HAS OCCURRED

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

IV. 33 FT. LEVEL WIND DIRECTION (From): 265 WIND SPEED: 12
(From MET Computer) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE:

Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42×10^5 $\mu\text{Ci/sec}$ Noble Gas or 2.1×10^1 $\mu\text{Ci/sec}$ I-131.

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 (G-ESG-3)

TASK NUMBER: 1240020502

JPM NUMBER: GOLF NRC – SROA.4 (ESG-3)

ALTERNATE PATH: ☐ **K/A NUMBER:** 2.4.38

IMPORTANCE FACTOR: N/A 4.0
RO SRO

APPLICABILITY:
EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: Salem ECG

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

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

James V. K...
TRAINING SUPERVISOR
or designee

G.D. H...
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____

ACTUAL TIME CRITICAL COMPLETION: _____

JPM PERFORMED BY: _____

GRADE: ☐ SAT ☐ UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____

DATE: _____

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Emergency Plan

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

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume OS duties	CUE: The regulatory commitment time clock has started		
	1	Reviews ECG to classify event	NOTE: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event as an SITE AREA EMERGENCY and refers to ECG Attachment 3		
	3	Fills out Section A of the Attachment	<ul style="list-style-type: none"> • Unit: 2 • EAL#(s): 3.1.1.b and 3.2.1.b • Time: Current Time • Date: Today's Date • Initials as EC 		

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Emergency Plan

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

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	4	Call communicators to the Control Room	Pages communicators CUE: I am the Primary Communicator		
*	5	Complete the ICMF CUE: For purposes of the examination, if a release occurred during the event then check the "radiological release in progress" block. The OS would have checked that block if the ECG had been done in real time. KEY ATTACHED	<u>Fills out Section II:</u> <ul style="list-style-type: none"> *Checks block for the emergency classification Time: Current Time Date: Today's Date EAL#(s): 3.1.1.b and 3.2.1.b *Description of Event: Brief description capturing the major elements <u>Fills out Section III:</u> <ul style="list-style-type: none"> *Checks block for no release in progress <u>Fills out Section IV:</u> CUE: Wind direction is from 265°, 12 mph <u>Initials for approval to transmit</u>		
*	6	Provide the ICMF to the Primary Communicator (CM1) and direct the CM1 to implement ECG Attachment 6	Provides ICMF to CM1 within 15 minutes of START TIME COMPLETION TIME: _____		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

Key ESG-3

ATTACHMENT 3
SITE AREA EMERGENCY

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE A SITE AREA EMERGENCY AT SALEM UNIT 2

EAL #(s) 3.1.1.6, 3.2.1.6, _____

Declared at Current Time hrs on Today's Date
time date

EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. OS
2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF)
(last page of this attachment). EC
3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the
CM1 to implement **ECG Attachment 6**. EC
4. DIRECT the Secondary Communicator (CM2) to implement **ECG
Attachment 8** for a SITE AREA EMERGENCY. EC
5. IF NOT done previously,
LOCATE the confidential envelope in the Operations Superintendent
(O.S.) Desk marked "Emergency Callout". Remove the card that contains
the Emergency Callout System activation steps; follow the directions.
When complete return to this procedure. OS

(EP96-003)
6. IMPLEMENT EPEP 102 for OS, EDO or ERM. EC

INITIAL CONTACT MESSAGE FORM

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

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. _____.

II. ☐ THIS IS NOTIFICATION OF A SITE AREA EMERGENCY WHICH WAS
DECLARED AT CURRENT TIME ON TODAY'S DATE.
(TIME - 24 HOUR CLOCK) (DATE)

EAL #(s) 3.1.1.6, 3.2.1.6

DESCRIPTION OF EVENT: HEAT SINK RED PATH

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

IV. 33 FT. LEVEL WIND DIRECTION (From): 265 WIND SPEED: 12
(From MET Computer) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE:

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

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 (G-ESG-SPARE)

TASK NUMBER: 1240020502

JPM NUMBER: GOLF NRC – SROA.4 (ESG-SPARE)

ALTERNATE PATH: ☐ K/A NUMBER: 2.4.38

IMPORTANCE FACTOR:

N/A	4.0
RO	SRO

APPLICABILITY: EO ☐ RO ☐ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulate (Simulator or Classroom)

REFERENCES: Salem ECG

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

VALIDATED JPM COMPLETION TIME: 12 minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 minutes

APPROVAL:

N/A
BARGAINING UNIT
REPRESENTATIVE

Francis J. K...
TRAINING SUPERVISOR
or designee

AD G...
OPERATIONS MANAGER
or designee

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:

1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____

ACTUAL TIME CRITICAL COMPLETION: _____

JPM 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 (G-ESG-SPARE)

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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

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.

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 (G-ESG-SPARE)**

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Provide candidate with "Tear-off sheet"	Reviews initial conditions and EOP's (as necessary – 5 minute limit prior to starting)		
		*START TIME: _____ *Start time begins when candidate reports he/she is ready to assume OS duties	CUE: The regulatory commitment time clock has started		
	1	Reviews ECG to classify event	NOTE: It is acceptable to use the laminated tables in the simulator, rather than the ECG		
	2	Classifies the event	Determines the classification of the event as an ALERT and refers to ECG Attachment 2		
	3	Fills out Section A of the Attachment	<ul style="list-style-type: none"> • Unit: 2 • EAL#(s): 3.2.2.a • Time: Current Time • Date: Today's Date • Initials as EC 		

OPERATOR TRAINING PROGRAM

NAME: _____

JOB PERFORMANCE MEASURE

DATE: _____

SYSTEM: Emergency Plan

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

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	4	Call communicators to the Control Room	Pages communicators CUE: I am the Primary Communicator		
*	5	Complete the ICMF CUE: For purposes of the examination, if a release occurred during the event then check the "radiological release in progress" block. The OS would have checked that block if the ECG had been done in real time. KEY ATTACHED	<u>Fills out Section II:</u> <ul style="list-style-type: none"> *Checks block for the emergency classification Time: Current Time Date: Today's Date EAL#(s): 3.2.2.a *Description of Event: Brief description capturing the major elements <u>Fills out Section III:</u> <ul style="list-style-type: none"> *Checks block for no release in progress <u>Fills out Section IV:</u> CUE: Wind direction is from 265°, 12 mph <u>Initials for approval to transmit</u>		
*	6	Provide the ICMF to the Primary Communicator (CM1) and direct the CM1 to implement ECG Attachment 6	Provides ICMF to CM1 within 15 minutes of START TIME COMPLETION TIME: _____		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

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 Operations Superintendent (OS). Inform the Evaluator when you are ready to assume OS duties. You may continue to reference the procedures or to look at the control board but "the clock will be running."

INITIATING CUE:

You are the Duty OS. Classify the event, complete the Attachment and provide an ICMF to the Primary Communicator within the required time limit.

KEY ESB-Space

ATTACHMENT 2

ALERT

ECG
CONTROL

#

0124
Initials

I. EMERGENCY COORDINATOR (EC) LOG SHEET

A. DECLARE AN ALERT AT SALEM UNIT 2

EAL # 3.2.2 a Declared at Current Time hrs on Today's Date
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. EC
2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF)
(last page of this attachment). EC
3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the
CM1 to implement **ECG Attachment 6**. EC
4. DIRECT the Secondary Communicator (CM2) to implement **ECG
Attachment 8** for an ALERT. EC
5. LOCATE the confidential envelope in the Operations Superintendent
(O.S.) Desk marked "Emergency Callout". Remove the card that contains
the Emergency Callout System activation steps; follow the directions.
When complete return to this procedure.
(EP96-003) OS
6. IMPLEMENT EPEP 102 for OS, EDO or ERM. EC

Key ESG-SPARE

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. 2.

II. ☐ THIS IS NOTIFICATION OF AN ALERT WHICH WAS
DECLARED AT Current Time ON TODAY'S DATE.
(Time - 24 HR CLOCK) (DATE)

EAL # 3.2.2 a DESCRIPTION OF EVENT: One Centrifugal
Charging Pump CANNOT MAINTAIN PZR Level
>17%

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

IV. 33 FT. LEVEL WIND DIRECTION (From): 265 WIND SPEED: 12
(From MET Computer) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE:

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