

FINAL SUBMITTAL

**SEQUOYAH EXAM
50-327, 328/2000-301**

AUGUST 7 - 21, 2000

FINAL AS-GIVEN

OPERATING TEST

Facility: <u>Sequoyah</u>		Date of Examination: <u>8/14 - 17/00</u>
Examination Level (circle one): RO		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct Of Operations	JPM # NRC-2000-4 - Calculate Subcooling Margin (Neither SPDS nor Subcooling Margin Monitors are available.) (Perform in MCR)
		Q1 - Shutdown margin basis.
		Q2 - Mid-Loop or Reduced RCS inventory.
A.2	Equipment Control	Q1 - Equipment Configuration Control.
		Q2 - Minor differences between component labels nomenclature and the component description listed on a clearance.
A.3	Radiation Control	JPM # NRC-2000-5 - Perform a Shielding Calculation.
A.4	Emergency Plan	JPM # 43-1 - Perform Reactor Coolant System Water Inventory (0-SI-068-137.0). (Perform in simulator)

**** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).**

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Innitial Issue	N	07\18\00	All	Phillip Gass

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. Initialize the simulator in IC-50. Place covers over the Saturation Monitor Displays.
5. Supply Examinee with a Steam Table and hand held calculator.

Validation Time: CR. 15 mins **Local**

Tools/Equipment/Procedures Needed:

References:

	Reference	Title	Rev No.
1.	Steam Tables	Combustion Engineering Steam Tables	0

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The Unit has tripped from 100% power and all system have responded normally.
The ICS computers and Saturation Monitor Displays were out of service just before the trip and have not been returned to service.

INITIATING CUES:

You are the Unit RO and the SM has directed you to determine the amount of Subcooling in the RCS if any. Report your findings to the SM when your calculations are complete.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator obtains a copy of Steam Tables and a Hand held calculator.</p> <p><u>NOTE:</u> Calculator and Steam Tables are located on Simulator Desk.</p> <p><u>NOTE:</u> If JPM is performed in the Main Control Room, the examiner should provide a Calculator and Steam Tables.</p> <p><u>STANDARD:</u> Operator locates Steam Tables and a Hand held calculator.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> Obtain RCS Hot Leg Temperature.</p> <p><u>Cue:</u> If JPM is performed in the Main Control Room, Examiner will give the examinee a temperature of 550 degrees F.</p> <p><u>STANDARD:</u> Operator Observes RCS Hot Leg Temperature Indicators marked as PAM and determines HL Temperature is approximately 550 degrees F. (1-TI-68-1, 1-TI-68-24, 1-TI-68-43, 1-TI-68-65)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 3.:</u> Obtain RCS Pressure.</p> <p><u>Cue:</u> If JPM is performed in the Main Control Room, Examiner will give the examinee a pressure of 2150 psig.</p> <p><u>STANDARD:</u> Operator Observes RCS Pressure Indicators marked as PAM and determines RCS Pressure is approximately 2150 PSIG. (1-PI-68-66A, 1-PI-68-62, 1-PI-68-69)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> Determine Saturation Temperature for RCS Pressure of 2150 psig.</p> <p><u>STANDARD:</u> Operator refers to Steam Tables and determines Saturation temperature for 2150 psig is approximately 645 degrees.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 5.:</u>	Determine subcooling margin for given parameters.	___ SAT
NOTE:	<i>Subcooling calculation results in~ 95 degrees F subcooled. (90 to 100 degrees will be acceptable if no cues for temperature or pressure are given by the examiner.)</i>	___ UNSAT
<u>STANDARD:</u>	Operator determines subcooling is approximately 95 degrees F. based on calculation from given information.	Critical Step Stop Time___

RO Exam
A.1

Question 1:

What are the most restrictive conditions on which shutdown margin is based?

Answer 1:

Shutdown margin is based on the following most restrictive conditions:

EOL, 547°F T_{avg} , with an uncontrolled RCS cooldown due to a steamline break event.

(This event requires 1600 pcm of SDM reactivity to ensure control of the transient. Shutdown margin ensures reactor shutdown from all operating conditions.)

Enabling Objectives: Conditions and standards of the Terminal Objective are implied - objective #2 - "Describe the most restrictive conditions on which shutdown margin is based:" OPL271C071 Revision 3

RO Exam
A.2

Question 1:

- a. The configuration control for the Letdown System has been relaxed. Under what circumstances would an operator log book or computer entry be required to document this relaxed condition?
- b. List the approved field storage locations for fuses.

Answer 1:

- a. When the configuration control was relaxed but was not under the control of the clearance program.
- b.
 - 1. Fuse storage cabinet in the control room
 - 2. At the NMUDI (for local use only)

Ref. OPL271C212, SSP12.2 (now SSP-10.1), Objective A and OBJ. 8
SPP-10.1, pp. 6-7
K/A G2.2.14 (CFR 45.13)

RO Exam
A.2

Question 2: (No References)

You are the Unit 2 Operator at the Controls, an AUO hanging a clearance on a Unit 2 charging pump calls the control room and tells you that he has identified a minor difference between component labels nomenclature and the component description listed on a clearance he is hanging. After a discussion with the AUO, it is clear that the correct component can be positively identified. According to SPP-10.2, what are the AUO's required actions?

Answer 2:

3.2 General Requirements, Section HH of SPP-10.2

Personnel placing a clearance shall ensure that tags are placed on the correct components. Minor differences between component labels nomenclature and the component description listed on the clearance do not invalidate the clearance as long as the component can be positively identified. **Labeling discrepancies should be processed in accordance with site procedures.** There is no reason to stop the clearance.

The AUO should complete hanging the clearance and then the labeling discrepancies should be processed in accordance with site procedures.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # NRC-2000-5

Perform A Shielding Calculation

PREPARED/ REVISED BY:	_____	Date/
VALIDATED BY:	* _____	Date/
APPROVED BY:	_____	Date/
	(Operations Training Manager)	
CONCURRED:	** _____	Date/
	(Operations Representative)	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTE D	PREPARED/ REVISED BY:
0	Initial Issue	N	07/17/00	All	Phillip Gass

**V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.**

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator in IC-10 and leave in FREEZE. Simulator is NOT required to complete this JPM.
4. Provide Operator with a calculator and equation sheet if required.
5. The simulator is not needed to complete this JPM.

Validation Time: CR. 15 mins**Local** _____**Tools/Equipment/Procedures Needed:****References:**

	Reference	Title	Rev No.
A.	TI-28	Plant Curve Book	

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READ TO OPERATOR**DIRECTIONS TO TRAINEE:**

I will explain the initial conditions and state the task to be performed. All steps of this JPM shall be simulated. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return, the handout sheet I provided you.

INITIAL CONDITIONS:

You have been directed to work in an area where the Gamma Radiation intensity is 10,000 Rad/Hr. with no shielding. You cannot work in the area unless the field is reduced to no greater than 500 Rad/Hr.

INITIATING CUES:

You are to calculate the minimum number of HVLs required to reduce the Gamma level to no greater than 500 Rad/hr.

You are also to calculate the minimum number of TVLs required to reduce the Gamma level to no greater than 500 Rad/hr.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 1.: Operator Understands the definition of HVL. That thickness of a specified substance which, when introduced into the path of a given beam of radiation, reduces the exposure rate to one-half of its original value. Operator determines the number of HVLs based on given intensity of 10,000 Rad/hr.</p> <p>NOTE: 1 HVL = 5000 Rad/hr 2 HVL = 2500 Rad/hr 3 HVL = 1250 Rad/hr 4 HVL = 625 Rad/hr 5 HVL = 312 Rad/hr</p> <p>NOTE: Examinee may use TI-28 to locate intensity equation. If Examinee uses equation then cue him/her that lead will be used as shielding and the "μ", the total linear attenuation coefficient for lead is 0.772 cm^{-1}</p> <p>STANDARD: Operator determines 5 HVLs are required to reduce intensity to less than 500 Rad/hr.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p> <p>Critical Step</p>
<p>STEP 2.: Operator Understands the definition of TVL. That thickness of a specified substance which, when introduced into the path of a given beam of radiation, reduces the exposure rate to one-tenth of its original value. Operator determines the number of TVLs based on given intensity of 10,000 Rad/hr.</p> <p>NOTE: 1 TVI = 1000 Rad/hr 2 TVL = 100 Rad/hr</p> <p>NOTE: Examinee may use TI-28 to locate intensity equation. If Examinee uses equation then cue him/her that lead will be used as shielding and the "μ", the total linear attenuation coefficient for lead is 0.772 cm^{-1}</p> <p>STANDARD: Operator determines 2 TVLs are required to reduce intensity to less than 500 Rad/hr.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p> <p>Stop Time___</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>THIS BLOCK FOR USE AND REFERENCE BY EXAMINER</p> $I_{\text{shielded}} = I_{\text{unshielded}} (1/2)^{\text{\#HVL}} (1/10)^{\text{\#TVL}}$ <p>where $\text{\#HVL} = \frac{\text{Shield Thickness (cm)}}{\text{HVL (cm)}}$</p> <p>and $\text{\#TVL} = \frac{\text{Shield Thickness (cm)}}{\text{TVL (cm)}}$</p> <p>Shielding Equation</p> $I = I_0 e^{-\mu x}$ <p>Where:</p> <p>I - the exposure rate with the shield (Rad/hr)</p> <p>I_0 - the unshielded exposure rate (Rad/hr)</p> <p>x - the shield thickness (cm)</p> <p>μ - the total linear attenuation coefficient (cm^{-1}).</p>	

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # NRC 43-1

PERFORM REACTOR COOLANT SYSTEM WATER INVENTORY (137.0)

PREPARED/ REVISED BY:	_____	Date/
VALIDATED BY:	* _____	Date/
APPROVED BY:	_____	Date/
	(Operations Training Manager)	
CONCURRED:	** _____	Date/
	(Operations Representative)	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

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REVISION/USAGE LOG					
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0	Initial Issue	Y	07/18/00	All	Phillip Gass

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments.
3. Initialize simulator in IC-10, steady state, to perform JPM.
4. Ensure Plant Computer system is available.
5. A copy of SI-137.0 and computer generated data sheet must be provided to the operator for task performance.
6. CUEs will be supplied to give required information after the computer screen is entered.

Validation Time: CR. 15 mins **Local**

Tools/Equipment/Procedures Needed:

0-SI-OPS-068-137.0 Reactor Coolant System Water Inventory

References:

	Reference	Title	Rev No.
1.	0-SI-OPS-068-137.0	Reactor Coolant System Water Inventory	4

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be simulated for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The Unit is in MODE 1 and the Plant Computer is operable.
The On shift SRO suspects RCS leakage may be increasing.

INITIATING CUES:

You are the Unit 1 CRO and have been directed, by the Unit 1 SRO, to conduct a special performance of SI-137.0 using the plant computer. You are to inform the SRO of the results when you have finished.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 1:</u>	Obtain a working copy of the SI-137.0 package from the 24 hour TIC.	___ SAT
	<u>Cue:</u> <i>Provide the operator with a copy of SI-137.0 when request is made.</i>	___ UNSAT
	<u>STANDARD:</u> Operator dispatches someone to the 24 hour TIC to obtain a copy of the SI.	Start Time ___
<u>STEP 2:</u>	<u>NOTE:</u> JPM follows sections 4.0 and 6.2 of SI 137.0	___ SAT
	ENSURE Instruction to be used is a copy of the effective version, and Data Package Cover Sheet is attached.	___ UNSAT
	<u>Cue:</u> <i>Acknowledge operator has a valid and current package.</i>	
<u>STANDARD:</u>	Operator makes sure he is using the correct version and has a valid package.	
<u>STEP 3:</u>	Step 4.2 [1] & [2] may be N/A.	___ SAT
	<u>Cue:</u> <i>No Measuring or Test Equipment is required.</i>	___ UNSAT
	<u>STANDARD:</u> Operator N/A this step.	
<u>STEP 4:</u>	ENSURE reactor power and RCS average temperature (T-avg) are stable and have varied less than $\pm 2\%$ and $\pm 1^\circ\text{F}$, respectively, during the calculation test interval.	___ SAT
	<u>NOTE:</u> Operator should confirm the importance of maintaining RCS power and temperature stable for the time period of the test.	___ UNSAT
	<u>STANDARD:</u> Operator understands to maintain stable conditions during the test.	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5:</u> NOTIFY SRO of test performance.</p> <p><u>Cue:</u> <i>Acknowledge test will be performed.</i></p> <p><u>STANDARD:</u> Operator notifies the SRO of test performance (procedure step 4.4 [1]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6:</u> MAINTAIN plant conditions as stable as possible (minimum of 2 hours).</p> <p><u>STANDARD:</u> Operator discusses importance of maintaining Power and Temperature stable. (Procedure step 6.2 [1])</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7:</u> REQUEST from Chemistry Lab the following: SG1 thru 4 leakage in GPD.</p> <p><u>Cue:</u> <i>[a] SG 1= 3.2 GPD SG 2=2.2 GPD SG 3=2.3 GPD SG 4= 4.8 GPD Times for SI-50 and SI 137.5 are 5 Hours earlier. [b] NO samples taken – Other Sources = 0 GPM</i></p> <p><u>STANDARD:</u> Operator request SG leakage and enters information at step 6.2 [2] [a] and [b]. Total SG leakage = .0041 GPM.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 8:</u> IF volume from any source (chemical addition, sampling, or make-up) cannot be determined from the selected performance period, THEN</p> <p><u>Cue:</u> <i>Inform operator this step may be N/A.</i></p> <p><u>STANDARD:</u> Operator determines step [3] [a] and [b] may be N/A.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9:</u> IF pump down of the RCDT is a frequent occurrence, THEN</p> <p><u>Cue:</u> <i>Inform operator this step may be N/A.</i></p> <p><u>STANDARD:</u> Operator determines step [4] [a] and [b] may be N/A.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 10:</u> IF in-leakage to the CLA, THEN</p> <p><u>Cue:</u> <i>Inform operator initial value is 7680 gal. Final Value is 7920 gal. For CLA #3. Enter 7680 initial and 7680 final for the other three CLAs.</i></p> <p><u>STANDARD:</u> Operator records CLA volumes on Appendix "C" for later entry into computer.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11:</u> INITIATE RCS Leakage Program using the Plant Computer by performing the following:</p> <p><u>NOTE:</u> Operators should use Plant Computer on Simulator to complete step 6.2 [6] [a] thru [d]. This will be completed in steps 12 thru 14 of this JPM.</p> <p><u>STANDARD:</u> Operator locates proper page on plant computer.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12:</u> SELECT NSSS & BOP menu on monitor.</p> <p><u>STANDARD:</u> Operator places mouse cursor on NSSS & BOP button and presses left mouse button. Screen updates to OTSC Menu. (Step 6.2 [a])</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 13:</u> SELECT SI-137.0, RCS leakage screen on monitor.</p> <p><u>STANDARD:</u> Operator places mouse cursor on SI-137.0 RCS Leakage button and presses left mouse button. Screen updates to SI-137 Data Screen. (Step 6.2 [b])</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 14:</u> ENTER START time in Plant Computer.</p> <p><u>Cue:</u> <i>Enter Start time as 0800</i></p> <p><u>STANDARD:</u> Operator enters start time as 0800 in the START TIME block. (Step 6.2 [6] [c]).</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 15: ENTER STOP time in Plant Computer.</p> <p>Cue: <i>Enter Stop time as 1000</i></p> <p>STANDARD: Operator enters stop time as 1000 in the STOP TIME block. (Step 6.2 [6] [d]).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 16: MANUALLY enter the following:</p> <p>NOTE: Operators should use Plant Computer on Simulator to complete step 6.2 [7] [a] thru [d]. This will be completed in steps 16 thru 18 of this JPM.</p> <p>STANDARD: Operator locates proper Data Blocks on SI-137.0 Data screen.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 17: MANUALLY enter the following:</p> <p> (a) SG leakages from Chemistry.</p> <p>NOTE: Operator will enter SG leakage for each SG as recorded previously.</p> <p>STANDARD: Operator correctly enters SG leakage for each SG. (Step 6.2 [7] [a]).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 18: MANUALLY enter the following:</p> <p> (b) CLA initial and final volumes from Appendix C (if required).</p> <p>NOTE: Operator will not enter values here since leakage has been determined to be 0 GPM for each CLA</p> <p>STANDARD: Operator Verifies CLA values for each CLA. (Step 6.2 [7] [b]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 19:</u> MANUALLY enter the following:</p> <p> [c] CCPIT/HUT leakage (N/A if not required).</p> <p><u>Cue:</u> <i>Inform Operator that this value has been determined as 1 GPM.</i></p> <p><u>STANDARD:</u> Operator places N/A on this step. (Step 6.2 [7] [c]).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 20:</u> MANUALLY enter the following:</p> <p> [d] Other sources, such as Appendix B or Chemistry sampling (N/A if not required).</p> <p><u>Cue:</u> <i>Inform Operator that this step is N/A</i></p> <p><u>STANDARD:</u> Operator places N/A on this step. (Step 6.2 [7] [d]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21:</u> INITIATE execute for calculation results.</p> <p><u>STANDARD:</u> Operator places cursor on EXECUTE button and presses left mouse button.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 22:</u> IF calculation inputs are invalid, THEN</p> <p> [a] INITIATE MANUAL function to correct inputs.</p> <p> [b] INITIATE execute function for calculated results.</p> <p><u>NOTE:</u> IF Operator identifies ANY incorrect data input THEN complete step [9] [a] and [b].</p> <p><u>STANDARD:</u> Operator verifies calculation inputs are correct and continues with performance of SI-137.0. (Step 6.2 [9] [a] and [b]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 23:</u> PRINT a hard copy of the results..</p> <p><u>NOTE:</u> Hard copy will be unavailable on simulator. Examiner will hand the attached RCS Leakage Rate Report to Operator for interpretation.</p> <p><u>STANDARD:</u> Operator prints a hard copy of the results. (Step 6.2 [10]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24:</u> ATTACH hard copy program output (printout) to surveillance procedure package.</p> <p><u>STANDARD:</u> Operator request hard copy of RCS Leakage Rate Report. Operator will then review RCS Leakage Rate Report to complete the following steps. (Step 6.2 [11]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 25:</u> WHEN data collection has been completed, THEN CHECK appropriate boxes to indicate whether data is acceptable:</p> <p><u>NOTE:</u> Operator must evaluate the RCS Leakage Report in order to complete Step 6.2 [12] A thru D. Steps 24 thru 27 of this JPM address these checks.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Rate Report and checks appropriate Boxes in Step [12]. (Step 6.2 [12]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 26:</u> WHEN data collection has been completed, THEN CHECK appropriate boxes to indicate whether data is acceptable:</p> <p> A. Was data collection performed over a minimum of two hours.</p> <p><u>STANDARD:</u> Operator determines sample time was 2 Hours and checks Box as YES (Step 6.2 [12] A).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 27:</u> WHEN data collection has been completed, THEN CHECK appropriate boxes to indicate whether data is acceptable:</p> <p>B. Were sampling and chemical additions to the RCS stopped during data collection or have been accounted for in the plant computer calculations?</p> <p><u>Cue:</u> <i>Inform Operator that sampling and chemical were stopped during data collection.</i></p> <p><u>STANDARD:</u> Operator determines sampling and chemical additions were stopped during data collection and checks Box as YES (Step 6.2 [12] B).</p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 28:</u> WHEN data collection has been completed, THEN CHECK appropriate boxes to indicate whether data is acceptable:</p> <p>C. Have all pumps, coolers, valve alignments, etc. which could affect RCS leakage results remained constant during data collection, except where makeup was accounted for by the plant computer?</p> <p><u>Cue:</u> <i>Inform Operator that this statement can be answered as YES.</i></p> <p><u>STANDARD:</u> Operator determines the answer to this question is YES and checks Box as YES (Step 6.2 [12] C).</p>	<p>___ SAT ___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 29:</u> WHEN data collection has been completed, THEN CHECK appropriate boxes to indicate whether data is acceptable:</p> <p>D. Have the CVCS and RCS remained nearly constant (i.e., <u>no</u> diversion of letdown to holdup tanks, <u>no</u> changes in CVCS demineralizer lineup, <u>no</u> changes to filter lineups, and no RCS make-up from any source, except where makeup was accounted for by the plant computer?</p> <p><u>Cue:</u> <i>Inform Operator that this statement can be answered as YES.</i></p> <p><u>STANDARD:</u> Operator determines the answer to this question is YES and checks Box as YES (Step 6.2 [12] D).</p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 30:</u> IF any box in step [12] is checked "NO", THEN</p> <p><u>STANDARD:</u> Operator determines that no box in step [12] is checked NO and continues to the next step. (Step 6.2 [13]).</p>	<p>___ SAT ___ UNSAT</p>
<p><u>STEP 31:</u> IF unidentified leakage is more negative than -0.10 GPM, THEN</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Rate Report and determines RCS Unidentified Leakage is greater than -0.10 GPM. (Operator continues to the next step. Step 6.2 [14]).</p>	<p>___ SAT ___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 32:</u> IF an unidentified leakage more positive than -0.10 GPM could <u>not</u> be obtained, OR</p> <p>IF four consecutive performances of this Instruction have resulted in a negative value of unidentified leakage, THEN</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Rate Report and determines RCS Unidentified Leakage is greater than -0.10 GPM and only ONE performance of this instruction has been performed. (Operator continues to the next step. (Step 6.2 [15]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 33:</u> CHECK appropriate box to indicate whether the following acceptance criteria were satisfied.</p> <p><u>NOTE:</u> Operator must evaluate the RCS Leakage Report in order to complete check boxes. Steps 32 thru 35 of this JPM complete this step.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report to determine answers to statements in step 6.2 [16]. (Step 6.2 [16]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 34:</u> The maximum individual SG leakage is less than or equal to 150 GPD.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report and checks Box as YES. (Step 6.2 [16]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 35:</u> The total identified leakage is less than or equal to 10.0 GPM.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report and checks Box as NO. (Step 6.2 [16]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 36:</u> The total unidentified leakage is less than or equal to 1.0 GPM.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report and checks Box as YES. (Step 6.2 [16]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 37:</u> The maximum individual SG leakage is less than or equal to 128 GPD.</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report and checks Box as YES. (Step 6.2 [16]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 38:</u> IF any of the Technical Specification acceptance criteria stated in step [16] is <u>NOT</u> satisfied, THEN</p> <p> [a] NOTIFY SM that RCS leakage exceeds limit and action requirement (b) of LCO 3.4.6.2 must be satisfied.</p> <p> [b] REFER to EPIP-1 for REP implementation.</p> <p><u>STANDARD:</u> Operator notifies SM that Technical Specification limits are exceeded and that EPIP-1 must be entered for REP implementation. (Step 6.2 [17]).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 39:</u> IF the administrative acceptance criteria stated in step [16] is <u>NOT</u> satisfied, THEN</p> <p><u>STANDARD:</u> Operator reviews RCS Leakage Report and determines Administrative Limits are acceptable. (Step 6.2 [18]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 40:</u> WHEN all data collection has been completed, THEN notify Lab.</p> <p><u>STANDARD:</u> Operator notifies Chemistry Lab that RCS sampling/chemical additions may be resumed, as necessary. (Step 6.2 [19]).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 41:</u> NOTIFY Unit SRO that test has been completed.</p> <p><u>STANDARD:</u> Operator notifies Unit SRO that test has been completed. (Step 7.0 [1]).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time ___</p>

TVA Sequoyah Nuclear Plant, Unit 1 - RCS Leakage Rate Report (Page 1 of 2)
SQN Surveillance Instruction
SI-OPS-068-137.0

Leakage Rate Report File Created at: Today 10:41:06
RCS Leakage Rate Test Started at: Today 08:00
RCS Leakage Rate Test Ended at: Today 10:00

RCS LEAKAGE INPUT SUMMARY:

.....

Parameter	Input PID	Initial Value	Final Value	Change
*****	*****	*****	*****	*****
Makeup Flow	1U0100	36.4	1262.8	1212.12 GAL
VCT Level	1L0112MA	23.4	23.5	-0.15 PCT
PZR Level	1U0483MA	58.1	58.0	0.07 PCT
RCS Pressure	1U0482MA	2239.7	2239.3	0.32 PSIG
RCS Temperature	1U0484MA	577.7	577.7	-0.06 DEGF
Reactor Power	1u1150	99.6	99.7	-0.02 PCT
PRT Level	1L0485MA	70.8	70.8	-0.02 PCT
RCDT Level	1L2400MA	48.1	49.2	-1.10 PCT

SG1 Leakage	Operator Entered	3.20	3.20	3.20 GPD
SG2 Leakage	Operator Entered	2.20	2.20	2.20 GPD
SG3 Leakage	Operator Entered	2.30	2.30	2.30 GPD
SG4 Leakage	Operator Entered	4.80	4.80	4.80 GPD
CLA1 Level	Operator Entered	0.00	0.00	0.00 GAL
CLA2 Level	Operator Entered	0.00	0.00	0.00 GAL
CLA3 Level	Operator Entered	2.00	2.00	2.00 GAL
CLA4 Level	Operator Entered	0.00	0.00	0.00 GAL
CCPIT/HUT	Operator Entered	1.00	1.00	1.00 GPM
Other Leakage	Operator Entered	0.00	0.00	0.00 GPM

TVA Sequoyah Nuclear Plant, Unit 1 - RCS Leakage Rate Report (Page 2 of 2)

Leakage Rate Report File Created at: Today 11:41:06
RCS Leakage Rate Test Started at: Today 08:00
RCS Leakage Rate Test Ended at: Today 10:00

RCS LEAKAGE CALCULATION RESULT SUMMARY:

.....

Total RCS Leakage

Makeup Rate	10.22	GPM
Volume Control Tank (VCT) Leakage Rate	0.52	GPM
Pressurizer (PZR) Leakage Rate	0.04	GPM
RCS Temperature Correction	0.07	GPM

RCS Total Leakage Rate 10.85 GPM

Identified Leakage Rate

Pressurizer Relief Tank (PRT)	3.90	GPM
Reactor Coolant Drain Tank (RCDT)	3.73	GPM
Total Steam Generator (SG)	0.01	GPM
Cold Leg Accumulator (CLA)	2.00	GPM
Centrifugal Charging Pump Injection Tank (CCPIT/HUT)	1.00	GPM
Other Identified Leakage	0.00	GPM

Total Identified Leakage Rate (MKP+VCT+PZR+TEMP CORR) 10.64 GPM

Unidentified Leakage Path (Total - Identified) 0.21 GPM

Calculations Performed By: _____ \ _____
Date

Calculations Reviewed By: _____ \ _____
Date

Facility: <u>Sequoyah</u>		Date of Examination: <u>8/7 - 8/11/00</u>
Examination Level: SRO (Crews 1-3)		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct Of Operations	JPM # NRC-2000-3 - Without SPDS available, determine SPDS status using a static simulator set.
		Q1 -10 CFR 19, Workers Rights
		Q2 - Departure from the facility license or technical specifications
A.2	Equipment Control	Q1 - Describe the method for verifying the position of locked valves, both initially and subsequently. (When they are first locked and when they are verified locked)
		Q2 - Equipment Configuration Control
A.3	Radiation Control	Q1 - Methods for identifying steam generator tube ruptures and leaks in E-3 and AOP-R.01.
		Q2 - Emergency Exposure Guidance
A.4	Emergency Plan	JPM # 120 - Classify a Loss of Shutdown Cooling event and perform REP actions.

Facility: <u>Sequoyah</u>		Date of Examination: <u>8/7 - 8/11/00</u>
Examination Level: SRO (Crew 4)		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct Of Operations	JPM # NRC-2000-3 - Without SPDS available, determine SPDS status using a static simulator set.
		Q1 -10 CFR 19, Workers Rights
		Q2 - Departure from the facility license or technical specifications
A.2	Equipment Control	Q1 - Describe the method for verifying the position of locked valves, both initially and subsequently. (When they are first locked and when they are verified locked)
		Q2 -Equipment Configuration Control
A.3	Radiation Control	Q1 - Methods for identifying steam generator tube ruptures and leaks in E-3 and AOP-R.01.
		Q2 - Emergency Exposure Guidance
A.4	Emergency Plan	Classify a Loss of Heat Sink event and perform REP actions.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # NRC-2000-3

Determine SPDS Status Without ICS Computer Available

**PREPARED/
REVISED BY:** _____ **Date/** _____

VALIDATED BY: * _____ **Date/** _____

APPROVED BY: _____ **Date/** _____
(Operations Training Manager)

CONCURRED: ** _____ **Date/** _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

<p style="text-align: center;">NUCLEAR TRAINING</p> <p style="text-align: center;">REVISION/USAGE LOG</p>					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTE D	PREPARED/ REVISED BY:
0	Initial Issue	N	07/17/00	All	Phillip Gass

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator in IC-95 and leave in FREEZE
4. Turn OFF OR Dim all ICS computer terminals. Place cover over the indicator for 1-XX-92-5041.

Validation Time: CR. 15 mins **Local** _____

Tools/Equipment/Procedures Needed:

References:

	Reference	Title	Rev No.
A.	FR-0	Status Trees	11

=====

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions and state the task to be performed. All steps of this JPM shall be simulated. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return, the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 has experienced a Reactor Trip and SI from 100% Power. It has been 25 minutes since SI was initiated. The Source range monitors have reinstated.
The crew implemented E-0 and completed it through step 21 then transitioned to E-1 "Loss of Reactor or Secondary Coolant."
The ICS Plant Computer is NOT available. Also, the Rate Comparator Drawer, 1-XX-92-5041 was out of service when the accident began.

INITIATING CUES:

You have been directed to MONITOR the Status Tress and report the priority of each FR to the SM.

NOTE: The parameters indicated by this simulator setup are specifically for this JPM and the examinee must not assume they are a result of any accident which could occur at the plant.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator retrieves a copy of FR-0 from procedure drawer</p> <p><u>STANDARD:</u> Operator refers to FR-0 and begins monitoring Status Trees at FR-S.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p><u>STEP 2.:</u> Operator Begins at entry Block of FR-S. Monitors NIS Power Range Less Than 5%.</p> <p><u>STANDARD:</u> Operator determines Power Range Less than 5% by monitoring 1-XI-92-5005C, 1-XI-92-5006C, 1-XI-92-5007C, 1-XI-92-5008C. Answers this Block as YES.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> Operator Monitors Intermediate SUR Zero OR Negative.</p> <p><u>STANDARD:</u> Operator determines Intermediate SUR Zero OR Negative by monitoring 1-XI-95-5011C and 1-XI-95-5011D. Answers this block as YES.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> Operator determines Source Range is Reinstated.</p> <p><u>STANDARD:</u> Operator determines Source Range is Reinstated from indications and turnover sheet. Answers this block as YES.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.:</u> Operator Monitors Source Range SUR Zero OR Negative.</p> <p><u>STANDARD:</u> Operator determines Source Range SUR IS NOT Zero OR Negative by monitoring 1-XI-95-5011A and 1-XI-95-5011B. Answers this block as NO and determines a YELLOW Path Exists.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 6.:</u>	Operator Begins at entry Block of FR-C. Monitors Core Exit T/Cs Less Than 1200 degrees F.	___ SAT
	<u>STANDARD:</u> Operator determines Core Exit T/Cs Less Than 1200 degrees F using 1-XI-94-101 and/or 1-XI-94-102. Answers this block as YES.	___ UNSAT
<u>STEP 7.:</u>	Operator Monitors RCS Subcooling Based on core exit T/Cs Greater than 40 degrees F.	___ SAT
	<u>STANDARD:</u> Operator determines RCS Subcooling Based on core exit T/Cs IS NOT Greater than 40 degrees F using F using 1-XI-94-101 and/or 1-XI-94-102. Answers this block as NO.	___ UNSAT
<u>STEP 8.:</u>	Operator Monitors at least one RCP Running	___ SAT
	<u>STANDARD:</u> Operator determines NO RCPs Running by monitoring control board. Answers this block as NO.	___ UNSAT
<u>STEP 9.:</u>	Operator Monitors Core Exit T/Cs Less Than 700 degrees F.	___ SAT
	<u>STANDARD:</u> Operator determines Core Exit T/Cs Less Than 700 degrees F using 1-XI-94-101 and/or 1-XI-94-102. Answers this block as YES.	___ UNSAT
<u>STEP 10.:</u>	Operator Monitors RVLIS lower range greater than 40%.	___ SAT
	<u>STANDARD:</u> Operator determines RVLIS lower range greater than 40%. Answers this Block as YES and determines a YELLOW path exists.	___ UNSAT Critical Step

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 11.:</u>	Operator Begins at entry Block of FR-H. Monitors Narrow range level in at least one S/G greater than 10% [25% ADV].	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Narrow range level in at least one S/G greater than 10% [25% ADV] using narrow range PAM level indicators for each S/G. Answers this block as NO.	
<u>STEP 12.:</u>	Operator Monitors Total feedwater flow to S/Gs greater than 440 GPM.	___ SAT ___ UNSAT
<u>STANDARD:</u> as	Operator determines Total feedwater flow to S/Gs greater than 440 GPM using AFW PAM flow indicators for all S/Gs. Answers this block YES.	
<u>STEP 13.:</u>	Operator Monitors Pressure in all S/Gs less than 1117 PSIG.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Pressure in all S/Gs less than 1117 PSIG. Answers this block as YES	
<u>STEP 14.:</u>	Operator Monitors Narrow range level in all S/Gs less than 81%.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Narrow range level in all S/Gs less than 81% using S/G narrow rang level indicators for all S/Gs. Answers this block as YES	
<u>STEP 15.:</u>	Operator Monitors Pressure in all S/Gs less than 1064 PSIG.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Pressure in all S/Gs less than 1064 PSIG. Answers this block as YES	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 16.:</u>	Operator Monitors Narrow range level in all S/Gs less than 10% [25% ADV].	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Narrow range level in all S/Gs less than 10% [25% ADV] using S/G narrow range level indicators for all S/Gs. Answers this block as NO and determines a YELLOW path exists.	Critical Step
<u>STEP 17.:</u>	Operator Begins at entry Block of FR-P. Monitors All Tcolds dropped less than 100 degrees F in last 60 minutes	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines All Tcolds dropped GREATER than 100 degrees F in last 60 minutes using Tcold temperature indicators identified as PAM. Answers this block as NO.	
<u>STEP 18.:</u>	Operator Monitors RCS pressure vs T-cold points to right of limit A on curve 3.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines All Tcold points are NOT to the RIGHT of limit A on curve 3. Answers this block as NO and determines a RED path exists.	Critical Step
<u>STEP 19.:</u>	Operator Begins at entry Block of FR-Z. Monitors Containment pressure less than 12.0 psid.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Containment pressure GREATER than 12.0 psid using indicators marked as PAM. Answers this block as NO and determines a RED path exists.	Critical Step

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 20.:</u>	Operator Begins at entry Block of FR-I. Monitors Pressurizer level less than 92%	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Pressurizer level less than 92% using indicators marked as PAM. Answers this block as YES.	
<u>STEP 21.:</u>	Operator Monitors Pressurizer level greater than 17%	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines Pressurizer level greater than 17% using indicators marked as PAM. Answers this block as YES.	
<u>STEP 22.:</u>	Operator Monitors RCP 1 OFF OR RCP 3 OFF.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines RCP 1 OFF AND RCP 3 OFF by observing control board indications. Answers this block as YES.	
<u>STEP 23.:</u>	Operator Monitors RVLIS upper plenum range in idle loop(s) greater than 98%.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator determines RVLIS upper plenum range in idle loop(s) greater than 98% by observing RVLIS level indications. Answers this block as YES and determines a GREEN path exists	Critical Step

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 24.:</u> Notify the SM of Status Tree priorities.		___ SAT
<u>NOTE:</u> Operator must report the following status tree priorities to the SM.		___ UNSAT
FR-S – YELLOW FR-C – YELLOW FR-H - YELLOW FR-P – RED FR-Z – RED FR-I - GREEN		Critical Step
<u>STANDARD:</u> Operator must notify the SM of the listed status tree priorities.		Stop Time___

SRO Exam
A.1

Question 1:

In addition to requiring certain documents and notices be made available or posted for workers, 10 CFR 19 describes the rights and responsibilities of workers. State three (3) of these rights.

Answer 1:

- 1) Have one worker representative present during an NRC inspection (of physical working conditions.)
- 2) Consult privately with NRC inspectors concerning radiological working conditions (and other matters as necessary.)
- 3) Request an NRC inspection (if it is suspected that the licensee is in violation of NRC requirements [see below].)
- 4) Report to their employer any working conditions that are in violation of, or could lead to a violation of NRC regulations.

(3 of 4 needed for 100% credit)

Reference - OPL271C260 Enabling Objective 3.a, Identify the requirements contained in 10 CFR 19.

SRO Exam

A.1

Question 2:

- a. During a plant emergency, what federal regulation allows taking an action not specifically addressed in the EOP's?
- b. What general criteria does this regulation require to be met to allow this action to be taken?
- c. What facility procedure provides guidance to the operator in taking this action.
- d. At a minimum, what organizational position must approve this action.

Answer 2:

- a. (10 CFR) 50.54x.
- b. A departure from the facility license or technical specifications is permitted when this action is immediately needed to protect the public health and safety and no action consistent with the facility license or technical specifications that can provide adequate or equivalent protection is immediately apparent?
- c. EPM-4 Rules of EOP User's Guide Usage govern EOP and AOP use.
- d. An SRO-licensed individual.

SRO Exam
A.2

Question 1:

Describe the method for verifying the position of locked valves, both initially and subsequently.

Answer 1:

a. Verifying position for motor-operated valves.

1. Local indicator on valve.
2. Indicating lights at local control station.
3. Indicating lights on switchgear.
4. Indicating lights in the control room.

b. Closed/Locked Closed

Attempt to move handwheel or operator in the closed direction. If valve is in the correct position and not mechanically bound, no motion will occur. If valve is locked and you are unable to move the operator because of the locking device, remove the locking device and attempt to move the operator in the closed direction. Reinstall the locking device and verify that it is securely locked and in good condition.

c. Open/Locked Open

Attempt to move handwheel or operator in the closed direction only enough to verify valve movement. The handwheel or operator should turn if it is not mechanically bound, indicating the valve is open. Return valve to original position. If valve is locked and you are unable to move the operator due to the locking device, remove the locking device and attempt to move the operator, or handwheel in the closed direction only enough to verify valve movement. Return valve to original position. Reinstall the locking device and verify that it is securely locked and in good condition.

NOTE: When valves are secured with a crimp cable, wire wrap, valve cover (or collar), plastic seal, lock, or lead seal, then the valve position is verified initially when the seal is installed and all subsequent verification of valve position is by ensuring that the seal is intact and secure

SRO Exam

A.2

Question 2:

- a. During the performance of an Equipment Alignment Checklist, a component was not in the specified position/configuration. In accordance with site administrative procedures, state three (3) methods used to determine if the component should be repositioned.
- b. What four (4) methods are used to maintain equipment configuration control?

Answer 2:

- a.
 - 1. Review of procedures currently in effect
 - 2. Clearances affecting the component
 - 3. Temporary Alterations
 - 4. Work currently in progress

(3 of 4 required for 100% credit)

- b.
 - 1. Equipment clearances
 - 2. Approved plant procedures or work documents
 - 3. Configuration log maintenance
 - 4. Scheduled activities

(4 of 4 required for 100% credit)

Ref. OPL271C212, SSP12.2 (SSP-10.1), Objective A
SPP-10.1, pp. 6-7
K/A G2.2.14 (CFR 45.13)

SRO Exam
A.3

Question 1: (No References)

- a. E-3, "Steam Generator Tube Rupture" and AOP-R.01, "Steam Generator Tube Leak" uses several methods for identifying steam generator tube ruptures and leaks. Besides the Main Steam Line Monitors (SLM), list four other methods?
- b. Where are the SLMs (1,2-RM-90-421,422,423, and 424) located with respect to the MSL relief header?
- c. What control function, if any, will be actuated with a trip signal on 1-RM-90-421 and 422?

Answer 1:

- a.
 - 1) An unexpected rise in S/G levels,
 - 2) S/G blowdown rad monitor alarms and indication,
 - 3) RADCON surveys,
 - 4) Chem Lab samples,
 - 5) Condenser Vacuum Pump air exhaust rad monitors, and
 - 6) an increase in charging flow to maintain pressurizer level

(4 of 6 required for 100% credit)

- b. Detectors are mounted adjacent to the main steam lines, upstream of the relief valve header in main steam line valve vault.
- c. The MSL detectors have no control function, so a trip or failure of a monitor will not cause any automatic action.

(These detectors were installed to assist the operating crews in identifying steam generator tube ruptures and leaks. However, events at other plants [Palo Verde 2, 1993] have shown that these detectors are sometimes inadequate for this objective.)

SRO Exam
A.3

Question 2:

- a. State the two (2) dose limits of TVA's Emergency Exposure Guidance (RCI -3).
- b. State the four (4) implementation guidelines associated with authorizing an Emergency Exposure.

Answer 2:

- a. 10 rem (To prevent serious damage to plant or hazard to personnel)
25 rem (To be taken to save a life)
- b. (General: It is consistent with the risk concept to accept exposures leading to doses in excess of those appropriate for routine operation when recovery from an accident or major operational difficulty is necessary. Saving of a life, measure to circumvent substantial exposure to the general public, or the preservation of valuable installations may be sufficient cause for accepting above normal exposures. Dose limits cannot be specified, but they should be commensurate significance of the objective and held to the lowest practicable level that the emergency permits.)
 - 1) Any decision to embark on emergency operations which would result in exposures in excess of 10 CFR 20 should be done in consultation with the most senior member of RadCon who is available on a timely basis. Non-TVA employees should not receive exposure in excess of 10 CFR 20
 - 2) Personnel must be made aware of possible consequences of such an exposure and selected on a voluntary basis.
 - 3) Such doses are permitted only once per lifetime
 - 4) Emergency team members who are expected to respond to a radiological emergency must be made aware of the consequences of such exposure.

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 120

Classify the Event per the REP
(Loss of Shutdown Cooling)

PREPARED/
REVISED BY:

Date/

VALIDATED BY:

*

Date/

APPROVED BY:

Date/

(Operations Training Manager)

CONCURRED:

**

Date/

(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTE D	PREPARED/ REVISED BY:
1	Transfer from WP. Rearrange steps to match procedure.	N	9/23/94	All	HJ Birch
2	Incorporated previous pen/ink which chgd initiating cues to "take all appropriate actions". Change initiating cues to chg class from an alert to SAE. Only Validation of REP classification reqd. Performance time will not change.	Y	8/30/95	All	HJ Birch
3	EPIP-4 Rev chg. Also chgd critical time to notify ODS to 10 min per discussion w/ Nick Catron & Jerry Reynolds. Incorp previous minor pen/inks.	N	5/12/98	4-8	HJ Birch
pen/ink	Revision to EPIP-4 had no impact	N	10/15/98	4	JP Kearney
pen/ink	EPIP-1 Rev update only	N	9/23/99	4	SR Taylor
pen/ink	Clarified standard in step 2 to include Section 3.1, corrected page no. references steps 6 & 7. Updated EPIP-4 rev.	N	9/27/99	4,5,6	SR Taylor
4	Changed JPM step 13 to not be a critical step. It does not meet the definition of critical step in TRN-11.12. Reformatted other critical steps.	N	11/18/99	All	SR Taylor
pen/ink	EPIP-1 Rev update only	N	3/21/00	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
SRO
JOB PERFORMANCE MEASURE

Task:

Classify the Event per the REP (Loss of Shutdown Cooling)

JA/TA task # : 3440030302 (SRO)
3440190302 (SRO)

K/A Ratings:

000025 EK1.01 (3.9 - 4.3)	000025 EA1.12 (3.6 - 3.5)
000025 EA2.05 (3.1 - 3.5)	000025 GK1 (2.7 - 3.4)
000025 EA1.01 (3.6 - 3.7)	000025 GK1 (2.7 - 3.7)

Task Standard:

The event is classified as an Site Area Emergency based on loss of shutdown cooling.

Evaluation Method : Simulator X In-Plant
(This JPM will be simulated)

=====

Performer: _____

NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator: _____

SIGNATURE

/ _____
DATE

=====

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator in IC-10 and leave in FREEZE.
4. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 15 mins **Local** _____

Tools/Equipment/Procedures Needed:

EPIP-1 and EPIP-4

References:

	Reference	Title	Rev No.
A.	EPIP-01	Emergency Plan Initiating Conditions Matrix	29
B.	EPIP-04	Site Area Emergency	18

=====

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions and state the task to be performed. All steps of this JPM shall be simulated. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return, the handout sheet I provided you. **The current simulator conditions are NOT representative of the scenario you are about to address.**

INITIAL CONDITIONS:

Unit 1 has entered Midloop in preparations to plug a tube leak in #1 S/G. The following additional conditions exist:

B-B RHR pump is in service providing shutdown cooling.

Both SIPs are dedicated to Midloop makeup since the RWST to CCP valves are tagged for Arrowhart work.

A-A RHR pump tagged for maintenance.

RCS level 695.8 feet.

All S/Gs are drained in preparation for sludge lancing.

Containment penetrations have been verified closed in preparation for manway removal.

INITIATING CUES:

An inadvertent opening of VLV-74-34 caused RCS level to lower to 693.4 ft. as indicated on the temporary site glass and on LR-68-402

1B-B RHR pump was tripped by the OATC when it began to cavitate, per AOP-M.04.

RCS makeup has been ineffective; FCV-63-5 would not open electrically. AUOs have been dispatched.

RCS temperatures currently 215° F and rising slowly.

You are the Site Emergency Director, you are to classify the event AND perform all required actions per the REP.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Refers to EPIP-1 to determine level of event.</p> <p><u>NOTE:</u> Enter time event is declare. _____</p> <p><u>Cue:</u> <i>If operator asks for RVLIS lower range indication; state that both lower range are reading 55%. (This will preclude use of 1.1.4 and 1.2.4)</i></p> <p><u>STANDARD:</u> Operator refers to EPIP-1 , Section 6, Shutdown System Degradation. Operator determines that they have met the conditions of 6.1, Site Area Emergency. Operator declares a Site Area Emergency</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time _____</p> <p>Critical Step</p>
<p><u>Cue:</u> <i>Cue as necessary to answer the phone calls made.</i></p> <p><u>STEP 2.:</u> Implements EPIP-4 , Site Area Emergency.</p> <p><u>STANDARD:</u> Operator recognizes/implements an Site Area Emergency per EPIP 4, Section 3.1.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> If emergency centers are not staffed, activate the Emergency Paging System (EPS) to staff the Technical Support Center (TSC) and the Operations Support Center (OSC).</p> <p><u>STANDARD:</u> Operator utilizes "Touch Screen" or directs the Clerk to activate the EPS.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> If emergency centers are not staffed, make a public address announcement for Plant Emergency Response Personnel to report to the TSC and OSC.</p> <p><u>STANDARD:</u> Operator makes the announcement over the PAS.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 5.:</u> If not previously done activate emergency sirens for personnel assembly and initiate EPIP-8</p> <p><u>STANDARD:</u> Operator reviews conditions to determine need for sounding the sirens and implementing EPIP-8.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>NOTE:</u> The list in this step is from Page 7</p> <p><u>STEP 6.:</u> Complete Page 7 and Notify the Operations Duty Specialist (ODS)) within about 5 minutes of declaration.</p> <p><u>NOTE:</u> Enter time call is made to the ODS _____. Time from step 1 entry to this entry ._____ minutes.</p> <p><u>Cue:</u> Role play as the ODS and acknowledge report</p> <p><u>STANDARD:</u> Operator must notify the ODS within 10 minutes of the time the event is classified, giving the following information:</p> <ul style="list-style-type: none"> a. Their name b. Seq. Nuclear Plant c. SAE on UNIT 1 d. EAL No. 6.1 SAE e. Brief description of incident [Loss of RHR and RCS level with RCS temperature exceeding 200 °F] f. Plant condition [may be classified as deteriorating since cannot make up at this time] g. Radiological Conditions [No Abnormal Release Offsite] h. Time and Date event declared. i. Recommended protective action [NONE] j. Wind Speed {Cue speed is 0.5 MPH} k. Wind direction {Cue wind out of southwest} 		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7.:</u> FAX Page 7 to ODS.</p> <p><u>Cue:</u> The Control room AUO will Fax the copy to the ODS.</p> <p><u>STANDARD:</u> Operator addresses sending a FAX copy to ODS.</p>		<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 8.:</u>	If Dose Assessment is needed.....	___ SAT
	<u>Cue:</u> <i>When ICS is accessed, STATE: Dose Release Readings are indicating ZERO.</i>	___ UNSAT
	<u>STANDARD:</u> Operator should address the "Dose Assessment" feature to determine release rate. (or a Phone Call Made to Chemistry Supervisor). (ICS "Dose Assessment" can be found in the "Group Display Menu").	
<u>STEP 9.:</u>	Notify Radiological Control Lab to implement EPIP-14 and evaluate the condition to determine if CECC EPIP-9 should be implemented.	___ SAT
	<u>NOTE:</u> Console operator may provide cues if candidate makes phone notifications	___ UNSAT
	<u>Cue:</u> <i>Play role as Rad Con and state you will implement EPIP-14 and evaluate EPIP-9.</i>	
	<u>STANDARD:</u> Operator notifies Rad. Con. via telephone communications.	
<u>STEP 10.:</u>	If there are any personnel injuries, implement EPIP-10.	___ SAT
	<u>Cue:</u> <i>There have been no reports of personnel injury.</i>	___ UNSAT
	<u>STANDARD:</u> Operator should N/A this step.	
<u>STEP 11.:</u>	If there has been a security threat, implement the Sequoyah Physical Security Plan (PSP).	___ SAT
	<u>Cue:</u> <i>There have been no reports of a security threat.</i>	___ UNSAT
	<u>STANDARD:</u> Operator should N/A this step.	

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 12.:</u></p> <p>Note:</p> <p>Cue:</p> <p><u>STANDARD:</u></p>	<p>Notify Plant Management in accordance with SPP-3.5.</p> <p>Activation of the EPS will make the PDM aware of the REP actuation, however administrative procedures require notification to the PDM.</p> <p><i>Play role of Plant Duty Manager.</i></p> <p>Operator contacts the PDM and informs him of the REP classification.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13.:</u></p> <p>Cue:</p> <p><u>STANDARD:</u></p>	<p>Notify the NRC in accordance with SPP-3.5.</p> <p><i>Play role of NRC.</i></p> <p>Operator should notify the NRC (headquarters) as soon as practical, but within 1 Hr. of declaration of the event.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

Facility: <u>Sequoyah</u>		Date of Examination: <u>8/7 - 11/00</u>
Exam Level: SRO(U)		Operating Test No.: <u>1</u>
B.1 Control Room Systems		
System / JPM Title	Type Code*	Safety Function
a. Transfer to Hot-leg Recirculation, <u>JPM # 13</u> KA 005K4.02 (3.2/3.5)	D,S	4
b. Pressurizer Level Control Malfunction, <u>JPM # 12</u> KA 00011A1.01 (3.5/3.6)	D,S	2
c. Loss of Control Air (AOP-M.02), <u>JPM # NRC-2000-2</u> KA 078A3.01 (3.1/3.2)	N,S,A,L	8
B.2 Facility Walk-Through		
a. Control S/G PORVs From the Aux Control Room <u>JPM # 66 AP</u> KA 010A4.03 (4.0/3.8)	D,A,R	3
b. Local Alignment of 2-RM-90-112 to Lower Containment <u>JPM # 72-2</u> KA 002A3.01 (3.7/3.9)	D, R	7
* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA		

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 13

Transfer to Hot Leg Recirculation

Original Signatures on File

PREPARED/ REVISED BY:	<u>H. J. Burch</u>	Date/	<u>9-12-95</u>
VALIDATED BY:	<u>N/A</u>	Date/	
APPROVED BY:	<u>W. J. Burch</u> (Operations Training Manager)	Date/	<u>9/13/95</u>
CONCURRED:	<u>N/A</u> (Operations Representative)	Date/	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMS and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
4	Transfer from word perfect	N	1994	All	HJ Birch
5	Add cover sheep and Incorporate Rev B minor changes.	N	9/11/95	All	HJ Birch
pen/ink	Chg intiat cue to since time of event to match ES-1.3. Comment from student.	N	1/25/96	4	HJ Birch

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

[illegible]

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. Initialize the simulator to EC 61 then activate **RF # SIR06 ON**
5. If IC 61 is not available then Initialize to IC 10 and complete the following setup.
5. Activate **MF #TH02B @ 100%** and **trip RCPs**. After automatic containment sump swapover is initiated, perform required alignment of ECCS to Containment Sump per ES-1.3.
6. When RWST level decreases to 8% realign Containment Spray Pump suction to Cntmt Sump per ES-1.3.
7. Place operating power on FCV-63-22, Activate **RF # SIR06 to ON**.
8. Acknowledge and clear ALL alarms.
9. Freeze simulator after realignment of Cntmt Spray suction to Cntmt Sump.
10. To keep out nuisance alarms: insert override **AN:OVRDN[420] OFF**, **AN:OVRDN[304] ON**; and **AN:OVRDN[96] ON**. (Cntmt moisture hi, Sat monitor, and Turbine Zero speed)
11. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 15 mins **Local** _____

Tools/Equipment/Procedures Needed:

ES-1.4 "Transfer to Hot Leg Recirculation"

References:

	Reference	Title	Rev No.
1.	ES-1.4	Transfer to Hot Leg Recirculation	2

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. All ECCS components and Containment Spray pumps are aligned and taking suction from Containment sump per ES-1.3.
2. RCS pressure is less than 180 psig.
3. Both RHR pumps are in service.

INITIATING CUES:

1. 12 hours have elapsed since the time of the event.
2. You are the Unit 1 OATC and are to transfer to Hot Leg Recirculation per ES-1.4.
3. When you have completed ES-1.4 notify the US/SRO.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ES-1.4 and implements the actions to align to hot leg recirculation.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time ___</p>
<p><u>STEP 2:</u> DETERMINE if RHR spray IN SERVICE:</p> <p><u>STANDARD:</u> Operator verifies FCV-72-40 and 41 are closed and goes to step 2.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> CHECK RHR Train A Running.</p> <p><u>STANDARD:</u> Operator verifies "A" train RHR running by RED lights on HS (may also check pump amps)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *4:</u> CLOSE RHR Train "A" cold leg isolation valve FCV-63-93.</p> <p><u>STANDARD:</u> Operator closes FCV-63-93 and verifies CLOSED as indicated by green position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5:</u> ENSURE RHR Train "B" discharge crosstie Valve FCV-74-35 CLOSED.</p> <p><u>STANDARD:</u> Operator ensures RHR Train "B" discharge crosstie valve CLOSED, FCV-74-35, as indicated by green indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *6:</u> OPEN RHR Train "A" discharge crosstie valve FCV-74-33.</p> <p><u>STANDARD:</u> Operator opens FCV-74-33 and verifies OPEN as indicated by red position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP *7:</u> OPEN RHR HL injection valve FCV-63-172.</p> <p><u>STANDARD:</u> Operator opens RHR HL injection, FCV-63-172, and verifies OPEN as indicated by red position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> CHECK hot leg injection flow on FI-63-173.</p> <p>NOTE: No minimum flow specified.</p> <p><u>STANDARD:</u> Operator verifies RHR HL flow established as indicated on control room indicator FI-63-173.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *9:</u> CLOSE FCV-63-94, RHR Train B cold leg isolation valve.</p> <p><u>STANDARD:</u> Operator closes RHR cold leg isolation valve, FCV-63-94, and verifies closed as indicated by green position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *10:</u> Stop SI Pump "A-A".</p> <p><u>STANDARD:</u> Operator stops SI Pump "A-A" as indicated by green indicating light ON. (HS-63-10A)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *11:</u> Close SI Train "A" crosstie valve FCV-63-152.</p> <p><u>STANDARD:</u> Operator closes Train "A" crosstie FCV-63-152 as indicated by green position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *12:</u> WHEN FCV-63-152 Closed, THEN OPEN SI Train "A" HL injection valve FCV-63-156.</p> <p><u>STANDARD:</u> Operator opens Train "A" HL injection, FCV-63-156, as indicated by red position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP *13:</u> Start SI pump "A-A".</p> <p><u>STANDARD:</u> SI Pump "A-A" is started as indicated by red indicating light ON (HS-63-10A).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 14:</u> CHECK SI Train A discharge flow on FI-63-151.</p> <p>NOTE: No minimum flow specified.</p> <p><u>STANDARD:</u> Operator verifies Train A flow established as indicated on FI-63-151.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *15:</u> Stop SI Pump "B-B".</p> <p><u>STANDARD:</u> Operator stops SI Pump "B-B", as indicated by green indicating light ON (HS-63-15A).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *16:</u> CLOSE SI Train "B" crosstie valve FCV-63-153,</p> <p><u>STANDARD:</u> Operator closes Train "B" crosstie FCV-63-153, as indicated by green position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *17:</u> WHEN FCV-63-153 closed, THEN OPEN SI Train "B" HL injection valve FCV-63-157.</p> <p><u>STANDARD:</u> Operator opens Train "B" HL Injection FCV-63-157, as indicated by red position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *18:</u> Start SI Pump "B-B".</p> <p><u>STANDARD:</u> SI Pump "B-B" ON as indicated by red indicating light ON (HS-63-15A).</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 19:</u> CHECK SI Train B discharge flow on FI-63-20.</p> <p><u>STANDARD:</u> Operator verifies Train "B" HL flow established, as indicated on FI-63-20.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20:</u> CHECK SI pumps ALIGNED for hot leg recirculation.</p> <p><u>STANDARD:</u> Operator verifies that both SI pumps were properly aligned in the previous steps.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21:</u> CHECK power AVAILABLE to FCV-63-22.</p> <p><u>NOTE:</u> MRF SIR06 ON will place power on FCV-63-22.</p> <p><u>Cue:</u> Power is on FCV-63-22</p> <p><u>STANDARD:</u> Operator ask SRO if power is restored to FCV-63-22.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 22:</u> CLOSE FCV-63-22.</p> <p><u>STANDARD:</u> FCV-63-22 CLOSED as indicated by green position indicating light ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23:</u> Inform the US/SRO when Hot Leg Recirculation has been established.</p> <p><u>STANDARD:</u> Operator verifies Hot leg Recirc alignment and informs the US/SRO.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

Pressurizer Level Control Malfunction

⁴³ Operations Concurrency required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
2	Transfer from WP. Minor enhancements.	N	8/94	All	HJ Birch
3	AOP Upgrade. Changed initiating cues to monitor board. Malf not already in. Chgd performance time based on validation.	Y	10/31/95	All	HJ Birch
4	Added step to adjust charging, which was added to procedure. chgd ref to AOP-R.04 which was incorrectly listed as R.05.	N	3/12/96	6,7,8	HJ Birch
pen/ink	AOP Rev chg. Added selector switch number to steps 3 & 4	N	7/16/96	4	HJ Birch
	AOP Rev chg only	N	10/28/98	4	HJ Birch
pen/ink	AOP Rev chg only	N	9/22/99	4	SR Taylor
pen/ink	EA-62-5 Rev chg only	N	9/23/99	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

JA/TA Task #: 0000280501 (RO) 0110100101 (RO) 0110030101 (RO)

000028 EK3.05 (3.7/4.1)	000028 EA2.10 (3.3/3.4)
000028 EA1.08 (3.7/3.6)	000028 EA2.12 (3.1/3.5)
000028 EA2.01 (3.4/3.6)	

The failed Pzr Level channel is identified and defeated from the control functions and the level and pressure control systems verified to be operating normally.

Evaluation Method : Simulator X In-Plant

Performer: _____
NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator: _____ / _____
SIGNATURE DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. Initialize in IC # 10.
5. Place selector switch, XS-339B, to the 339 position and FREEZE the simulator
6. Approximately ONE minute after the operator assumes shift, Activate **MF #RX06A** (LT-68-339 failed LOW),
7. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 11 mins **Local**

Tools/Equipment/Procedures Needed:

AOP-I.04, Section 2.2.
EA-62-5, Section 4.1 and 4.3

References:

	Reference	Title	Rev No.
1.	AOP-I.04	Pressurizer Instrument Malfunction	3
1.	EA-62-5	Establishing Normal Charging and Letdown	3

=====

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is operating at 100% reactor power, equipment is normal.

INITIATING CUES:

1. You are the OATC and are to monitor the control board and respond per licensed duties to operating conditions as a reader/doer.
2. Your US is currently assisting in tagging unit 1 125V spare charger .
3. You will be required to respond to any abnormalities.
4. When any required actions/procedures have been completed notify the SM.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 1.:</u>	Respond to alarm AR-M5-A window C3.	___ SAT ___ UNSAT Start Time___
<u>NOTE</u>	Operator WILL respond to either AR-M5-A window C-3 or window E-3. Operator MAY respond to AR-M5-A window C-3 and window E-3. Either alarm response will direct the implementation of AOP-I.04.	
<u>STANDARD:</u>	Operator pulls AR-M5-A and performs actions for window C-3. <ul style="list-style-type: none"> • Check PZR level LI-68-339, LI-68-335 and LI-68-320. • Ensures PZR heaters are ON [heaters will be off] • Ensures level control system is attempting to return level to program. [Control system will not respond until AOP-I.04 is implemented]. • Operator identifies AOP-I.04 as the appropriate procedure 	
<u>STEP 2.:</u>	Respond to alarm AR-M5-A window E3.	___ SAT ___ UNSAT
<u>NOTE</u>	Operator WILL respond to either AR-M5-A window C-3 or window E-3. Operator MAY respond to AR-M5-A window C-3 and window E-3. Either alarm response will direct the implementation of AOP-I.04.	
<u>STANDARD:</u>	Operator pulls AR-M5-A and performs actions for window E-3. <ul style="list-style-type: none"> • VERIFY PZR heater OFF. • Letdown orifice valves FCV-62-72, 73, and 74 CLOSED. • Letdown isolation valves FCV-62-70 is CLOSED. • Operator identifies AOP-I.04 as the appropriate procedure. 	
<u>STEP* 3.:</u>	Operator obtains appropriate procedure and determines the applicable section.	___ SAT ___ UNSAT
<u>Cue:</u>	<i>The SM will evaluate Tech Specs and the Rep.</i>	
<u>STANDARD:</u>	Operator identifies AOP-I.04 as the appropriate procedure and Section 2.2 as the applicable section.	
<u>STEP 4.:</u>	CHECK LI-68-339A indicates normal.	___ SAT ___ UNSAT
<u>STANDARD:</u>	Operator observes it has failed down scale and goes to RNO column.	

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP *5.:</u> ENSURE level control channel selector switch XS-68-339E in LT-69-335 & 320.</p> <p><u>STANDARD:</u> Operator turns XS-68-339E to the LT-68-335 & 320 position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> ENSURE level recorder channel selector switch XS-68-339B in LT-68-320 or LT-68-335.</p> <p><u>STANDARD:</u> Operator selects either LT-68-335 OR 320 position on XS-339B THEN proceeds to step 4.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> CHECK letdown in service.</p> <p><u>STANDARD:</u> Operator checks that letdown is not in service and goes to RNO to RESTORE letdown per EA-62-5.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>NOTE:</u> The following steps are from EA-62-5.</p> <p><u>STEP 8.:</u> Obtain copy of EA-62-5 and determine appropriate section.</p> <p><u>STANDARD:</u> Operator obtain copy of EA-62-5 and determine that section 4.3 is the appropriate section.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> IF charging flow NOT established, THEN PERFORM Section 4.2.</p> <p><u>STANDARD:</u> Operator verifies charging is in service by checking alignment or verifying flow on FT-62-104.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10.:</u> VERIFY pressurizer level greater than 17%.</p> <p><u>STANDARD:</u> Operator verifies pZR level greater than 17% on LT-68-335 & 320.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 11.:</u> ENSURE letdown orifice isolation valves CLOSED:</p> <p><u>STANDARD:</u> Operator verifies FCV-62-72, 73, 74 closed as indicated by green light ON HSs.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *12.:</u> OPEN letdown isolation valves:</p> <p><u>STANDARD:</u> Operator opens FCV-62-70 (and verifies open FCV-62-69 & 77) as indicated by Red light ON that HSs.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *13.:</u> PLACE [HIC-62-78] in MANUAL and OPEN [TCV-70-192] to ~50%.</p> <p><u>STANDARD:</u> [HIC-62-78] is placed in MANUAL and TCV-70-92 is opened ~ 50%.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *14.:</u> PLACE letdown pressure controller PCV-62-81 in MANUAL and ADJUST output between 50% and 60% open.</p> <p><u>STANDARD:</u> PCV-62-81 controller placed in manual and its output adjusted between 50% and 60% open.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15.:</u> ADJUST charging flow as necessary to prevent flashing in the letdown line.</p> <p><u>STANDARD:</u> Operator should adjust charging to ~60 gpm to ensure some cooling on the Regen Hx.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *16.:</u> OPEN letdown orifice isolation valves as needed:</p> <p><u>STANDARD:</u> Operator opens either FCV-62-72, 73, OR, 74 as indicated by Red light ON that HS. Letdown flow should be approximately equal to charging flow.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP *17.:</u> ADJUST letdown pressure controller, PCV-62-81, output to obtain desired pressure, Match setpoint to existing pressure and THEN place PCV-62-81 in AUTO.</p> <p><u>STANDARD:</u> PCV-62-81 adjusted to get letdown pressure to approximately 325 psig and the controller placed in AUTO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *18.:</u> ADJUST [HIC-62-78A] to obtain desired letdown temperature, as indicated on [TI-62-78] and PLACE [HIS-62-78A] in AUTO.</p> <p><u>STANDARD:</u> HIC-62-78A is adjusted to control letdown temperature at ~ 110 °F and placed in AUTO. Adjustments are made as necessary to stabilize letdown temperature at ~ 110 °F.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19.:</u> ENSURE high temperature divert valve, HS-62-79A, in DEMIN position.</p> <p><u>STANDARD:</u> HS-62-79A is in DEMIN position and the right RED light ON. Hand switch will spring return to the P-Auto position</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> ADJUST charging and letdown as necessary to maintain RCP seal injection flow and pressurizer level.</p> <p><u>STANDARD:</u> Operator checks LR-68-339 to see if actual level (RED pen) is approximately equal to programmed level (GREEN pen). FCV-62-89 and 93 adjusted to stabilize PZR level (or slowly increase/decrease level depending on current level) and RCP seal injection flow to ~ 8 gpm</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21.:</u> WHEN PZR level is stabilized and is returning to program level, return to the procedure in effect.</p> <p><u>STANDARD:</u> Operator determines that PZR level is returning to program level and returns to AOP-I.04 step 5.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>NOTE:</u> The following steps are from AOP-I.04.</p> <p><u>STEP 22.:</u> ENSURE pressurizer heaters restored to service.</p> <p><u>STANDARD:</u> Operator goes to ON with HS-68-340F, Pzr Heater, and verifies Control Bank D is energized, red light on HS-68-340F is ON.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23.:</u> NOTIFY IM to remove failed PZR level channel from service using appropriate Appendix.</p> <p><u>Cue:</u> <i>Role Play as IM and acknowledge request for performance Appendix "E" of AOP-I.04. They will be to MCR in approx 1 hour.</i></p> <p><u>STANDARD:</u> Operator contacts IMs (or Work Control Group) and request LT-68-339 be removed from service using Appendix "E" of AOP-I.04. (should state that this must be done within 6 hours)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24.:</u> Inform the SM that the actions of AOP-I.04 have been completed and the status of the unit relative to the failed instrument.</p> <p><u>STANDARD:</u> SAME</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # NRC-2000-2

AOP-M.02, LOSS OF CONTROL AIR

PREPARED/ REVISED BY:	Lacy Pauley	Date/
	Phil Gass	
VALIDATED BY:	*	Date/
	Scott Poteet for VVH	
APPROVED BY:		Date/
	(Operations Training Manager)	
CONCURRED:	**	Date/
	(Operations Representative)	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	New Issue	Y	7/20/2000	All	L. Pauley

**V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.**

Task Standard: Unit is in Mode 4. Complete AOP-M.02. Control air will be regained in step 9. Cause of air loss is an instrument a line break that can be isolated. Operator will complete control room actions and provide directions to AUO and other plant personnel to restore normal air pressure and realign systems following loss of control air.

Evaluation Method : Simulator X In-Plant

Performer: _____
NAME

Start time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish time _____

Evaluator: _____ / _____
SIGNATURE DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator to **IC 43** for full setup or Initialize to IC 4 and insert the following malfunction [**IMF IA02 35**]. **This malfunction should be inserted when the operator understands his task. This malfunction will be removed in Step #11. Insert the following override [IOR AN:OVRDN[703] OFF] to defeat the service air isolation close alarm (XA-55-15B window D-7).**
4. **Console operator actions will be necessary at several steps in this JPM. Console operator should follow JPM steps as they are performed for smooth coordination.**
5. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: SIM 15 minutes **Local** _____

Tools/Equipment/Procedures Needed:

AOP-M.02, "Loss of Control Air"
AR-M15-B, "Annunciator Response"

REFERENCES:

	Reference	Title	Rev No.
A.	AOP-M.02	Loss of Control Air	6
B.	1-AR-M15-B	Miscellaneous	14

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. All steps shall be simulated for this task. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is heating up and is currently in Mode 4 preparing to enter Mode 3.

INITIATING CUES:

As the Unit 1 SRO, you are to respond to any alarms.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Respond to control air header pressure low alarm AR-M15-B window E-7.</p> <p><u>STANDARD:</u> Operator dispatches operator to turbine building control air station to investigate alarm. Checks control air pressure and determines that pressure is dropping uncontrolled and approaching 77 psig. Determines that AOP-M.02 is the appropriate procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2.:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical step</p>
<p><u>STEP 3.:</u> Diagnose the failure.</p> <p><u>NOTE:</u> The CRO should identify Section 2.3 is the applicable section.</p> <p><u>STANDARD:</u> Operator identifies the air loss and goes to Section 2.3 of AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> Dispatch AUO to check control air compressors, control air dryers and filters, and ERCW to control air compressors.</p> <p><u>NOTE:</u> Cue on the results of this inspection will be given later, after appropriate time delay.</p> <p><u>STANDARD:</u> Dispatches AUO to check control air compressors, control air dryers and filters, and ERCW to control air compressors. No CRO actions are required, continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5.:</u> Verify Unit 1 6900V and 480V Shutdown Boards energized.</p> <p><u>STANDARD:</u> Operator correctly determines that both Unit 1 6900V and 480V Shutdown Boards are energized.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> Monitor PI-32-199, Service Air header pressure greater than 88 psig.</p> <p><u>Cue:</u> <i>IF operator wants to review Tech Spec for LCO action, tell him another SRO will review TS.</i></p> <p><u>STANDARD:</u> Operator correctly identifies service air header pressure less than 88 psig but alarm panel 1-XA-55-15B Window D-7 is dark and goes to RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> ENSURE 0-PCV-33-4, Service Air Isolation Valve, CLOSED</p> <p>NOTE: Console operator should wait approximately 2 minutes and then remove override AN:OVRDN[703]</p> <p><u>STANDARD:</u> Dispatches AUO to ensure 0-PCV-33-4 is closed.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8.:</u> Cue based on AUO inspection as directed in step 4 and step 7 above.</p> <p><u>Cue:</u> <i>Console operator should provide these cues as local AUO approximately 2 minutes after step 7.</i></p> <p><i>Air compressor C and D are running and fully loaded. Air compressors A and B are not running. ERCW is available for compressors cooling. A large air leak can be heard overhead near the West wall of the control building, but the exact location of the leak has not been determined at this time. 0-FCV-33-4 was open and has been manually closed.</i></p> <p><u>STANDARD:</u> N/A</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> Start Control Air compressors. Verify A and B control air compressors are LOADED as required.</p> <p><u>Cue:</u> <i>Console operator should provide this cue ~ 1 minute after MCR operator directs him to start and load A and B control air compressors.</i></p> <p><u>STANDARD:</u> Operator directs AUO to start and fully load A and B control air compressors as necessary to maintain system pressure. Use Appendix E of AOP-M.02 for Hand Loading as necessary.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.:</u> Evaluate location of leak.</p> <p>Cue: <i>Console operator should provide this cue ~ 1 minute after the step 9 cue.</i></p> <p><i>Leak is located downstream of 0-FI-32-4 on the three inch line.</i></p> <p><u>STANDARD:</u> Request AUO to determine the location of the leak and determine if the leak is upstream or downstream of 0-FI-32-3 or 0-FI-32-4.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> Verify control air dryers and filters operating properly.</p> <p>Cue: <i>Console operator should provide this cue ~ 1 minute after MCR operator directs him to verify control air dryers and filters operating properly.</i></p> <p><i>Control air dryers and filters are operating properly.</i></p> <p><u>STANDARD:</u> AUO is directed to verify control air dryers and filters operating properly. Operator continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 12.:</u> Dispatch AUO to identify and isolate the leak as close to the leak as possible.</p> <p><u>NOTE:</u> Console operator should remove malfunction IA02 within 2 minutes of dispatching the AUO to isolate the leak. Air pressure will increase when the malfunction is removed.</p> <p><u>Cue:</u> Console operator should provide this cue when he has removed malfunction IA02.</p> <p><i>Air leak has been isolated.</i></p> <p><u>STANDARD:</u> AUO is directed to isolate the leak. Operator continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 13.:</u> Notifies maintenance to initiate repairs to the source of air leakage.</p> <p><u>Cue:</u> Maintenance has arrived at the break location and is planning repairs.</p> <p><u>STANDARD:</u> Maintenance is notified to initiate repairs to the leak. Operator continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP14.:</u> MONITOR PI-32-200, control air header pressure, greater than 77 psig.</p> <p><u>STANDARD:</u> Control air pressure is greater than 77 psig, no actions are required, continues with AOP-M.02. [PI-32-200]</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 15.:</u> CHECK Auxiliary Air dryers bypassed.</p> <p><u>Cue:</u> <i>Aux. air dryers are not bypassed.</i></p> <p><u>STANDARD:</u> Dispatches AUO to determine if Aux. Air dryers are bypassed, goes to RNO. Proceeds to step 12, continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16.:</u> MONITOR PI-32-200, control air header pressure, dropping.</p> <p><u>STANDARD:</u> Operator monitors PI-32-200 and determines pressure is not dropping, goes to RNO. Proceeds to step 28, continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 17.:</u> CHECK PI-32-200, control air header pressure between 90 and 105 psig.</p> <p><u>STANDARD:</u> Operator checks PI-32-200 and determines that air pressure is between 90-105 psig, then continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.:</u> Check step 29 valves open (M-6, Status panel 6K and 6L).</p> <p><u>NOTE:</u> 1-FCV-32-80, 1-FCV-32-102, and 1-FCV-32-110 can be checked on status panels 6K and 6L.</p> <p><u>Cue:</u> <i>If requested, notify operator that Unit 2 CRO has checked 2-FCV-32-81, 2-FCV-32-103, and 2-FCV-32-111 and they are open.</i></p> <p><u>STANDARD:</u> Operator checks these three valves open using status lights on, request the unit 2 operator to check 2-FCV-32-81, 2-FCV-32-103, and 2-FCV-32-111 open, then continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP19.:</u> Ensures Auxiliary Building Isolation valves OPEN.</p> <p><u>Cue:</u> <i>0-FCV-32-82 and 0-FCV-32-85 are open.</i></p> <p><u>STANDARD:</u> Dispatches AUO to determine if 0-FCV-32-82 and 0-FCV-32-85 are open or closed, then continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> Ensure RCP seal injection in service USING 1-S0-68-2.</p> <p><u>NOTE:</u> Seal injection flow should not be affected, since air pressure did not drop below 77 psig.</p> <p><u>Cue:</u> If operator starts to USE 1-SO-68-2, tell him another operator will perform this procedure.</p> <p><u>STANDARD:</u> Operator checks RCP seal injection supply and leakoff flows normal, then continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP21.:</u> Notify Chem Lab to sample RCS boron concentration</p> <p><u>STANDARD:</u> Notifies Chem Lab, then continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP22.:</u> Evaluate need to determine Shutdown Margin USING 0-SI-000-038.0, Shutdown Margin.</p> <p><u>Cue:</u> <i>The STA will perform this function.</i></p> <p><u>STANDARD:</u> Notifies the STA to evaluate Shutdown Margin and continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 23.: Restore throttled HX (heat exchanger) valves.</p> <p>NOTE: These valves should not have been throttled as noted in Step 15.</p> <p>Cue: <i>If operator dispatched AUO to throttle these valves, THEN tell the operator that another operator will perform this function.</i></p> <p>STANDARD: Continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 24.: Dispatch operator to reset control air compressor backup control.</p> <p>NOTE: This will not be necessary because the normal control power supply has not been interrupted. Operator may dispatch AUO to check control power.</p> <p>Cue: If operator dispatches an AUO to perform this action, tell him that "the compressor control circuit is in the normal position".</p> <p>STANDARD: Continues with AOP-M.02.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 25.: Restores equipment to normal.</p> <p>NOTE: This equipment should still be in normal configuration based on the air pressure only dropping to ~ 70 psig. No action is required if AOP-M.02 was completed correctly.</p> <p>Cue: <i>If the operator prepares to perform this step using System Operating procedures then tell him another control room operator will perform this step</i></p> <p>STANDARD: Operator states that this equipment has not been affected by this air failure. Restores equipment to normal, as necessary.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 26.:</u> Check ZS-33-4 Dark.</p> <p><u>STANDARD:</u> Check alarm window D7 on panel 1-XA-55-15B ZS-33-4 dark. It will be LIT, goes to RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP27.:</u> Restore Service Air. Monitor control air header pressure between 90 psig and 105 psig.</p> <p><u>STANDARD:</u> Checks PI-32-200 and determines control air pressure between 90 and 105 psig.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP28.:</u> Dispatch Operator with radio to OPEN 0-PCV-33-4, Service Air isolation valve [Turb Bldg, 685' elev].</p> <ul style="list-style-type: none"> • SLOWLY OPEN 0-33-502, Service Air Bypass Valve, to charge Service Air System • Place HS-33-4 in AUTO • DEPRESS BOTH RESET push buttons [top of 0-PS-33-4] • VERIFY 0-PCV-33-4 OPEN • CLOSE 0-33-502 <p>Cue: <i>Console operator provide the following cue ~ 2 minutes after being dispatched</i></p> <p> 0-PCV-33-4 is OPEN</p> <p><u>STANDARD:</u> AUO is dispatched to OPEN 0-PCV-33-4, Service Air Isolation Valve with the above directions.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP29.:</u> ENSURE Control Air Compressors loaded locally, are returned to NORMAL.</p> <p>Cue: <i>Console operator provide the following cue ~ 2 minutes after being notified.</i></p> <p><i>Control Air Compressors loading has been restored to normal.</i></p> <p><u>STANDARD:</u> Notifies AUO to ensure Control Air Compressors are returned to NORMAL.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP30.:</u> Go to procedure and step in effect.</p> <p><u>STANDARD:</u> Notifies US that JPM control air has been restored to normal and that the AUO is opening FCV-33-4.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 66

Control S/G PORVs From the Aux. Control Room

Original Signatures on File

PREPARED/
REVISED BY:

H. Bush

Date/ 3-12-96

VALIDATED BY:

N/A

Date/

APPROVED BY:

Matthew Hunt
(Operations Training Manager)

Date/ 3/12/96

CONCURRED:

**

N/A

Date/

(Operations Representative)

- * Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
- ** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
5	Transfer from WP. Minor enhancements due to AOI-27 Rev change	N	8/26/94	All	HJ Birch
6	Incorp previous pen/ink which modified init cues to ensure all 4 S/G PORVs are opened as JPM steps imply. Chg from AOI-27 to AOP-C.04. Added Trip Hazard caution	N	3/12/96	4,5,6	HJ Birch
pen/ink	Revision to AOP-C.04 had no impact. Revised K/A ratings. Reformatted critical steps	N	9/22/98	All	JP Kearney
pen/ink	Incorporate performance comment. Change Initial conditions to reference Thot rather than Tavg.	N	10/25/99	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:

Control S/G PORVs From the Aux. Control Room

JA/TA TASK #: 0390080101 (RO)

K/A Ratings:

068AA1.01 (4.3/4.5)

068AA2.08 (3.2/3.4)

068AK3.06 (3.9/4.3)

Task Standard:

S/G Power Operated Relief Valves have been opened and S/G pressure reduced.

Evaluation Method : Simulator _____ In-Plant X

=====

Performer: _____
NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator: _____ / _____
SIGNATURE DATE

=====

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. **SM approval will be required to enter the "Trip Hazard Zone" in the Vital Battery Rm and Vital Inverter area.**
3. Any UNSAT requires comments
4. This JPM may be simulated in the simulator backup control room. This will allow the operator to actually manipulate the ATM Relief valve controllers. Cues for instrument feedback, S/G pressure and RCS cooldown rate will still be required.

Validation Time: CR. _____

Local 10 minutes

Tools/Equipment/Procedures Needed:

AOP-C.04, Control Room Inaccessibility Section 2.2 Step 9

References:

	Reference	Title	Rev No.
A.	AOP-C.04	Control Room Inaccessibility	1

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. **WHEN ENTERING A UNIT TRIP HAZARD ZONE ENSURE YOU DO NOT TOUCH ANY SWITCHES WITHIN THAT ZONE.** I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. There has been a fire in the spreader room, Unit 1 has been tripped, the main control room has been abandoned per AOP-C.04, "Control Room Inaccessibility".
2. Unit 1 is currently being maintained in HOT STANDBY from the Aux. Control Room.
3. All controls have been placed in auxiliary mode.
4. S/G pressures are at 1005 psig and Thot is ~ 547°F and stable.
5. The source range monitor in the Aux. C.R. is in service.
6. The RCS has been borated to the COLD SHUTDOWN, Xenon-free condition.

INITIATING CUES:

1. It has been determined to cool the plant down to Cold Shutdown due to extensive damage in the spreader room.
2. You are the Unit 1 OATC and the US directs you to initiate cooldown, **using all 4 S/Gs**, in accordance with AOP-C.04, Section 2.2, step 9.
3. Notify US when cooldown established.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p>STANDARD: Operator obtains a copy of AOP-C.04, Section 2.2, step 9.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2:</u> Establish a 50 °F/hour cooldown rate.</p> <p><u>STANDARD:</u> N/A, This will be satisfied in JPM step 7 after PORVs adjusted.</p> <p><u>NOTE:</u> JPM Steps 3 through 6 give specifics for each S/Gs PORV, the steps do not have to be performed in any particular sequence.</p>	
<p><u>STEP 3:</u> Lower pressure setpoint on PIC-1-6C. (SG-1 Atm Relief)</p> <p><u>Cue:</u> <i>If operator Rotates thumbwheel up, state that setpoint is increasing, output decreasing.</i></p> <p><u>Cue:</u> <i>When operator Rotates thumbwheel down State:</i> <i>1. Controller output has increased.</i> <i>2. Indicated S/G Pressure currently 940 psig.</i></p> <p><u>STANDARD:</u> Operator dials thumbwheel down on 1-PIC-1-6C until setpoint is below actual pressure, verifies output increases.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4:</u> Lower pressure setpoint on PIC-1-13C. (SG-2 Atm Relief)</p> <p><u>Cue:</u> <i>If operator Rotates thumbwheel up, state that setpoint is increasing, output decreasing</i></p> <p><u>Cue:</u> <i>When operator Rotates thumbwheel down State:</i> <i>1. Controller output has increased.</i> <i>2. Indicated S/G Pressure currently 960 psig.</i></p> <p><u>STANDARD:</u> Operator dials thumbwheel down on 1-PIC-1-13C until setpoint is below actual pressure, verifies output increases.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5:</u> Lower pressure setpoint on PIC-1-24C.(SG-3 Atm Relief)</p> <p><u>Cue:</u> <i>If operator Rotates thumbwheel up, state that setpoint is increasing, output decreasing</i></p> <p><u>Cue:</u> <i>When operator Rotates thumbwheel down State:</i> <i>1. Controller output has increased.</i> <i>2. Indicated S/G Pressure currently 940 psig.</i></p> <p><u>STANDARD:</u> Operator dials thumbwheel down on 1-PIC-1-24C until setpoint is below actual pressure, verifies output increases.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 6:</u> Lower pressure setpoint on PIC-1-31C.(SG-4 Atm Relief)</p> <p><u>Cue:</u> <i>If operator Rotates thumbwheel up, state that setpoint is increasing, output decreasing</i></p> <p><u>Cue:</u> <i>When operator Rotates thumbwheel down State:</i> <i>1. Controller output has increased.</i> <i>2. Indicated S/G Pressure currently 980 psig.</i></p> <p><u>STANDARD:</u> Operator dials thumbwheel down on 1-PIC-1-31C until setpoint is below actual pressure, verifies output increases.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7:</u> Ensure cooldown rate established at ~50°/hr.</p> <p><u>Cue:</u> <i>Inform operator RCS has cooled from 547 °F to 536 °F in the last 15 minutes.</i></p> <p><u>STANDARD:</u> Monitors RCS temperatures HL TI-68-1C, -24C, -43C, -65C determines cooldown rate. (Operator may use temperature gradients on the S/G pressure scales)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> Inform the U1 US a cooldown rate of ~ 44°F/hr has been established.</p> <p><u>STANDARD:</u> Operator informs the U1 US a cooldown rate of ~ 44°F/hr has been established.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 72-2

Local Alignment of 2-RM-90-112 to Lower Containment

Original Signatures on File

PREPARED/
REVISED BY: H. J. Birch Date/ 5-21-97

VALIDATED BY: (1) Date/ -

APPROVED BY: Walter W. [Signature] Date/ 8/14/97
(Operations Training Manager)

CONCURRED: ** N/A Date/
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (If not driven by a procedure revision).

(1) JPM 72-2 VALIDATED BY VALIDATING 72.
ESSENTIAL JPMs DO NOT NEED SEPARATE
VALIDATIONS
H. J. Birch

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
5	Transfer from WP. Minor enhancements.	N	9/16/94	All	HJ Birch
pen/ink	Added dates to cover sheet. Chgd performance time from 20 to 16 based on 18 performances. Init conditions chgd since ASOS no longer untags equip. Enhance cue step 6,7 due to performance comments.	N	10/7/95	1,4,6	HJ Birch
pen/ink	SO-90-2 Rev chg, no impact. Added cues on how to reset local flow alarms. And changed standard to match.	N	2/6/97	4,7	HJ Birch
6	SO-90-2 change. Added steps to test heat trace. Changed initiating cues. Incorp above pen/inks	Y	5/21/97	4,8	HJ Birch
pen/ink	Add cue at last step if operator has not cleared the lo flo alarms. (Requal comment)	N	9/15/97	9	HJ Birch
	2-SO-90-2 Rev Chg	N	1/22/98	4	HJ Birch
pen/ink	SO-90-2 change had no impact. Revised K/A ratings. Reformatted critical steps	N	9/15/98	All	JP Kearney
pen/ink	2-SO-90-2 Rev Chg	N	9/22/99	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
AUO/RO/SRO
JOB PERFORMANCE MEASURE

Task:

Local Alignment of 2-RM-90-112 to Lower Containment

JA/TA TASK # 0730990101 (RO)
0730020104 (AUO)

K/A Ratings:

002A3.01 (3.7/3.9)

Task Standard:

Manually align 2-RM-90-112 (locally) to LOWER containment.

Evaluation Method : Simulator _____ In-Plant X

Performer:

NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator:

SIGNATURE

DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Role play as the second person to verify valve positions as directed/requested by the operator.
4. Do NOT use in conjunction with JPM 69.
5. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. _____ **Local** 20 mins

Tools/Equipment/Procedures Needed:

2-SO-90-2 VLV Checklist 2-90-2.03 (Att. 3)
2-SO-90-2 Section 8.3
2-SO-90-2 Section 8.4

References:

	Reference	Title	Rev No.
1.	2-SO-90-2	Gaseous Process Radiation Monitoring System	17

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. Unit 2 is operating in MODE 1.
2. 2-RM-90-112 had been isolated and tagged electrically for maintenance. The Hold Order has been picked up from the breaker, but the radiation monitor is still isolated and the pumps are off.
3. 2-RM-90-106 has just tripped and neither pump can be started.

INITIATING CUES:

1. The U2 CRO has directed you, the Unit 2 Aux. Bldg AUO, to manually align 2-RM-90-112, per checklist 2-90-2.03 (Att. 3), in preparation to place it in service to LOWER containment.
2. When all manual valves have been realigned or verified in the proper position notify the U2 CRO; He will align the FCVs as required per Attachment 3 and provide further direction at that time.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain copy of procedure/checklist.</p> <p><u>STANDARD:</u> 2-SO-90-2 valve checklist 2-90-2.03 (Att #3) is identified as appropriate procedure/instruction.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> Complete valve checklist 2-90-2.03 to align RM-90-112 to lower containment.</p> <p><u>STANDARD:</u> Steps 3 through 11 of the JPM will satisfy this procedure action.</p>	
<p><u>STEP 3.:</u> Inlet valve to RM-90-112 opened. (2-90-283)</p> <p><u>Cue:</u> <i>Valve turns several turns in the counter-clockwise direction and stops.</i></p> <p><u>STANDARD:</u> 2-90-283 located and opened, handwheel turned as far left (counterclockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> Outlet valve to RM-90-112 opened. (2-90-284)</p> <p><u>Cue:</u> <i>Valve turns several turns in the counter-clockwise direction and stops.</i></p> <p><u>STANDARD:</u> 2-90-284 located and opened, handwheel turned as far left (counterclockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 5.:</u> Inlet plug valve 2-ISIV-90-283C opened.</p> <p><u>Cue:</u> <i>Valve handle moves down until handle is parallel to piping.</i></p> <p><u>STANDARD:</u> Valve 2-ISIV-90-283C located and opened, valve handle aligned parallel to the sample line.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6.:</u> Iodine inlet plug valve to RM-90-112 opened. (2-90-283D)</p> <p><u>Cue:</u> <i>Valve turns in the clockwise direction until handle is parallel to piping.</i></p> <p><u>STANDARD:</u> Valve 2-ISIV-90-283D located and opened, valve handle aligned parallel to sample line.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7.:</u> Part. & Total gas inlet plug valve to RM-90-112 opened. (2-90-283E)</p> <p><u>Cue:</u> <i>Valve turns in the clockwise direction until handle is parallel to piping.</i></p> <p><u>STANDARD:</u> Valve 2-ISIV-90-283E located and opened, valve handle aligned parallel to the sample line.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 8.:</u> Grab sample valve #1 to RM-90-112 closed. (2-90-283B)</p> <p><u>Cue:</u> <i>Valve will not turn in the clockwise direction.</i></p> <p><u>STANDARD:</u> Valve 2-TTIV-90-283B located and closed, valve handwheel turned as far right (clockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> Grab sample valve #2 to RM-90-112 closed. (2-90-283F)</p> <p><u>Cue:</u> <i>Valve will not turn in the clockwise direction.</i></p> <p><u>STANDARD:</u> Valve 2-TTIV-90-283F located and closed, handwheel turned as far right (clockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.:</u> Grab sample valve #3 to RM-90-112 closed. (2-90-284B)</p> <p><u>Cue:</u> Valve will not turn in the clockwise direction.</p> <p><u>STANDARD:</u> Valve 2-TTIV-90-284B located and closed, handwheel turned as far right (clockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> Crosstie valve between upper and lower compartment rad monitors closed. (2-90-283G)</p> <p><u>Cue:</u> Valve will not turn in clockwise direction.</p> <p><u>STANDARD:</u> Valve 2-ISIV-90-283G located and closed, handwheel turned as far right (clockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> Unit operator informed that all manual valves on valve checklist 2-90-2.03 (Att. 3) are aligned for 2-RM-90-112 and he is ready for the UO to open the Flow Control Valves on page 3 of Attachment 3.</p> <p><u>Cue:</u> Respond as the control room operator and inform him that "the valves on page 3 of attachment 3 are open. Start the pump # 1 for 2-RM-90-112 and call back when the pump is running."</p> <p><u>STANDARD:</u> Communicates with UO informs him/her all manual valves aligned per 2-SO-90-2.03 valve checklist .</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13.:</u> Start # 1 pump on 2-RM-90-112.</p> <p><u>Cue:</u> Provide the following cue after the pump is started. Red Power light lit.</p> <p><u>STANDARD:</u> Operator locates pump controls, depresses START push button for pump # 1 [Red Power light lit]. Notifies the control room operator that pump # 1 is running.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 14.: Reset Rad monitor flow alarms</p> <p>NOTE: The rad monitor flow alarms will not reset until the operator manually resets the alarms as indicated in the cues.</p> <p>Cue: <i>Provide the following cues after the pump is started.</i></p> <ul style="list-style-type: none"> • Red Iodine low flow light is lit • Red Particulate low flow light is lit. <p><i>After operator turns reset switch to LEFT, state: Red Iodine low flow light is dark.</i> <i>After operator turns reset switch to RIGHT, state: Red Particulate low flow light is dark</i></p> <p>STANDARD: Operator resets Red Iodine Low Flow alarm [Red light is dark]. Operator resets Particulate Low flow alarm [Red light is dark]. (Alarms must be cleared by end of JPM. - Cue at last step should cue them to clear alarm)</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>NOTE: The following steps are from section 8.4.</p> <p>After the operator notifies the MCR operator that the pump is running the UO directs him to test 2-RM-90-112 Radiation Monitor heat trace circuit.</p>	
<p>STEP 15.: PLACE 2-HS-90-112 Heat trace, to the TEST position.</p> <p>Cue: <i>HS is in the TEST position</i></p> <p>STANDARD: Operator places 2-RM-90-112, heat trace circuit to TEST.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 16.: VERIFY amber light above 2-HS-90-112 is illuminated</p> <p>Cue: <i>Amber light is lit</i></p> <p>STANDARD: Operator verifies amber light lit.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 17.:</u> If amber light NOT lit THEN:</p> <p><u>STANDARD:</u> Operator N/As this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.:</u> Return 2-HS-90-112, Heat trace, to the ON position.</p> <p><u>Cue:</u> <i>HS is in the ON position.</i></p> <p><u>STANDARD:</u> Operator places 2-HS 90-112 to the ON position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19.:</u> VERIFY amber light above 2-HS-90-112, Heat trace, is illuminated.</p> <p><u>Cue:</u> <i>Amber light is lit</i></p> <p><u>STANDARD:</u> Operator verifies amber lit is lit. Operator notifies the control room operator that the heat trace circuit has been tested and is in service.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>NOTE:</u> The following step is from Section 8.3 Step [4].</p> <p><u>Cue:</u> <i>UO direct the operator to OPEN Crosstie valve 2-ISIV-90-283G.</i></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> OPEN Crosstie valve, 2-ISIV-90-283G, between upper/lower compt Rad Monitor is open.</p> <p><u>Cue:</u> <i>Valve turns CCW several turns then stops.</i></p> <p><u>STANDARD:</u> Valve 2-ISIV-90-283G located & opened, handwheel turned as far left (counter-clockwise) as possible.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 21.:</u>	U 2 CRO informed 2-RM-90-112 is aligned with crosstie valve open and pump running.	___ SAT ___ UNSAT
<u>Cue:</u>	<i>If operator has not cleared Low Flow alarms, Inform them the Malfunction alarm is still lit in the MCR.</i>	Stop Time___
<u>NOTE:</u>	<i>This cue will only be necessary if the operator did not reset the alarms in step 13.</i>	
<u>STANDARD:</u>	Communicates with UO and informs him/her 2-RM-90-112 is aligned to Lower Containment & pump is running. (must clear alarms by this step. If not, step for starting the pump is unsatisfactory)	

Facility: Sequoyah
 Exam Level (circle one): **RO and SRO(I)**

Date of Examination: 8/14 - 17/00
 Operating Test No.: 1

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Shutdown Bank Withdrawal, JPM # 38AP2 KA 001A2.08 (3.3/3.8)	D,A,L, S	1
b. Align ECCS & CS Pumps to Cntmt Sump, JPM # 64AP KA 006000K4.09 (3.8/4.1)	D,A,L,,S	2
c. Uncontrolled Depressurization of all S/Gs, JPM # NRC-2000-1 KA 006A1.06 (3.6/3.9)	N, S	3
d. Respond to High Containment Pressure, JPM # 57AP KA 022000A3.01 (4.1/4.1)	D,A,L,C	5
e. Emergency Mode Control Room Isol. due to High Rad, JPM # 153 KA 072K4.03 (3.2/3.6)	D,S	7
f. Initiate Makeup to the Refueling Cavity, JPM # 104 KA 036AA2.02 (3.4/4.1)	D,S	8
g. Faulted SG Isolation With MSIV Stuck Open, JPM # 58AP KA035A2.01 (4.5/4.6)	D,A,S	4A

B.2 Facility Walk-Through

a. Local Alignment of U2 TDAFW LCV Backup Air Supply JPM # 134 KA 061000A2.02 (3.2/3.6)	D,R	4B
b. Align Standby Air Receiver to the 2A-A D/G, JPM # 23 KA 064000K1.05 (3.4/3.9)	D	6
c. Local Manual Control of a S/G PORV with Control Air, JPM # 32AP (NRC modified) KA 010A2.03 (4.1/4.2)	M, L	3

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 38AP2

SHUTDOWN BANK WITHDRAWAL

Original Signatures on File

PREPARED/
REVISED BY: H. Bank Date: 10-18-95

VALIDATED BY: * N/A Date: _____

APPROVED BY: Walter Hunt Date: 10/19/95
(Operations Training Manager)

CONCURRED: ** N/A Date: _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
2	Added step to reset counters in section 5.2. Renumbered steps.	N	10/17/95	All	HJ Birch
pen/ink	TI-28 rev update only	N	12/8/95	4	HJ Birch
pen/ink	0-SO-85-1 Rev chg only	N	1/17/96	4	HJ Birch
pen/ink	0-SO-85-1 Rev chg only	N	6/6/96	4	HJ Birch
pen/ink	0-SO-85-1 Rev chg only	N	1/3/97	4	HJ Birch
pen/ink	0-SO-85-1 Rev chg only	N	5/20/97	4	HJ Birch
pen/ink	0-SO-85-1 Rev chg. Add step to check computer point on rod position zero.	N	11/17/97	4,7	HJ Birch
pen/ink	0-SO-85-1, TI-28 revisions had no effect. Revised K/A ratings. Reformatted critical steps	N	7/28/98	All	JP Kearney
pen/ink	TI-28 rev update only	N	9/25/98	4	JP Kearney
pen/ink	0-SO-85-1 rev update only	N	10/16/98	4	JP Kearney
pen/ink	0-SO-85-1 rev update only	N	9/22/99	4	SR Taylor
pen/ink	TI-28 rev update only	N	9/28/99	4	SR Taylor
pen/ink	TI-28 rev update only	N	10/21/99	4	SR Taylor
pen/ink	Corrected steps 27-30 to indicate one group in SD bank C in accordance with the SO based on performance comment.	N	10/25/99	10	SR Taylor
pen/ink	Provide Cue at step 15 that computer Rod Indications are Zero per performance comment.	N	10/25/99	7	SR Taylor
pen/ink	TI-28 rev update only	N	3/21/00	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. **Initialize in IC #38 for full setup or Initialize in IC #6 and complete the following setup.**
4. **Hold FW Isolation 'reset push buttons' and trip the Reactor. Leave Rods in Manual. Select a SR and IR pen for NR45. Ensure Auto Count rate is audible. Clear HI Flux at Shutdown alarm. . Clear 1st out.**
5. Insert overrides {IOR ZROSCBBCG1[1] OFF and ZROSCBBCG2[2] OFF} to prevent bank B step counters from operating.
6. JPM Steps 7 through 9 will require a simulator operator.
7. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 21 **Local**

Tools/Equipment/Procedures Needed:

0-SO-85-1, section 5.2 and 6.3
TI-28 Attachment 6

References:

	Reference	Title	Rev No.
1.	0-SO-85-1	Control Rod Drive System	11
2.	TI-28	Curve Book	99

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. Unit 1 is in MODE 3 with Tav_g at 547F and RCS pressure at 2235 psig.
2. 1-SI-NXX-000-002.0 "Shutdown Margin Calculation" is complete for withdrawing shutdown rods
3. Both M-G sets are in service.
4. All Precautions and Prerequisites have been met.
5. The following items have been verified by the Aux Bldg AUO:
 - Breaker 1CB closed.
 - Rx Trip Bkrs Racked In.
 - Bypass Bkrs Open and Racked out.
6. The CRO has verified all lift coils are connected.

INITIATING CUES:

1. The SM directs you, the Unit 1 CRO, to close the "Reactor Trip" breakers and withdraw the Shutdown Banks in accordance with 0-SO-85-1.
2. Inform the SM when the shutdown banks have been withdrawn.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the appropriate procedure</p> <p><u>STANDARD:</u> Operator obtains a copy of 0-SO-85-1 section 5.2 (and then section 6.3).</p> <p><u>NOTE:</u> Initiating conditions cover several steps in section 5.2. These steps are not addressed in the JPM.</p> <p><u>NOTE:</u> If operator asks for a second verifier, per reactivity management requirements, acknowledge the request and tell him to proceed with the task</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>NOTE:</u> Initiating conditions cover several steps in section 5.2. These steps are not addressed in the JPM. The following cues can be used.</p> <p><u>Cue:</u> <i>MG sets are in service.</i> <i>1CB breaker is closed.</i> <i>Lift coil disconnect switches are connected.</i> <i>Rx trip bypass breakers are racked out.</i> <i>Rx trip breakers are racked in.</i></p>	
<p><u>STEP 2.:</u> ENSURE all Control Rods are inserted:</p> <p><u>STANDARD:</u> Operator will verify all rods are inserted.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> MOMENTARILY PLACE [SUS], Rod Control Startup Step Counter Reset to the STARTUP position, AND VERIFY RPIs and group step counter are at Zero steps</p> <p><u>STANDARD:</u> Operator places Rod Control Startup Step Counter Reset to the STARTUP position and verifies step counters are Zero.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> ENSURE control power is ON by Green indicating lights on M-4.</p> <p><u>STANDARD:</u> Operator will ensure control power is ON both Rx trip Bkrs by Green indicating lights on M-4.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5.:</u> ENSURE Rod Control switch, HS-85-5111 is in MID position.</p> <p><u>STANDARD:</u> Operator ensures HS-85-5111 is in MID position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> IF unit is in Mode 3, THEN ENSURE requirements of TS. 3.4.1.2 are met.</p> <p><u>Cue:</u> <i>The SRO has verified TS. 3.4.1.2 requirements are met.</i></p> <p><u>STANDARD:</u> Operator ensures TS 3.4.1.2 requirements are met.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> DEPRESS and HOLD FW Isolation Reset push buttons, HS-3-99A and B.</p> <p><u>NOTE:</u> Have the simulator operator play role as CRO and depress both A & B FW Isolation Reset push buttons.</p> <p><u>STANDARD:</u> Operator verifies both HS-3-99A and B, Isolation Reset push buttons, are being held in the IN Reset position.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8.:</u> PLACE RT-1, Reactor Trip/Reset switch in the to CLOSE position verify the Reactor Trip Breakers CLOSED.</p> <p><u>STANDARD:</u> Red indicating lights come on and green lights go off on Reactor Trip Breaker indicating lights on panel M-4.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 9.:</u> RELEASE FW Isolation Reset push button HS-3-99A and B.</p> <p><u>STANDARD:</u> Operator informs the CRO to release the FW Isolation Reset push buttons</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.</u> NOTIFY IMs to perform 1- PI-IFT-99-0P4.0</p> <p><u>Cue:</u> <i>The SRO will notify the IMs to perform this PI.</i></p> <p><u>STANDARD:</u> Operator addresses notifying the IMs.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> IF Shutdown or Control Rods will be withdrawn, THEN GO TO Section 6.3.</p> <p><u>STANDARD:</u> Operator goes to section 6.3.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> MOMENTARILY PLACE, SUS, Rod Control Startup Step Counter Reset to the STARTUP position to RESET Control Rod Drive System. Verify all Full Length Rod STEP COUNTERS on M-4 reset to Zero and rod control IN-OUT direction lights are NOT LIT</p> <p><u>STANDARD:</u> This step was done earlier. Operator should verify FULL LENGTH rod step counters reset to zero and rod control in-out direction lights are not lit.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13.:</u> DEPRESS RCAS, Rod Control Alarm Reset and RESET Window 6 (A-6).</p> <p><u>STANDARD:</u> "Rod Control System Urgent Failure" annunciator Window #6 on alarm panel XA-55-4B will clear.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 14.:</u> VERIFY that all associated control rod system alarms on panel XA-55-4B are NOT LIT. [windows A5, A6, B4, B5, B6, C4, C5, D6, and E6]</p> <p><u>STANDARD:</u> Operator checks annunciator panel XA-55-4B and verifies the LISTED alarms are not LIT. [XA-55-4B windows A5, A6, B4, B5, B6, C4, C5, D6, and E6].</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 15.:</u> ENSURE Plant computer points for rod bank position are ZERO.</p> <p><u>Cue:</u> All rod indication computer points are zero.</p> <p>NOTE: Operator may look at RPI screen in ICS. It will show all RPIs fully inserted. Operator may pull up individual computer points on the ICS.</p> <p><u>STANDARD:</u> Operator ensures Zero position on computer points [ICS points U0049 through U0056].</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16.:</u> PLACE HS-85-5110, Rod Control Mode Selector to the SBA position.</p> <p><u>STANDARD:</u> HS-85-5110, is placed in Shutdown Bank "A" position.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 17.</u> BUMP HS-85-5111, Rod Control Switch to withdraw Shutdown Bank A one-half step at a time, for one full step. VERIFY group demand position counters advance properly.</p> <p>NOTE: Operator may ask for 2cd person verifier. If he does, tell him to continue his task.</p> <p><u>STANDARD:</u> Operator moves rods one step and verifies that both step counters count up one step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.</u> BUMP HS-85-5111, Rod Control Switch to withdraw Shutdown Bank A one-half step at a time, for the second full step. VERIFY group demand position counters advance properly.</p> <p><u>STANDARD:</u> Operator moves rods one step and verifies that both step counters count up one step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19.</u> IF group demand position counters do not advance properly, STOP rod withdrawal, and initiate a WR.</p> <p><u>STANDARD:</u> Operator observes that both counters are responding correctly and N/As this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 20.</u> WITHDRAW Shutdown Bank "A" to the FULLY WITHDRAWN position using HS-85-5111.</p> <p><u>NOTE:</u> Operator will determine full out position from TI-28 attachment 6 [229 steps]. ICS shows full out position to be 228 steps but rods will actually be at 229 steps.</p> <p><u>STANDARD:</u> Shutdown Bank "A" group step counters and individual RPI's indicate that only Shutdown Bank "A" rods are withdrawing. Shutdown Bank A is withdrawn to its current cycle dependent fully withdrawn position.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 21.:</u> PLACE HS-85-5110, Rod Control Mode Selector to the SBB position.</p> <p><u>STANDARD:</u> HS-85-5110, is placed in Shutdown Bank "B" position.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 22.</u> BUMP HS-85-5111, Rod Control Switch to withdraw Shutdown Bank B one-half step at a time, for one full step. VERIFY group demand position counters advance properly.</p> <p><u>NOTE:</u> Operator may ask for 2cd person verifier. If he does, tell him to continue his task.</p> <p><u>STANDARD:</u> Operator moves rods one step and verifies that both step counters count up one step.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23.</u> BUMP HS-85-5111, Rod Control Switch to withdraw Shutdown Bank B one-half step at a time, for the second full step. VERIFY group demand position counters advance properly.</p> <p><u>STANDARD:</u> Operator moves rods one step and determines that both step counters do not count up one step.</p>		<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 24.</u> IF group demand position counters do not advance properly, STOP rod withdrawal, and initiate a WR.</p> <p><u>Cue:</u> <i>The CRO will initiate the WR for you.</i></p> <p><u>STANDARD:</u> Operator observes that group step counter is NOT responding correctly, Stops rod withdrawal, and initiates a WR on SHUTDOWN BANK C step counter.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 25.:</u> Operator informs the SM that the step group counter for shutdown banks C did not advance properly. Rod withdrawal has been stopped, and a WR initiated.</p> <p><u>STANDARD:</u> Operator notifies the SM of problem and that rod withdrawal has been stopped.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 64AP

Align ECCS & CS Pumps to Containment Sump

Original Signatures on File

PREPARED/ REVISED BY:	<u>H. J. Birch</u>	Date/	<u>9-16-95</u>
VALIDATED BY:	<u>W. R. Birch J. Kall</u>	Date/	<u>10-23-95</u>
APPROVED BY:	<u>Walter Hunt</u> (Operations Training Manager)	Date/	<u>10/25/95</u>
CONCURRED:	<u>**</u> (Operations Representative)	Date/	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Initial issue. Variation of HLC9505 license exam. Used Rev B procedures.	Y	7/3/95	All	HJ Birch
pen/ink	Chgd FCV to LCV stp 17. Standard stp 38 "should leave 1A CS in PTL since 63-8 will not open.	N	3/12/96	8,12	HJ Birch
pen/ink	corrected statement in step 25 to do EAPs in parallel, and stated STA to monitor.	N	1/13/97	10	HJ Birch
<p>NOTE: For future procedure revisions, If procedure steps are added or deleted, then steps 34 and 42 will need to be revised.</p>					

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:

Operate the Safety Injection System in the Recirculation Mode (Align ECCS & CS Pumps to Cntmt Sump)

JA/TA task # : 3010060601 (RO)

K/A Ratings:

006000 K4.09 (3.8/4.1)	006030 K4.03 (3.4/3.6)
006000 A3.03 (4.1/4.1)	006030 K4.04 (3.9/4.1)
006000 A4.01 (4.1/3.9)	006030 A4.02 (4.4/4.4)
006000 A4.02 (4.0/3.8)	000025 EA2.07 (3.4/3.7)

Task Standard:

Charging pumps, Safety Injection pumps, 1B RHR pump and 1B Containment Spray pump have been realigned to take water from the RHR Containment Sump without terminating flow into the RCS.

Evaluation Method : Simulator X In-Plant

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Performer:

NAME

Start Time

Performance Rating : SAT UNSAT Performance Time

Finish Time

Evaluator:

SIGNATURE

DATE

=====

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. Initialize simulator in IC 63 and activate **RF # RHR14 ON**.
5. If IC 63 is not available then use IC 10 and complete the following setup.
5. Activate **MF # TH02B at 100%** and override **IOR ZDIHS6372A CLOSE**.
6. OPEN FCVs-70-153 & 156. Place power on FCV-63-1. Activate **RF # RHR14 ON**, and **RESET SI Signal**.
7. When AUTO swap over to Cntmt Sump is actuated, FREEZE the simulator until the operator is ready to start the JPM.
8. Activate overrides **AN:OVRDN[304] ON** and **AN:OVRDN[420] OFF**, to silence nuisance alarms on Saturation Monitor and Cntmt Hi Moisture.
9. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 15 mins **Local**

Tools/Equipment/Procedures Needed:

ES-1.3, Transfer to RHR Containment Sump.
EA-67-1, ERCW Operation

References:

	Reference	Title	Rev No.
1.	ES-1.3	Transfer to RHR Containment Sump	7
2	EA-67-1	ERCW Operation	1

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 has experienced a LOCA. E-0 was completed and transitioned to E-1. Immediately upon entering E-1, the crew transitioned to FR-Z.1 due to an orange path and completed the actions of FR-Z.1.
Upon completion of FR-Z.1, the RWST low level alarm (< 27%) came in and ES-1.3 has been implemented through step 6.
All supporting systems/components are operable and are functioning normally.

INITIATING CUES:

The Unit 1 SRO directs you, the Unit 1 OATC, to review the MONITOR RWST step (step 2, of ES-1.3) and then continue performing ES-1.3 beginning at step 7.
Notify the SRO when ES-1.3 is complete.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtains a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ES-1.3 reviews monitor step 2 and begins at step 7.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP *2.:</u> MONITOR RWST status: LS-63-50B RWST LVL LO-LO alarm DARK [M-6E, E4] OR RWST level greater than 8%.</p> <p><u>NOTE:</u> THIS IS A CONTINUOUS MONITOR STEP. IF RWST drops to <8% the operator must perform the RNO steps and Lock out any pump still taking suction from the RWST.</p> <p><u>STANDARD:</u> Operator recognizes when the RWST is <8% and locks out any pumps still taking suction from the RWST. ACTION MUST be taken, for any CCP, SIP, or CSP, prior to pump cavitating.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> VERIFY RHR pumps RUNNING.</p> <p><u>STANDARD:</u> VERIFY RHR pumps are running red light(s) LIT for HS-74-10A and HS-74-20A.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> CHECK containment sump level greater than 11%.</p> <p><u>STANDARD:</u> Operator checks LI-63-178, 179 to ensure level > 11%.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.:</u> VERIFY containment sump valves FCV-63-72 and FCV-63-73 OPEN</p> <p><u>NOTE:</u> FCV-63-72 will not open. Operator must go to RNO.</p> <p><u>STANDARD:</u> Operator verifies FCV-63-73 open (red lights on HS LIT). Recognizes that FCV-63-72 will not open and goes to RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>NOTE:</u> The following steps are from the RNO section.</p> <p><u>STEP *6.:</u> IF cntmt sump valve FCV-63-72 can NOT be opened THEN PULL TO LOCK RHR pump and cntmt spray pump on affected train.</p> <p><u>STANDARD:</u> Operator PULL TO LOCK RHR pump A-A and (should PULL-TO-LOCK the cntmt spray pump A-A. This pump is not critical until RWST level is $\leq 8\%$)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> ENSURE RWST to RHR suction valve FCV-74-3 CLOSED. WHEN FCV-74-3 closed attempt to open FCV-63-72</p> <p><u>NOTE:</u> FCV-63-72 will not open</p> <p><u>STANDARD:</u> Operator waits for FCV-74-3 to close and attempts to open FCV-63-72.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *8.:</u> WHEN cntmt sump FCV-63-72 open, THEN RESTART RHR pmp A-A.</p> <p><u>STANDARD:</u> Operator recognizes that FCV-63-72 will not open and continues. Does NOT start RHR pump A-A</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> IF cntmt sump valve FCV-63-73 can NOT be opened, THEN....</p> <p><u>STANDARD:</u> FCV-63-73 is open and operator continues.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10.:</u> IF at least one cntmt sump recirc path can NOT be established, THEN..</p> <p><u>STANDARD:</u> One path has been established, operators goes to next AER step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>NOTE: The following steps are from the AER column.</p> <p><u>STEP 11.:</u> VERIFY RWST to RHR suction valves FCV-74-3 and FCV-74-21 CLOSED</p> <p><u>STANDARD:</u> Operator verifies FCV-74-3 and FCV-74-21 closed (green lights on associated HSs LIT).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> MONITOR RCS pressure less than 1500 psig.</p> <p><u>STANDARD:</u> Operator verifies RCS pressure less than 1500 psig and continues.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *13.:</u> CLOSE SI pump miniflow to RWST:</p> <ul style="list-style-type: none"> • FCV-63-175 • FCV-63-3 • FCV-63-4 <p><u>STANDARD:</u> Operator places each HS in the CLOSED position and verifies:</p> <ul style="list-style-type: none"> • FCV-63-175 CLOSED green light LIT • FCV-63-3 CLOSED green light LIT • FCV-63-4 CLOSED green light LIT 	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *14.:</u> CLOSE RHR crosstie valves:</p> <ul style="list-style-type: none"> • FCV-74-33 • FCV-74-35 <p><u>STANDARD:</u> Operator places each HS in the CLOSED position and verifies:</p> <ul style="list-style-type: none"> • FCV-74-33 CLOSED green light LIT • FCV-74-35 CLOSED green light LIT 	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *15.:</u> OPEN CCP and SI pump suction from RHR:</p> <ul style="list-style-type: none"> • OPEN FCV-63-7 • OPEN FCV-63-6 <p><u>STANDARD:</u> Operator places each HS in the OPEN position and verifies:</p> <ul style="list-style-type: none"> • FCV-63-6 OPEN red light LIT • FCV-63-7 OPEN red light LIT 	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP *16.:</u> ALIGN RHR discharge to CCP and SI pump suction:</p> <ul style="list-style-type: none"> • OPEN FCV-63-8 • OPEN FCV-63-11 <p><u>NOTE:</u> After performance of this step, If RWST LO LO level is reached, the operator will only need to stop the CS pumps.</p> <p><u>STANDARD:</u> Operator places HSs in the OPEN position and verifies: FCV-63-8 Remains closed, GREEN light LIT (due to interlock with FCV-63-72). Operator should continue with one train alignment FCV-63-11 OPEN red light LIT</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17.:</u> ISOLATE CCP suction from RWST</p> <ul style="list-style-type: none"> • CLOSE LCV-62-135 • CLOSE LCV-62-136 • ENSURE HS-62-135 in A-AUTO • ENSURE HS-62-136 in A-AUTO <p><u>STANDARD:</u> Operator places each HS in the CLOSED position and verifies: • LCV-62-135 CLOSED green light LIT, HS pushed in. • LCV-62-136 CLOSED green light LIT, HS pushed in.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.:</u> CHECK power restored to FCV-63-1</p> <p><u>Cue:</u> Power has been restored to FCV-63-1.</p> <p><u>STANDARD:</u> Operator ensures power is on FCV-63-1.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19.:</u> CLOSE FCV-63-1 while monitoring RHR flow.</p> <p><u>STANDARD:</u> Operator places the HS for FCV-63-1 in the CLOSED position and verifies green light LIT. Monitors RHR flow during closure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 20.:</u> ISOLATE SI pump suction from RWST • CLOSE FCV-63-5 while monitoring SI pump flow</p> <p><u>STANDARD:</u> Operator places HS for FCV-63-5 in the CLOSED position and verifies green light LIT. Monitors SI pumps flow during closure, if pumps running.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 21.:</u> CHECK RCS pressure less than 1500 psig.</p> <p><u>STANDARD:</u> Operator checks RCS pressure on PAM Instruments and verifies RCS pressure is less than 1500 psig.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *22.:</u> VERIFY SI pumps RUNNING.</p> <p><u>NOTE:</u> This step is only critical if the pumps were stopped due to low level.</p> <p><u>STANDARD:</u> Operator verifies SI pumps running. IF not, places each SI pump handswitch in the Start position verifies pump starts by red light LIT and green light OFF (should then verifies flow on each pump).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *23.:</u> VERIFY CCPs RUNNING.</p> <p><u>NOTE:</u> This step is only critical if the pumps were stopped due to low level.</p> <p><u>STANDARD:</u> Operator verifies both CCP pumps running. IF not, places each pumps handswitch in the Start position verifies pump starts by red light LIT and green light OFF (should then verifies flow on each pump).</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 24.:</u> MONITOR shutdown boards continuously energized.</p> <p><u>Cue:</u> CRO will monitor Shutdown boards remain energized.</p> <p><u>STANDARD:</u> Operator checks shutdown boards energized by offsite power OR ask CRO if boards are energized.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 25.:</u> RESUME FRP implementation</p> <p><u>Cue:</u> <i>Play SRO: State that the STA will monitor status trees and notify the SM if we need to transition, you are to continue with ES-1.3.</i></p> <p><u>STANDARD:</u> Operator informs the SRO that they should implement the FRPs at this time.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>NOTE:</u> The following steps ALIGN cntmt spray suction to cntmt sump.</p> <p><u>STEP 26.:</u> CHECK cntmt spray suction ALIGNED to RWST. CHECK RWST level is \leq 8%.</p> <p><u>Cue:</u> <i>If level is not \leq 8%, Cue operator that level is less than 8%.</i></p> <p><u>STANDARD:</u> Operator determines that Cntmt spray pumps are aligned to the RWST. Operator checks RWST level, LI-63- 50, 51, 52, & 53 to ensure level is \leq 8%.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *27.:</u> PULL TO LOCK both cntmt spray pumps.</p> <p><u>STANDARD:</u> Operator places HS-72-27A for "B" CNTMT Spray Pump in PULL-TO-LOCK position. (A was already in PTL)</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *28.:</u> ISOLATE CNTMT Spray suction from RWST.</p> <ul style="list-style-type: none"> • CLOSE FCV-72-22 • CLOSE FCV-72-21 <p><u>STANDARD:</u> Operator places HS for FCV-72-22 and FCV-72-21 in the CLOSED position and verifies green lights LIT.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *29.:</u> Open CNTMT Spray suction from CNTMT Sump.</p> <ul style="list-style-type: none"> • OPEN FCV-72-23 • OPEN FCV-72-20 <p><u>STANDARD:</u> Operator places HS for FCV-72-23 and FCV-72-20 in the OPEN position and verifies red lights LIT. [FCV-72-23, A-A pump, is not critical]</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 30.:</u> ALIGN ERCW system USING EA-67-1, ERCW Operation.</p> <p><u>Cue:</u> <i>Inform operator that the CRO will perform this EA.</i></p> <p><u>STANDARD:</u> Operator addresses need to perform EA-67-1.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *31.:</u> DETERMINE if cntmt spray pumps should be restarted. CHECK cntmt press greater than 2.0 psid.</p> <p><u>STANDARD:</u> Operator checks cntmt pressure PI-30-45 & 44 greater than 2 psi and continues.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 32.:</u> Check Cntmt Sump Level \geq 18% [37% Adv] .</p> <p><u>STANDARD:</u> Operator ensures Cntmt sump level is \geq 37% Adv., LI-68-178 & 179.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *33.:</u> ESTABLISH Train A Cntmt Spray:</p> <ul style="list-style-type: none"> • FCV-63-72 OPEN • FCV-72-23 OPEN <p><u>STANDARD:</u> Operator recognizes FCV-63-72 will not open, does not start A-A cntmt spray pump, and goes to step to restart Train B.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 34.:</u> ESTABLISH Train B Cntmt Spray:</p> <ul style="list-style-type: none"> • FCV-63-73 OPEN • FCV-72-20 OPEN <p><u>STANDARD:</u> Operator checks to ensure FCV-63-73 and FCV-72-20 are open by red lights LIT on HSs.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *35.:</u> START Train B containment spray pump.</p> <p><u>STANDARD:</u> Operator starts Train B cntmt spray pump by placing HS-72-27A to Start and returning to A-Auto and verifying red light on HS.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 36.:</u> Perform the following: OPEN Train B cntmt spray FCV-72-2. CHECK Train A cntmt spray recirc to RWST FCV-72-13 CLOSED. CHECK cntmt spray flow greater than 4750 gpm on Train B.</p> <p><u>STANDARD:</u> Operator ensures FCV-72-2 is open by red light LIT. Ensures FCV-72-13 closed by green light LIT. Ensures flow is indicated on FI-72-13 greater than 4750 gpm.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 37.:</u> COORDINATE actions to align CCS to SFP Cooling USING EA-70-1.</p> <p><u>Cue:</u> <i>Unit 2 will perform EA-70-1</i></p> <p><u>STANDARD:</u> Operator addresses need to perform this EA.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 38.:</u> MONITOR elapsed time form event initiation less than 12 hours</p> <p><u>Cue:</u> <i>The CRO has logged the event time and will monitor the time.</i></p> <p><u>STANDARD:</u> Operator addresses need to monitor the time to Hot Leg Recirc.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 39.:</u> Inform the US/SRO that the ECCS & CS pumps have been aligned to take suction from containment sump.</p> <p><u>STANDARD:</u> Operator informs the US/SRO that the ECCS & CS pumps have been aligned to take suction from containment sump.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # NRC-2000-1

ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS

PREPARED/ REVISED BY:	Lacy Pauley	Date: 7/19/2000
	Phil Gass	
VALIDATED BY:	*	Date: 7/19/2000
	Scott Poteet for OTM	
APPROVED BY:		Date: 7/19/2000
	(Operations Training Manager)	
CONCURRED:	**	Date/
	(Operations Representative)	

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING
REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	New JPM for NRC exam	Y	7/19/2000	All	L. Pauley

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

JA/TA task # : 3310110602

K/A Ratings:

006A1.06 {3.6/3.9}

038EA2.04 {3.9/4.2}

Task Standard: Complete first 7 steps of ECA-2.1 which include, starting MD AFW pumps, Re-establish MD AFW flow, Reducing feed flow to 25 gpm to each SG and isolating steam to TD AFW pump. Then transition to E-3, "Steam Generator Tube Rupture" due to high condenser exhaust rad levels.

NOTE: This task is not time critical, the operator must proceed promptly to prevent overfilling PZR and lifting a PZR PORV due to SI and Charging pump flow with no LOCA in progress.

Evaluation Method : Simulator X In-Plant

Performer: _____
NAME

Start time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish time _____

Evaluator: _____ / _____
SIGNATURE DATE

SIGNATURE	DATE
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COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Initialize the simulator in **IC-78**. If **IC 78** is not available, then initialize to **IC 10** and continue the with the following steps for setup.
4. Insert **MF FW09A and FW09B** to prevent auto start of both MD AFW Pumps
5. Insert **MF TH05A 3%**, SGTR on # 1 S/G.
6. Insert **MF MS03A, MS03B, MS03C, and MS03D at 100%** (one SV failed open on each S/G).
7. Place the simulator in RUN and manually trip the reactor and manually initiate SI. Allow the simulator to run until TC indicate ~450°F (> 100°F RCS cooldown). Turn the MSIV switches to close and Freeze the simulator
8. Any UNSAT requires comments
9. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR _____ Local _____

Tools/Equipment/Procedures Needed:

ECA-2.1, "Uncontrolled Depressurization of all Steam Generators"

REFERENCES:

	Reference	Title	Rev No.
A.	ECA-2.1	Uncontrolled Depressurization of All Steam Generators	8
B.	EA-3-8	Manual Control of AFW Flow	4
C.	EA-3-9	Establishing Turbine Driven AFW Flow	3

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. All steps shall be simulated for this task. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 experienced a secondary side pressure transient, that resulted in lifting code safety valves on all Steam generators. One code safety valve failed to reseal on each steam generator. A Safety Injection was manually initiated. At step 19 of E-0, the crew transitioned to E-2. The crew completed the first two steps of E-2 and transitioned to ECA-2.1.

INITIATING CUES:

The US/SRO directs you, the Unit 1 CRO, to perform the actions of ECA-2.1.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the required procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of ECA-2.1.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2.:</u> CHECK secondary pressure boundary</p> <p><u>STANDARD:</u> Operator checks the following valves for all four S/Gs closed. If they are open he should close or take action to close the valves.</p> <ul style="list-style-type: none"> MSIVs and MSIV bypass valves MFV Regulating valve and regulating bypass valves MFV Isolation valves Atmospheric relief valves SG Blowdown valves Checks MFV flow indication at ZERO 	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP3.:</u> CHECK MD AFW pumps running.</p> <p><u>STANDARD:</u> Operator identifies that both MD AFW pumps are not running and goes to the RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP4.:</u> START MD AFW pumps.</p> <p><u>STANDARD:</u> Operator starts both pumps</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP *5.:</u> CLOSE TD AFW pump steam supply valves FCV-1-17 or FCV-1-18.</p> <p><u>STANDARD:</u> Ensures FCV-1-17 or FCV-1-18 are closed. Closing both valves is acceptable but not required.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP6.:</u> MONITOR S/G narrow range levels greater than 10%[25% ADV]</p> <p><u>STANDARD:</u> Operator checks all S/G narrow range levels and determines that all near zero NR, THEN goes to the RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> MAINTAIN feed flow to affected S/Gs greater than or equal to 25 gpm UNTIL level greater than 10% (25%ADV).</p> <p><u>STANDARD:</u> Operator determines that feed flow to the affected S/G is \geq 25 gpm (~ 260 gpm per S/G) and proceeds with the procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>*STEP 8.:</u> CONTROL feed flow to minimize RCS cooldown. CHECK T-cold cooldown rate less than 100°F/hr.</p> <p><u>STANDARD:</u> Operator correctly identifies cooldown rate greater than 100 °F and goes to the RNO.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>*STEP 9.:</u> REDUCE feed flow to 25 gpm to each S/G.</p> <p><u>STANDARD:</u> Operator reduces feed flow to all four S/G to 25 gpm. Operator should reset the MDAFW LCVs, place each in manual bypass and manually reduce AFW flow to 25 gpm per S/G. Operator proceeds with substep 3.c.</p> <ul style="list-style-type: none"> Reducing flow is done by pressing each MDAFW LCV control selector switch to reset the accident signal and selecting manual bypass position. THEN holding each MDAFW LCV control switch in the close position until flow is reduced to 25 gpm per S/G as indicated on FI-3-163A, 155A, 147A, and 170A. 	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>*STEP 10.:</u> MONITOR T-hots stable or dropping.</p> <p><u>STANDARD:</u> Operator Monitors all loops T-hots stable or dropping.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP11.:</u> DETERMINE if RCP operation is permissible.</p> <p>NOTE: Operator should use steam tables or the operator aid on M-4 panel.</p> <p><u>STANDARD:</u> Operator determines that RCS subcooling (based on core exit T/C) greater than 40°F and monitors CST level greater than 10%.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> MONITOR CST level greater than 10%</p> <p><u>STANDARD:</u> Operator determines CST level approximately 80% and proceeds to the next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13.:</u> MONITOR Pressurizer PORVs and block valves</p> <p><u>STANDARD:</u> Operator ensures power to block valves AVAILABLE. Checks the PORVs CLOSED or closes a block valves if a PORV is open and checks at least one block valve OPEN.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP14.:</u> VERIFY secondary radiation NORMAL.</p> <p><u>STANDARD:</u> Operator notifies Chem Lab to sample S/G activity every 60 minutes and notifies RADCON to survey main steam lines.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>*STEP 15.: CHECK the following radiation monitors including available trends prior to isolation.</p> <p>NOTE: Condenser exhaust hi radiation alarm will be LIT and red light will be LIT on the radiation monitor. Based on this indication the recommendation to transition to E-3.</p> <p>STANDARD: Checks the following radiation monitors: Main Steam line RM NORMAL Condenser exhaust RM ABNORMAL [AR-M12A window D-3 alarm is lit and red light lit on RM-90-99 panel] S/G blowdown recorder RR-90-120 pen # 1 and pen # 2 normal. Post-Accident Radiation Monitor RR-90-268B, points 3, 4, 5, and 6 NORMAL</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical step</p>
<p>STEP16.: Operator informs the US/SRO that the first seven steps of ECA-2.1 are complete and the crew should transition to E-3 based on high radiation in the condenser exhaust and S/G blowdown.</p> <p>Cue: <i>Acknowledge that the first seven steps of ECA-2.1 are complete and that there will be a crew brief prior to transition to E-3.</i></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 57AP

Respond to High Containment Pressure, Place RHR Spray In Service

Original Signatures on File

PREPARED/
REVISED BY:

H. J. Burch

Date/ 9-15-95

VALIDATED BY:

W. J. Hall

Date/ 10-14-95

APPROVED BY:

Walter W. Hunt
(Operations Training Manager)

Date/ 10/17/95

CONCURRED:

**
N/A
(Operations Representative)

Date/

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
3	Transfer from WP.	N	11/1/94	All	HJ Birch
4	Incorporate Rev B changes.	Y	9/15/95	All	HJ Birch
pen/ink	Incorporate Performance comment correct valve name in step 9 to "Spray" valve, and correct Indicator ID in step 2 to "PDI" rather than PDIS..	N	10/25/99	6	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. **This JPM will be performed in the main control room with the evaluator providing appropriate cues. Train B RHR spray operation will not be successful due to FCV-72-41 failing to OPEN. The operator must go to the RNO to realign Train B and align Train A RHR spray.**
5. **This JPM may be performed in any MODE of plant operation.**
6. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 5 mins

Local

Tools/Equipment/Procedures Needed:

FR-Z.1

References:

	Reference	Title	Rev No.
1.	FR-Z.1	High Containment Pressure	10

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 has experienced a reactor trip and Safety Injection.
The crew has been monitoring step 9 of FR-Z.1 since FR-Z.1 was implemented.
1.5 hours has elapsed since the accident.

INITIATING CUES:

You are the Unit 1 OATC and the SRO directs you to initiate one train of RHR spray per FR-Z.1 starting at step 9.
Inform the SRO when a train of RHR spray has been established.

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain copy of appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of FR-Z.1 (begin at Step 9).</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> CHECK Containment pressure greater than 9.5 psid.</p> <p><u>Cue:</u> <i>Provide the cue after the operator checks PDIS-30-43 and 44.</i></p> <p><i>Containment pressure is 10 psid</i></p> <p><u>STANDARD:</u> Operator checks PDIS-30-43 and 44 and determines that pressure is greater than 9.5 psid.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> CHECK at least 1 hour has elapsed since beginning of accident.</p> <p><u>Cue:</u> <i>IF asked, 1.5 hours have elapsed since beginning of accident.</i></p> <p><u>STANDARD:</u> Operator determines from initiating cues (or asks US) that 1.5 hours have elapsed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> CHECK RHR suction ALIGNED to containment sump.</p> <p><u>Cue:</u> <i>FCV-63-72 and FCV-63-73 red lights are lit</i> <i>FCV-74-3 and FCV-74-21 green lights are lit</i></p> <p><i>If asked, ES-1.3 has been completed.</i></p> <p><u>STANDARD:</u> Operator check FCV-63-72 and 73 open AND FCV-74-3 and 21 closed. OR asks US if ES-1.3 "Transfer to RHR Containment Sump" has been completed.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5.:</u> CHECK at least one CCP AND one SI pump RUNNING.</p> <p>Cue: Provide the following cues as each light or instrument is checked.</p> <p>Both CCP red lights are LIT Flow on CCPIT FI-62-170 is 410 gpm CCP amps EI-62-104A and 108A indicate 40 amps on each pump Both SI pumps red lights are LIT Flow on SIPs FI-63-20A and 151A indicate 700 gpm each SIPs amps EI-63-12A and 16A indicate 30 amps each</p> <p><u>STANDARD:</u> Operator ensures at least one CCP is running as indicated by red light on HS-62-104 or HS-62-108 LIT. AND Ensure at least one SI pump is running as indicated by red lights on HS-63-10 or HS-63-15 LIT.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> RECORD current positions of the following valves:.</p> <p>FCV-63-94 ___ FCV-74-35 ___ FCV-63-93 ___ FCV-74-33 ___</p> <p>Cue: <i>FCV-63-94 red light is LIT</i> <i>FCV-63-35 green light is LIT</i> <i>FCV-63-93 red light is LIT</i> <i>FCV-63033 green light is LIT</i></p> <p><u>STANDARD:</u> Operator records the position of each of the listed valves.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> Align Train B RHR spray. Close RHR crosstie FCV-74-35.</p> <p>Cue: <i>FCV-74-35 green light is LIT</i></p> <p><u>STANDARD:</u> Operator verifies FCV-74-35 in the CLOSED position as indicated by HS green light ON and red light off.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 8.:</u> Close RHR Injection FCV-63-94.</p> <p>Cue: FCV-63-94 red light is DARK and green light is LIT</p> <p><u>STANDARD:</u> Operator places hand switch for RHR injection FCV-63-94 in the CLOSED position and verifies that the red light is DARK and the green light is LIT.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 9.:</u> OPEN RHR Spray FCV-72-41</p> <p>Cue: Green light is LIT and red light is DARK</p> <p><u>STANDARD:</u> Operator places the HS for FCV-72-41 in the OPEN position and determines that the valve will not operate then goes to the RNO.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>NOTE:</u> The following steps are from FR-Z.1, step 9c RNO</p> <p><u>STEP 10.:</u> CLOSE RHR spray FCV-72-41</p> <p>Cue: Green light is LIT</p> <p><u>STANDARD:</u> Operator verifies FCV-72-41 is closed, green light is LIT.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> REALIGN RHR injection FCV-63-94 to position recorded in Substep 9.b (of procedure)</p> <p>Cue: FCV-63-94 green light is DARK and Red light is LIT</p> <p><u>STANDARD:</u> Operator places HS for FCV-63-94 in the OPEN position and verifies it open by red light LIT.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 12.:</u> REALIGN RHR crosstie FCV-74-35 to position in Substep 9.b.</p> <p>Cue: <i>Green light is LIT</i></p> <p><u>STANDARD:</u> Operator verifies RHR crosstie FCV-74-35 in the CLOSED position by green light ON.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 13.:</u> Align Train A RHR spray. Close RHR crosstie FCV-74-33.</p> <p>Cue: <i>Green light is LIT</i></p> <p><u>STANDARD:</u> Operator verifies RHR crosstie FCV-74-33 in the CLOSED position as indicated by green light ON handswitch.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *14.:</u> Close RHR Injection FCV-63-93.</p> <p>Cue: <i>Green light is LIT</i></p> <p><u>STANDARD:</u> Operator places handswitch for RHR injection FCV-63-93 in the CLOSED position and verifies green light ON.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP *15.:</u> Open RHR spray FCV-72-40.</p> <p>Cue: <i>Green light is DARK and red light is LIT</i></p> <p><u>STANDARD:</u> Operator places handswitch for RHR spray FCV-72-40 in the OPEN position and verifies red light on.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist

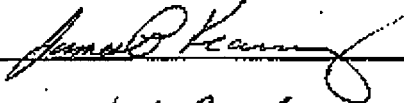
STEP/STANDARD		SAT/UNSAT
<u>STEP 16.:</u>	Communicates with SRO and informs him of status of RHR spray.	___ SAT
Cue:	<i>I understand that Train A RHR spray has been place in service and that FCV-72-41 failed to OPEN.</i>	___ UNSAT
<u>STANDARD:</u>	Operator informs SRO that the Train A RHR spray has been placed in service in accordance with FR-Z.1, and that FCV-72-41 failed to open.	Stop Time___

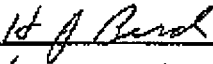
SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE


JPM 153

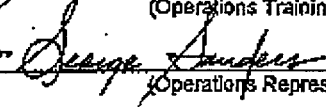
Emergency Mode Control Room Isolation due to High Rad

Original Signatures on File

PREPARED/
REVISED BY:  Date: 10/15/98

VALIDATED BY:  Date: 10-19-98

APPROVED BY:  Date: 10/21/98
(Operations Training Manager)

CONCURRED:  Date: 10/22/98
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize Simulator in IC: #10.
4. **NOTE: This JPM requires support from the Console Operator at several steps.**
5. **Ensure B Train Control Building A/C AHU and Electrical Board Room A/C AHU are in service[M-9].**
6. **Ensure 0-HS-311-105A and 0-HS-311-106A are placed in A-Auto [M-9].**
7. **Load CAE ! jpm153.** This will load the following malfunctions and overrides.
 IMF CH07A (none 0), failure of Train A Control Room Isolation
 IMF CH07B (none 0), failure of Train B Control Room Isolation
 IMF RM90125 (none 0) 10 500 to set RM-90-125, Control Room Radmonitor, to a high rad condition.
 IMF RM90126 (none 0) 10 500 to set RM-90-126, Control Room Radmonitor, to a high rad condition.
 IOR OVRDN[1255] ON to set Control Room Isolation Train A alarm
 IOR OVRDN[1262] ON to set Control Room Isolation Train B alarm
 IOR ZLOXX559A[10] OFF
 IOR ZLOXX559A[9] ON
 IOR ZLOXX559B[32] OFF
 IOR ZLOXX559B[31] ON
 IOR ZLOXX559A[44] OFF
 IOR ZLOXX559A[43] ON
 IOR ZLOXX559B[20] OFF
 IOR ZLOXX559B[19] ON
6. Acknowledge all alarms.
7. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 15 mins **Local** _____

Tools/Equipment/Procedures Needed:
0-SO-30-2 section 8.1

References:

	Reference	Title	Rev No.
1.	0-SO-30-2	Control Room Isolation	7
2.	1-AR-M6-C	CVCS-Heat Trace -UHI	18
3.	0-AR-M12-B	Common Radiation Monitor	13

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Both units are in MODE 1.

All systems are aligned in automatic control.

A valid high rad signal occurred on 0-RM-90-125 and 0-RM-90-126.

INITIATING CUES:

The Unit 1 US/SRO has directed you to respond to the high rad alarms and perform any necessary actions.

When all necessary actions have been completed notify the Unit 1 US/SRO.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Acknowledge Control Room Ventilation Isolation alarm.</p> <p><u>STANDARD:</u> Operator verifies Control Room Ventilation Isolation alarm acknowledged. Pulls AR-M6-C windows E-5 and E-6. Determines the need to perform the actions of 0-SO-30-2.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP* 2.:</u> Obtain proper procedure.</p> <p><u>STANDARD:</u> 0-SO-30-2 Section 8.1 identified as appropriate procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> IF spurious isolation signal, THEN PERFORM 0-SO-30-2 Section 8.2.</p> <p><u>Note:</u> Initial conditions stated alarm was valid.</p> <p><u>STANDARD:</u> Operator NAs this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> IF isolation signal is valid THEN NOTIFY Radiochemical Laboratory to have air samples taken.</p> <p><u>STANDARD:</u> Operator notifies the Radiochemical Laboratory to take air samples of main control room.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5.:</u> ENSURE either Control Building A/C AHU RUNNING and associated AHU inlet OPEN.</p> <p><u>STANDARD:</u> Operator verifies that B Train Control Building A/C AHU is running and 0-FCO-311-23 is open</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> ENSURE either Electrical Board Room A/C AHU RUNNING and associated AHU inlet OPEN.</p> <p><u>STANDARD:</u> Operator verifies that B Train Electrical Board Room A/C AHU is running and 0-FCO-311-28 is open</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 7.:</u>	ENSURE either Control Building Emergency Air Cleanup fan RUNNING and associated fan inlet OPEN.	___ SAT ___ UNSAT
	<p><u>STANDARD:</u> Operator starts ONE of the following Emergency Air Cleanup fans and verifies its inlet open:</p> <p>Place 0-HS-311-8A, Fan A, to Start and verify RED light LIT and verify RED light LIT for 0-FCO-311-9, Fan A Inlet. <input type="checkbox"/></p> <p>OR</p> <p>Place 0-HS-311-10A, Fan B, to Start and verify RED light LIT and verify RED light LIT for 0-FCO-311-11, Fan B Inlet. <input type="checkbox"/></p>	Critical Step
<u>STEP 8.:</u>	ENSURE at least one Emergency Air Pressurizing Fan RUNNING and associated fan inlet OPEN.	___ SAT ___ UNSAT
	<p><u>STANDARD:</u> Operator starts ONE of the following Emergency Air Pressurizing fans and verifies its inlet open:</p> <p>Place 0-HS-311-108A, Fan A, to Start and verify RED light LIT and verify RED light LIT for 0-FCO-311-108, Fan A Inlet. <input type="checkbox"/></p> <p>OR</p> <p>Place 0-HS-311-109A, Fan B, to Start and verify RED light LIT and verify RED light LIT for 0-FCO-311-109, Fan B Inlet. <input type="checkbox"/></p>	Critical Step
<u>STEP 9.:</u>	ENSURE MCR and Spreading Room Fresh Air Fans STOPPED.	___ SAT ___ UNSAT
	<p><u>STANDARD:</u> Operator verifies the following Spreading Room Supply and Exhaust Fans are stopped by the fan's GREEN light LIT or places the handswitch to the STOP position and verify the GREEN light LIT:</p> <p>Spreading Room Supply Fan, 0-HS-311-36A <input type="checkbox"/></p> <p>Spreading Room Exhaust Fan A, 0-HS-311-79A [not critical, fan is already off] <input type="checkbox"/></p> <p>Spreading Room Exhaust Fan B, 0-HS-311-80A <input type="checkbox"/></p>	Critical Step

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT								
<p><u>STEP 10.:</u> ENSURE the following Spreading Room Fresh Air Dampers CLOSED:</p> <table border="0"> <tr> <td>0-FCV-311-105B</td><td>Spreading room fresh air</td></tr> <tr> <td>0-FCV-311-106B</td><td>Spreading room fresh air</td></tr> <tr> <td>0-FCV-311-79</td><td>Spreading Room Exhaust Fan A outlet</td></tr> <tr> <td>0-FCV-311-80</td><td>Spreading Room Exhaust Fan B outlet</td></tr> </table> <p><u>STANDARD:</u> Verifies 0-FCV-311 105B CLOSED by GREEN light lit Verifies 0-FCV-311 106B CLOSED by GREEN light lit Verifies 0-FCV-311-79 CLOSED by GREEN light LIT <input type="checkbox"/> Verifies 0-FCV-311-80 CLOSED by GREEN light LIT <input type="checkbox"/></p>	0-FCV-311-105B	Spreading room fresh air	0-FCV-311-106B	Spreading room fresh air	0-FCV-311-79	Spreading Room Exhaust Fan A outlet	0-FCV-311-80	Spreading Room Exhaust Fan B outlet	<p>___ SAT</p> <p>___ UNSAT</p>
0-FCV-311-105B	Spreading room fresh air								
0-FCV-311-106B	Spreading room fresh air								
0-FCV-311-79	Spreading Room Exhaust Fan A outlet								
0-FCV-311-80	Spreading Room Exhaust Fan B outlet								
<p><u>STEP 11.:</u> ENSURE the MCR dampers CLOSED:</p> <table border="0"> <tr> <td>0-FCV-311-105A</td><td>MCR fresh air</td></tr> <tr> <td>0-FCV-311-106A</td><td>MCR fresh air</td></tr> </table> <p><u>STANDARD:</u> Operator closes the following dampers:</p> <p>Places 0-HS-311-105A to CLOSE to close 0-FCV-311-105A and - 105B and verify GREEN lights LIT</p> <p>Places 0-HS-311-106A to CLOSE to close 0-FCV-311-106A and - 106B and verify GREEN lights LIT</p>	0-FCV-311-105A	MCR fresh air	0-FCV-311-106A	MCR fresh air	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>				
0-FCV-311-105A	MCR fresh air								
0-FCV-311-106A	MCR fresh air								

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p>STEP 12.: ENSURE the Spreading Room Fresh Air Dampers CLOSED:</p> <p>0-FCV-311-17 Spreading Room supply discharge 0-FCV-311-102 Spreading Room supply discharge</p> <p>NOTE: Spreading room supply discharge dampers 0-FCO-311-17 & 102 have control room indications only, personnel will have to be dispatched locally to close these dampers.</p> <p>NOTE: Console operator inserts the following to close 0-FCO-311-17. IOR ZLOXX559A[10] ON IOR ZLOXX559A[9] OFF Console operator inserts the following to close 0-FCO-311-102. IOR ZLOXX559B[32] ON IOR ZLOXX559B[31] OFF</p> <p>Cue: <i>Role play as an AUO when requested to locally close the dampers.</i></p> <p>STANDARD: Operator dispatches personnel locally to close them: Requests SM/SRO to dispatch personnel or dispatches personnel to CLOSE 0-FCV-311-17 & 0-FCV-311-102 locally.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 13.: ENSURE Locker Room Exhaust Fan STOPPED.</p> <p>STANDARD: Operator places 0-HS-311-81A to the PTL position and verifies the GREEN light LIT.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p>STEP 14.: ENSURE Locker Room Exhaust Dampers CLOSED:</p> <p>0-FCO-311-103, Toilet and Locker Room Exhaust Fan Discharge 0-FCO-311-104, Toilet and Locker Room Exhaust Fan Discharge</p> <p>Note: These dampers have control room indications only, personnel will have to be dispatched locally to close these dampers.</p> <p>Note: Console operator inserts the following to close 0-FCO-311-103. IOR ZLOXX559A[44] ON IOR ZLOXX559A[43] OFF Console operator inserts the following to close 0-FCO-311-104. IOR ZLOXX559B[20] ON IOR ZLOXX559B[19] OFF</p> <p>Cue: Role play as an AUO when requested to locally close the dampers.</p> <p>STANDARD: Operator requests SM/SRO to dispatch personnel or dispatches personnel requests SM/SRO to locally close 0-FCO-311-103 and 0-FCV-311-104.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p>STEP 15.: IF one Electrical Board Room AHU in service, THEN ENSURE one of the Battery Room Exhaust Fans are RUNNING.</p> <p>Note: Simulator setup always has at least one Electrical Board Room AHU in service.</p> <p>STANDARD: Operator verifies one of the following Battery Room Exhaust Fans are running by RED light LIT or places one of the handswitches to START and verifies RED light LIT:</p> <p>0-HS-311-33A, Battery Room Exhaust Fan A <input type="checkbox"/> 0-HS-311-34A, Battery Room Exhaust Fan B <input type="checkbox"/> 0-HS-311-35A, Battery Room Exhaust Fan C <input type="checkbox"/></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 16.: IF Electrical Board Room AHUs stopped, THEN STOP battery room exhaust fans.</p> <p>STANDARD: Operator N/As the step because one Electrical Board Room AHU is running.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 17.:</u> IF Battery Room Exhaust Fans off and either Electrical Board Room AHU running, THEN CLOSE damper, 31A-157.</p> <p><u>STANDARD:</u> Operator N/As the step because one Battery Room Exhaust Fan is running.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.:</u> ENSURE Shutdown Board Room Pressurizing Fans A and B STOPPED.</p> <p><u>STANDARD:</u> Operator places the following fans handswitches to the STOP position and verifies the GREEN light is LIT for each fan:</p> <p>0-HS-313-383A, 1A-A Pressurizing Fan <input type="checkbox"/></p> <p>0-HS-313-384A, 1B-B Pressurizing Fan <input type="checkbox"/></p> <p>0-HS-313-391A, 2A-A Pressurizing Fan <input type="checkbox"/></p> <p>0-HS-313-392A, 2B-B Pressurizing Fan <input type="checkbox"/></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 19.:</u> IF it is desired to align the Train A Control Room Emergency Ventilation System (CREVS) for standby mode operation, THEN PERFORM the following.</p> <p><u>Cue:</u> <i>Direct the operator that Train A CREVS is not to be placed in standby at this time.</i></p> <p><u>STANDARD:</u> Operator N/As this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20.:</u> IF it is desired to align the Train B Control Room Emergency Ventilation System (CREVS) for standby mode operation, THEN PERFORM the following.</p> <p><u>Cue:</u> <i>Direct the operator that Train B CREVS is not to be placed in standby at this time.</i></p> <p><u>STANDARD:</u> Operator N/As this step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 21.:</u>	If paint or solvents were used on C elev 732 or the CB roof within the 24 hours prior to CREVS startup, then notify Technical Support.	___ SAT ___ UNSAT
<u>Cue:</u>	<i>Paint or solvents have not been used in the last 24 hours.</i>	Stop Time___
<u>STANDARD:</u>	Operator N/As this step and notifies the US/SRO that Emergency Mode Control Room Isolation has been completed.	

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 104

Initiate Makeup to the Refueling Cavity

Original Signatures on File

PREPARED/
REVISED BY: H. J. Burch Date: 9/23/95

VALIDATED BY: [Signature] Date: 10-21-95

APPROVED BY: Walter W. Hunt Date: 10/25/95
(Operations Training Manager)

CONCURRED: N. B. [Signature] Date: _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
3	Transfer from WP. Minor enhancements.	N	1994	All	HJ Birch
4	Incorporate AOP-M.04.	Y	9/22/95	All	HJ Birch
pen/ink	AOP-M.04 revision had no impact. Revised K/A ratings. Reformatted critical steps.	N	9/25/98	All	JP Kearney
pen/ink	AOP-M.04 revision updated, no impact on JPM.	N	7/08/00	4	RC King

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator in IC # 59 for full setup OR use IC-14 and complete the following setup.
4. **IOR # AN:OVRDN [584] to ON**, to bring in alarm for SPENT FUEL PIT LEVEL.
5. **IOR ZAOLI68320, ZAOLI68321, ZAOLI68335A, ZAOLI68339A at 40** to simulate PZR at refueling level.
6. **IOR ZAOPi6866A, ZAOPi6869, ZAOPi6862 at 20** to simulate refuel flood up pressure.
7. **IOR AN:OVRDN [1695] OFF** to keep midloop high level alarm from alarming.
8. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 7 mins Local _____

Tools/Equipment/Procedures Needed:

AOP-M.04, Section 2.0, 2.1, and Appendix A & B

References:

	Reference	Title	Rev No.
1.	AOP-M.04	Refueling Malfunctions	3

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. Unit 1 is in mode 6 performing refueling operations. Approximately 1/2 of the core has been off-loaded at this time.
2. There is one fuel assembly in transit to the spent fuel pit from the core, it is presently in the upender cart in transient to the spent fuel pit.
3. Both Mansell level instruments are in service and a dedicated operator has been assigned to monitor vessel level and keep you informed of any changes in level.

INITIATING CUES:

1. Approximately 3 minutes ago the alarm on panel 1-M-6D for SPENT FUEL PIT LEVEL HIGH-LOW actuated.
2. The refueling AUO on the manipulator crane in the reactor building has just informed you that there is obvious drop in level has occurred.
3. The refueling SRO has requested that makeup to the refueling cavity be initiated as rapidly as possible by aligning a CCP to supply water from the RWST.
4. Inform the refueling SRO (and Unit SRO) as soon as makeup is initiated.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Alarm response.</p> <p><u>Cue:</u> <i>IF asked for, the remote camera shows cavity level decreasing and the Mansell operator reports level is slowly decreasing</i></p> <p><u>STANDARD:</u> Operator responds using AR-M6-D window D-3. AUO is dispatched to the SFP to investigate the alarm. Operator determines that AOP-M.04 is the appropriate procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> Obtain the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of AOP-M.04.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> EVALUATE Tech Specs and the REP.</p> <p><u>Cue:</u> <i>The SM will ensure these are evaluated.</i></p> <p><u>STANDARD:</u> Operator notifies US of the need to evaluate these two items.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> Diagnose conditions to determine appropriate section, of AOP-M.04, to perform.</p> <p><u>STANDARD:</u> Based on plant indications and initial conditions, determines that section 2.1 should be performed..</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical step</p>
<p><u>STEP 5.:</u> ANNOUNCE to all personnel to evacuate Containment.</p> <p><u>Cue:</u> <i>The SM would like you to make that announcement.</i></p> <p><u>STANDARD:</u> Operator makes this announcement.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6.:</u> NOTIFY the following of event in progress:</p> <p><u>Cue:</u> <i>The SM will ensure all control room personnel are aware of the event and that RADCON begins monitoring cntmt and the Aux Bldg.</i></p> <p><u>STANDARD:</u> Operator ensures these people are notified.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7.:</u> VERIFY movement of any reactor lower internals completed.</p> <p><u>Cue:</u> <i>Reactor lower internals are not being moved.</i></p> <p><u>STANDARD:</u> Operator recognizes this is not in progress from initiating cues or contacts Fuel Handling Supervisor (FHS) to ensure it is not in progress.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8.:</u> DISPATCH two operators with keys and radios to 1-8-610, Transfer Tube Wafer Valve [Aux Bldg, 706' elev, PASF Room].</p> <p><u>Cue:</u> <i>Acknowledge that 2 AUOs are responding with key and radio to close wafer valve.</i></p> <p><u>STANDARD:</u> Operator contacts two AUOs to respond to wafer VLV with M-5 key and radio</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9.:</u> INITIATE makeup using Appendix A of AOP-M.04.</p> <p><u>STANDARD:</u> Operator obtains a copy of Appendix A Section A of AOP-M.04.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>NOTE:</u> The following are from Appendix A Section A of AOP-M.04.</p> <p><u>STEP 10.:</u> If initiating makeup from RWST using CCP, THEN ENSURE FCV-62-86 OR FCV-62-85 OPEN.</p> <p><u>STANDARD:</u> Operator verifies FCV-62-85 or 86 is open by RED light LIT on HS.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> OPEN FCV-62-135 and 136, CCP suction from RWST.</p> <p><u>STANDARD:</u> Operator pushes HSs in and turns to the OPEN position and verifies red lights LIT for FCVs-62-135 and 136.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 12.:</u> CLOSE FCV-62-132 and 133, CCP suction from VCT.</p> <p><u>STANDARD:</u> Operator pushes HSs in and turns to the CLOSED position and verifies green lights LIT for FCVs-62-132 and 133.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 13.:</u> CLOSE FCV-62-83, RHR letdown</p> <p><u>STANDARD:</u> Operator dials controller to zero and verifies the output signal goes to the closed (0) indication.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 14.:</u> CLOSE FCV-62-81, letdown back pressure control valve.</p> <p><u>STANDARD:</u> Operator determines that FCV-62-81 is CLOSED. It went closed after FCV-62-83 was closed. Proceed to the next step.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 15.:</u> ENSURE CCP is running.</p> <p><u>STANDARD:</u> Operator ensures a CCP is running by red light on HS LIT, may also verify amps indicated.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 16.:</u> VERIFY flow to RCS.</p> <p><u>STANDARD:</u> Operator verifies charging flow indicated on FI-62-93A. Operator may adjustFCV-62-89 to reduce RCP seal flow.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 17.:</u> Operator may communicate with the Mansell operator and the refueling crew to see if cavity level is increasing.</p> <p><u>Cue:</u> <i>Mansell level instrument is increasing and cavity level is increasing.</i></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18.:</u> Inform the refueling and unit SROs that makeup has been initiated to the refueling cavity.</p> <p><u>NOTE:</u> If operator continues in procedure, inform him/her that the OATC and the FHS will complete the remainder of the procedure.</p> <p><u>STANDARD:</u> Operator informs the refueling and unit SROs that makeup has been initiated to the refueling cavity.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 58AP

FAULTED STEAM GENERATOR ISOLATION WITH MSIV STUCK OPEN

Original Signatures on File

PREPARED/
REVISED BY:

H. J. Burch Date/ 9.15-95

VALIDATED BY:

R. Russell Date/ 10/23/95

APPROVED BY:

Watts S. Hunt Date/ 10/25/95
(Operations Training Manager)

CONCURRED:

N/A Date/
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
5	Transfer from WP. Minor enhancements.	N	8/19/94	All	HJ Birch
6	Incorporated U2 TDAFW HS use	N	10/27/94	6	HJ Birch
7	Incorporate Rev B changes.	Y	9/45/95	All	HJ Birch
pen/ink	E-2 revision had no impact. Revised K/A ratings. Reformatted critical steps.	N	8/13/98	All	JP Kearney
pen/ink	E-2 Rev update only	N	9/23/99	4	SR Taylor
pen/ink	Clarify step 4 standard based on 1999 annual exam performance results.	N	3/13/00	5	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Initialize the simulator to IC-42 for complete setup **OR** initialize the simulator to IC # 10 **THEN** activate **MF # MS04A** (to fail #1 MSIV OPEN) and malfunction # **MS02A** (steam leak outside containment on loop #1 S/G) at 3% severity.
4. Manually trip Rx and initiate SI. Run simulator until all automatic actions are completed and then FREEZE simulator until the operator has been briefed.
5. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. 8 mins

Local

Tools/Equipment/Procedures Needed:

E-2 "Faulted Steam Generator Isolation".

EA-1-1 "Closing MSIVs Locally"

References:

	Reference	Title	Rev No.
1.	E-2	Faulted Steam Generator Isolation	10

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you and to indicate completion of your answer to a knowledge question return the written copy of the question to me.

INITIAL CONDITIONS:

Unit 1 was at 100 % RTP when a Reactor Trip and Safety injection was actuated.
The crew has determined that all S/G pressures are decreasing.
E-0 has directed the crew to implement E-2 "Faulted Steam Generator Isolation".

INITIATING CUES:

The US/SRO directs you, the Unit 1 CRO, to implement E-2 and identify and Isolate the faulted S/G.
Inform the US/SRO when all actions to isolate the faulted S/G have been initiated.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the required procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of E-2.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> CHECK MSIV's and MSIV bypass valves CLOSED. RNO: CLOSE valves.</p> <p><u>NOTE:</u> MSIV 1-FCV-1-4 will NOT close.</p> <p><u>STANDARD:</u> Operator places HSS-1-4, 11, 22, 29 in the closed position and verifies green (& blue) lights ON, verifies HSS-1- 147, 148, 149, 150 are in the closed position with green lights ON. Recognizes FCV-1-4 will NOT close as indicated by RED light on handswitch ON.</p> <p><u>NOTE:</u> <u>Operator must perform RNO for step 1.</u></p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 3.:</u> IF any MSIV can NOT be closed, THEN CLOSE MSIV USING EA-1-1, Closing MSIVs Locally.</p> <p><u>CUE:</u> <i>The OATC will implement EA-1-1.</i></p> <p><u>STANDARD:</u> Operator dispatched to close loop 1 MSIV using EA-1-1.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 4.:</u> CHECK S/G secondary pressure boundary integrity: Any S/G press controlled or rising.</p> <p><u>NOTE:</u> The other steam generators are NOT faulted.</p> <p><u>STANDARD:</u> Operator checks all S/G pressures using PI-1-2A & B, 9A & B , 20 A & B, 27 A & B OR PR-1-2 and determines that only #1 S/Gs pressure is decreasing <u>uncontrolled</u> and continues with E-2. Note: Other S/Gs may also be decreasing due to the cooldown, however, operator should realize this and not transition to ECA-2.1.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5.:</u> Identify Faulted S/G:</p> <p>a. Any S/G pressure DROPPING in an uncontrolled manner. b. Any S/G pressure less than 140 psig.</p> <p>NOTE: Critical ONLY IF another S/G is identified as faulted.</p> <p><u>STANDARD:</u> Operator correctly identifies #1 S/G as faulted S/G.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 6.:</u> ISOLATE Faulted S/G</p> <p><u>STANDARD:</u> The following steps isolate the faulted S/G.</p>	
<p><u>STEP 7.:</u> ISOLATE MFW.</p> <p><u>STANDARD:</u> Operator verifies FCV-3-35, 35A, and 33 closed by green light "ON" for respective valves.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8.:</u> ISOLATE AFW</p> <p><u>STANDARD:</u> Operator depresses pushbutton controls for LCV-3-164/164A to accident reset THEN places each in the manual position, verifies amber light on XX-3-148 ON and closes each valve by turning switch to the closed position and verifies the green lights on for each valve. Places 1-HS-3-174 to the CLOSE position [HS may be placed in the PTL position] and verifies valve closed by green light on XX-3-148.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 9.:</u> CLOSE steam supply valve to TD AFW pump FCV-1-15 or 16 CLOSED.</p> <p><u>STANDARD:</u> Operator places HS for FCV-1-15 in the CLOSED position and verifies green light "ON". [THEN places HS for FCV-1-16 in the OPEN position and verifies red light "ON".] [] not critical.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10.:</u> VERIFY S/G blowdown valves CLOSED.</p> <p><u>STANDARD:</u> Operator ensures FCV-1-7 and 181 closed as indicated by green light "ON" for respective valves.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 11.:</u> VERIFY atmospheric relief CLOSED.</p> <p><u>STANDARD:</u> Operator ensure PCV-1-6 closed by green light "ON" HS.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12.:</u> Inform the US that the #1 S/G has been identified and isolated per E-2.</p> <p><u>NOTE:</u> If operator continues to the end of the procedure, cue the remaining steps as appropriate.</p> <p><u>STANDARD:</u> Operator informs the US that the #1 S/G has been identified and isolated per E-2.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Stop Time___</p>

Local Alignment of U-2 TDAFW LCV Back-Up Air Supply

**** Operations Concurrence required for new JPMS and changes that affect the flow of the JPM (if not driven by a procedure revision).**

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Initial	Y	9/9/94	All	HJ Birch
1	Added KAs numbers to JPM. Included AUO performance in heading. Incorporated Rev B changes.	Y	9/14/95	All	HJ Birch
pen/ink	EA Rev chg. Added step to select unit 2 as the applicable unit.	N	11/4/95	4,5	HJ Birch

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:

Local Alignment of U2 TDAFW LCV Back-up Air Supply

JA/TA task # : 0000140504 (AUO)

K/A Ratings:

000055 G.6 (3.8-4.1)

061000 A2.02 (3.2-3.6)

Task Standard:

U2 TDAFW LCV back-up air supply aligned.

Evaluation Method : Simulator _____ In-Plant X

Performer:

NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator:

SIGNATURE

DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. JPM time represents a start from the 6.9KV Shutdown Bd area.
5. Insure operator performs the following required actions for **SELF-CHECKING**;
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. _____ **Local** 8 minutes

Tools/Equipment/Procedures Needed:
EA-3-4

REFERENCES:

	Reference	Title	Rev No.
1.	EA-3-4	Local Alignment of U-2 TD AFW LCV Back-Up Air Supply	3

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you and to indicate completion of your answer to a knowledge question return the written copy of the question to me.

INITIAL CONDITIONS:

Unit 1 and Unit 2 have experienced a total loss of AC power. The main control room is responding to the event

INITIATING CUES:

You are the Unit 2 Auxiliary Building AUO.
The CRO has directed you to locally align the back-up air supply to the Unit 2 TDAFW LCVs per EA-3-4.
Notify the CRO when the back-up air has been aligned.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1.:</u> Operator obtains appropriate procedure and determine appropriate section.</p> <p><u>STANDARD:</u> Operator obtains a copy of EA-3-4 and determines that section 4.2 is the appropriate section.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> SELECT the unit for local alignment of TD AFW LCVs.</p> <p><u>STANDARD:</u> Operator selects unit 2.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> Obtain hand held lighting and radios.</p> <p><u>STANDARD:</u> Operator has in their possession hand held lighting and a radio.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *4.:</u> OPEN 2-ISV-32-1950E isolation Valve for 2-LCV-3-172.</p> <p><u>Cue:</u> <i>Handwheel turns several turns in the CCW direction and stops.</i></p> <p><u>STANDARD:</u> Operator opens valve by turning the handwheel in the counter clockwise direction.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *5.:</u> OPEN 2-ISV-32-1969E isolation Valve for 2-LCV-3-173.</p> <p><u>Cue:</u> <i>Handwheel turns several turns in the CCW direction and stops.</i></p> <p><u>STANDARD:</u> Operator opens valve by turning the handwheel in the counter clockwise direction.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP *6.:</u>	OPEN 2-ISV-32-1866E isolation Valve for 2-LCV-3-175.	___ SAT
	<u>Cue:</u> <i>Handwheel turns several turns in the CCW direction and stops.</i>	___ UNSAT
	<u>STANDARD:</u> Operator opens valve by turning the handwheel in the counter clockwise direction.	
<u>STEP *7.</u>	OPEN 2-ISV-32-1974E isolation Valve for 2-LCV-3-174.	___ SAT
	<u>Cue:</u> <i>Handwheel turns several turns in the CCW direction and stops.</i>	___ UNSAT
	<u>STANDARD:</u> Operator opens valve by turning the handwheel in the counter clockwise direction.	
<u>STEP 8.:</u>	Operator notifies the CRO that the Back-up air has been aligned to the TDAFW LCV.	___ SAT
	<u>STANDARD:</u> Same	___ UNSAT Stop Time___

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 23

ALIGN STANDBY AIR RECEIVER FOR SERVICE ON THE 2A-A D/G

Original Signatures on File

PREPARED/ REVISED BY:	<u>H. Burt</u>	Date: <u>1-16-96</u>
VALIDATED BY:	<u>N/A</u>	Date:
APPROVED BY:	<u>Walter Hunt</u> (Operations Training Manager)	Date: <u>1/17/96</u>
CONCURRED:	<u>N/A</u> (Operations Representative)	Date:

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Transfer from WP. Minor enhancements.	N	8/18/94	All	HJ Birch
1	0-SO-82-7 replaced SOI-82.1. Enhanced steps. No chg to performance. Incorp previous pen/ink: Added dates to cover sheet. Chgd task # to 06400402 from 06400402 which did not apply.	N	1/16/96	All	HJ Birch
	0-SO-82-7 Rev chg	N	5/11/98	4	HJ Birch
pen/ink	0-SO-82-7 Rev chg	N	9/21/99	4	SR Taylor
pen/ink	0-SO-82-7 Rev chg	N	10/21/99	4	SR Taylor

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

Align Standby Air Receiver for Service on the 2A-A D/G

JA/TA task #: 0640010104 (AUO)

K/A Ratings:

064000 K1.05 (3.4 - 3.9)

064000 A3.04 (3.1 - 3.5)

064000 A4.04 (3.2 - 3.2)

064000 GK 4 (3.5 - 3.6)

064000 GK 7 (3.4 - 3.6)

064000 A2.01 (3.1 - 3.3)

Task Standard:

The standby air receiver is aligned for service to the 2A-A D/G.

Evaluation Method : Simulator _____ In-Plant X _____

Performer: _____
NAME

Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____

Finish Time _____

Evaluator: _____ / _____
SIGNATURE DATE

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by an asterisk (*)
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments

Validation Time: CR. _____

Local 20 mins

Tools/Equipment/Procedures Needed:

0-SO-82-7 Section 8.1

References:

	Reference	Title	Rev No.
1.	0-SO-82-7	Diesel Generator 2A-A Support Systems	4

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- Both units are at 100% power. All equipment is operable on both units.
- Painters have been resurfacing the floors in the D/G Bldg.
- Approximately 2 mins ago the alarm for "DIESEL GEN 2A-A START AIR PRESS LOW ENG 1 OR 2" came in.
- The outside AUO has reported that the blowdown valve (0-82-509-2A1) on the bottom of the NORMAL air receiver has been knocked off and the NORMAL air receiver air pressure is ZERO psig.

INITIATING CUES:

- You are the Control Room AUO, the U2 CRO has directed you to go to the D/G Bldg and align the standby air receiver for service on the 2A-A D/G, engine 2A-1, per 0-SO-82-7, Section 8.1.
- When the standby air receiver has been aligned notify the U2 CRO.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Operator obtains a copy of 0-SO-82-7 section 8.1.</p>	<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2:</u> Obtain permission from U 1 and U 2 US.</p> <p><u>Cue:</u> <i>Play both Unit US's and sign for their approval to align the standby receiver.</i></p> <p><u>STANDARD:</u> Operator obtains permission from both Unit US's to perform the procedure.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *3:</u> CLOSE the following valves (to isolate the NORMAL receiver):</p> <p>0-82-514-2A1, Air Tank Shutoff Vlv (receiver outlet) 0-82-503-2A1, Compr Shutoff Vlv (receiver inlet) 0-82-511-2A1, PS Shutoff Vlv (PS sensing line) 0-82-506-2A1, Air Tank Conn Vlv (receiver crosstie)</p> <p><u>Cue:</u> <i>The HW turned several turns and is now snug (Stem lowers).</i></p> <p><u>STANDARD:</u> Operator locates and closes the valves by turning the HWs in the Clock-Wise (C-W) until each is snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP *4:</u> OPEN the following valves (to align the STANDBY receiver):</p> <p>0-82-519-2A1, Air Tank Shutoff Valve (receiver outlet) 0-82-512-2A1, PS Shutoff Valve (PS sensing line) 0-82-504-2A1, comp Shutoff Valve (receiver inlet)</p> <p><u>Cue:</u> <i>HW turned several turns in the C-C-W direction and is now snug (stem rises).</i></p> <p><u>STANDARD:</u> Operator locates valves and turns HWs in the Counter-Clock-Wise direction until snug.</p>	<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 5:</u>	Inform the U2 CRO that the standby air receiver for 2A-A D/G has been placed in service.	<input type="checkbox"/> SAT
		<input type="checkbox"/> UNSAT
<u>STANDARD:</u>	Operator informs the U2 CRO that the standby air receiver for engine 2A1, 2A-A D/G has been placed in service.	Stop Time <input type="text"/>

SEQUOYAH NUCLEAR PLANT JOB PERFORMANCE MEASURE

JPM # 32AP

Local Manual Control of a S/G PORV Modified - Not an AP

Original Signatures on File

PREPARED/ REVISED BY:	<u>H. Burch</u>	Date/ <u>3-12-96</u>
VALIDATED BY:	<u>N/A</u>	Date/
APPROVED BY:	<u>Walter H. [Signature]</u> (Operations Training Manager)	Date/ <u>3-12-96</u>
CONCURRED:	<u>N/A</u> (Operations Representative)	Date/

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING					
REVISION/USAGE LOG					
REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
6	Transfer from WP. Change JPM and initial conditions to match new procedure Rev of AOI-27.	N	8/24/94	All	HJ Birch
7	Incorporate Rev B changes.	N	9/19/95	All	HJ Birch
8	Incorp previous pen/ink to add AUO to performer group. Chgd from AOI-27 to AOP-C.04. Added cue to stp 5. Chgd press from 60 to 22 psig since guage only goes to 28. Change title to AP since must go from 1st choice of operating valve with the controller, to manual operations.	N	3/12/96	4,5,6	HJ Birch
pen/ink	AOP- C.04 revision had no impact. Revised K/A ratings. Reformatted critical steps.	N	8/22/98	All	JP Kearney

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

COMMENTS

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. This JPM should be initiated from the Aux Control Room/6.9kV SD Bd Room
4. Ensure operator performs the following required actions for **SELF-CHECKING**:
 - a. Identifies the correct unit, train, component, etc.
 - b. Reviews the intended action and expected response.
 - c. Compares the actual response to the expected response.

Validation Time: CR. _____

Local 5 minutes

Tools/Equipment/Procedures Needed:

EA-1-2

References:

	Reference	Title	Rev No.
A.	EA-1-2	Local Control of S/G PORVS	1
B.	AOP-C.04	Control Room Inaccessibility	1

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READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM. I will provide initiating cues and indicate any steps to be discussed. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. Smoke has forced a "Control Room Evacuation".
2. While performing actions in AOP-C.04 "Operations to Cold Shutdown in the Auxiliary Control Mode", the Unit 1 UO could NOT get the S/G PORVs to open.

INITIATING CUES:

1. You are the Control Room AUO and are directed to locally operate the #1 S/G PORV in accordance with EA-1-2.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 1.:</u> Obtain a copy of the appropriate procedure.</p> <p><u>NOTE:</u> Once the operator has demonstrated where/how to obtain the procedure supply him/her with a copy.</p> <p><u>STANDARD:</u> Operator obtains a copy of EA-1-2 from AOP-C.04 locker.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Start Time___</p>
<p><u>STEP 2.:</u> Perform actions of Section 4.1.</p> <p><u>STANDARD:</u> Operator selects unit 1 and S/G #1 and transitions to section 4.2.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3.:</u> Establish communications between UO in Aux. Control room and operator at #1 S/G PORV manual controls.</p> <p><u>Cue:</u> After the operator establishes communications tell him to "partially open the PORV" (if phone is used: keep the phone line open.</p> <p><u>STANDARD:</u> Communications is established between operator at #1 S/G PORV and UO in Aux. Cont. Rm.</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4.:</u> IF control air available, THEN CLOSE HCVs for atmos relief by turning knurled knob counterclockwise UNTIL air loading indicates ZERO:</p> <p><u>Cue:</u> If operator looks at air pressure coming from main header (on pressure regulator), Cue them that it is indicating 22 psig.</p> <p><u>Cue:</u> Air pressure at HCV-1-6 indicating (0) zero on output indicator.</p> <p><u>STANDARD:</u> Operator locates HCV -1-6 (L-423, 480V Shutdown Bd Rm 1A1) and determines valve operator has zero air output.</p>		<p>___ SAT</p> <p>___ UNSAT</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<p><u>STEP 5.:</u> PLACE the 3-way valve in BYPASS.</p> <p><u>CUE:</u> <i>Bypass switch is in the Bypass position.</i></p> <p><u>STANDARD:</u> Operator locates three way valve and places it to the BYPASS position</p>		<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6.:</u> CONTROL S/G pressure as directed by UO: Open HCV to raise air signal to open atmospheric relief</p> <p><u>Cue:</u> <i>Air pressure indicating 15 psig on output indicator.</i></p> <p><u>STANDARD:</u> Operator turns 1-HCV-1-6 knurled knob clockwise to load up and OPEN the PORV.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 7.:</u> Informs UO that local control has been established with 15 psig air loading.</p> <p><u>Cue:</u> <i>S/G pressure is decreasing too fast, reduce loading pressure to 8 psig.</i></p> <p><u>STANDARD:</u> Operator turns 1-HCV-1-6 knurled knob counter-clockwise until air loading pressure is 8 psig.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>
<p><u>STEP 8.:</u> Operator reduces loading pressure to 8 psig.</p> <p><u>Cue:</u> <i>Air pressure indicating 8 psig on output indicator</i></p> <p><u>STANDARD:</u> Operator turns 1-HCV-1-6 knurled knob counter-clockwise until air loading pressure is 8 psig.</p>		<p>___ SAT</p> <p>___ UNSAT</p> <p>Critical Step</p>

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
<u>STEP 9.:</u>	Informs UO that local control has been established with 8 psig air loading.	<input type="checkbox"/> SAT
<u>Cue:</u>	<i>S/G pressure is decreasing slowly, leave the valve in the current position. You may continue with other duties and will be contacted if the valve needs repositioning.</i>	<input type="checkbox"/> UNSAT

Facility: Sequoyah Scenario No.: 1 Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives: To evaluate the applicants' ability to perform normal operations and to lower reactor power in accordance with plant procedures; to respond to a Pressurizer Level channel failing high; to respond to a blocked Letdown Line filter; to respond to an Impulse Pressure Transmitter failing high; to respond to a Main Feed Regulating Valve failing as-is; and to evaluate the applicants' in using the "Reactor Trip or Safety Injection" and "Loss of Reactor or Secondary Coolant" EOPs with transition to FR-Z.1, "High Containment Pressure" and eventual transition to ES-1.3, "Transfer to RHR Containment Sump" in response to a Rod Ejection accident and associated ERCW system failures.

Initial Conditions: Reactor is operating at 100% power. SG 2 has a 4 gph tube leak. Severe thunderstorm warnings are in effect for Hamilton and Rhea counties for the next 2 hours. [B] = 976 ppm. The Train week is "A". The following equipment out of service: 1A-A AFW pump, 1A-A SI pump.

Turnover: Swap the controlling channel of pressurizer pressure control from 68-340 to 68-334 per 1-SI-ICC-068-340.1, in preparation for instrument calibration of 68-340 by the IMs. Following that, lower reactor power to 65% in preparation for removing 1B MFWP from service due to vibration problems.

Event No.	Malf. No.	Event Type*	Event Description
			Set up simulator to IC-88.
Preinsert	RW11A 80%	C	ERCW pump Q-A swing check valve fails partially open. Line is 80% blocked.
Preinsert		C	"E" ERCW PUMP N-B, "B" ERCW PUMP K-A, and "F" ERCW PUMP P-B all fail to receive a start signal. Can be started manually at the control s
Preinsert		C	ERCW supply valves for 1A-A D/G will not open. Attempts to open the alternate ERCW supply valve will not be successful.
Preinsert	RP16K643A	C	Containment Spray pump 1A-A fails to auto start on Phase B actuation.
1	-	N (RO)	Swap pressurizer pressure control channel.
2	-	R (RO, BOP)	Reduce power to 65 % from 100%.

Event No.	Malf. No.	Event Type*	Event Description
3	RX05A	I (RO)	PZR Level Channel 1 - 68-339 transmitter fails HIGH
4	CV05	C (RO)	Letdown Line filter failure (reactor coolant filter) due to blockage. Place Excess Letdown in service and secure Normal Letdown.
5	RX11B	I (BOP)	Impulse Pressure Transmitter 1-73 fails HIGH.
6	FW19C	C (BOP)	Main Feedwater Regulating Valve FCV-3-90 (LOOP 3) Fails AS-IS. (Failure is in place as power reduction begins following previous failure)
7	RD06	M (All)	Rod ejection/Small break LOCA.
			ERCW pump J-A swing check valve fails. Flow is 80 % blocked. (See above.)
			"E" ERCW PUMP N-B, "B" ERCW PUMP K-A, and "F" ERCW PUMP P-B all fail to receive a start signal. (See above.)
			ERCW supply valves for the 1A-A D/G will not have opened. Attempts to open the alternate ERCW supply valves will not be successful. (See above.)
			Containment Spray pump 1A-A fails to auto start on Phase B actuation.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

MATERIALS:

1. Appendix A - Shift Turnover

SCENARIO SUMMARY:

Starting from 100% RTP BOL, with 1A-A MD AFW pump , 1A-A SI pump out of service, the following conditions will be encountered in sequence:

1. PZR Level Tranmitter fails High.
2. Letdown Line Filter Failure (Reactor Coolant Filter)
3. Impulse Pressure Transmitter Fails High.
4. Main feedwater pump turbine (MFWPT) high vibration.
5. Rod ejection.
6. ERCW Pump Swing Check Valve Fails.
7. Failure of SSPS slave relay.

CONSOLE OPERATOR'S INSTRUCTIONS

ELAP. TIME	IC/MF/RF/OR #	DESCRIPTION
Sim. Setup Reset to IC-88 or	Reset IC-10. Perform switch check. Allow the simulator to run for at least 3 minutes before loading CAE or starting the exercise. This will initialize ICS. Load cae ! nrc-s-1 Place simulator momentarily in RUN, Place OOS equipment in required position with tags, Clear alarms and Return to FREEZE.	Initialize simulator at 100% RTP. Place Mode 1 placards on panel. Update M-5 placard with RCS C _B from Chemistry Report.
	Disable override "RCR". RCR Off <p style="text-align: center;">Important Note --></p>	Steps control banks to proper position. Shutdown banks should be fully withdrawn. Ensure operator aid placard is marked YES to core burnup less than 12000 MWD/MTU. Place A Train Week sign on the simulator.
This remote function is active when the CAE file is loaded.	MRF fwr34 out IOR zlohs3116aa[1] off IOR zlohs3116aa[2] off IOR zlohs3116aa[3] off IOR zlohs3116aa[4] off IOR zdihs3116aa close	1A-A MDAFW pump breaker racked out and pump tagged for maintenance. <u>Place a hold order on the 1A-A MDAFW pump & HS-3-116 handswitches.</u>
This remote function is active when the CAE file is loaded.	MRF sir08 off	1A-A SI pump breaker racked out and pump tagged for maintenance. Place 1A-A SI pump handswitch in PTL and place a hold order on the handswitch.
At examiner direction	imf rx05a (none 0)	PZR LEVEL TRANSMITTER Chnl 1 LT-68-339 FAILS HI When IMs or MSS contacted to trip bistables, inform the crew that the IMs will report to the MCR in ~ 25 minutes.

CONSOLE OPERATOR'S INSTRUCTIONS

At Examiner direction	imf cv05 (none 0) 100 3 0	LETDOWN LINE FILTER FAILURE
At Examiner direction	imf rx11b (none 0)	IMPULSE PRESSURE TRANSMITTER PT-1-73 FAILS HI
At Examiner direction	imf fw19c (none 0)	MAIN FEEDWATER REG VALVE (FCV-3-90) PACKING BINDS
At Examiner direction	imf rd06a (none 0)	F-6 Rod Ejection
This malfunction is active when the CAE file is loaded	imf rw11a (none 0) 80 1 0	ERCW Pump J-A Swing Check Valve Fails
This malfunction is active when the CAE file is loaded	imf rp16k611a (none 0)	Tr B SI Relay Failure. (No SI signal to 1B-B MD & TD AFW Pump, ERCW pumps L-B,N-B,M-B,P-B)
This remote malfunction is active when the CAE file is loaded	IOR YPCIHS6768A CLS FAIL	POSITION FOR FCV-67-68, DG 1A-A SUP FROM ERCW HDR 2B
This remote malfunction is active when the CAE file is loaded	IOR YPCIHS6768A CLS FAIL	POSITION FOR FCV-67-66, DG 1A-A SUPPLY FROM ERCW HDR 1A

Appendix A

Plant Data

Unit <u>1</u>	Rx Power <u>100</u>	MWD/MTU <u>3950</u>
Train A Week		
Swap the controlling Pressurizer pressure channel in preparation for calibration, then reduce power to 65% to remove 1B MFP from service due to excessive vibrations.		
3.7.1.2.a for 1A-A MD AFW pump.; Tagged for maintenance to replace motor.		
3.5.2.a for 1A-A SI pump.; 1A-A SI pump tagged electrically.		
The National Weather Service has announced a severe storm warning for Hamilton and Rhea counties. It is to remain in effect for 4 more hours.		
There is a small (40 gpd) S/G tube leak in #2 S/G. Chem lab is sampling and monitoring.		

Sequoyah Electric Plant Chemistry Report

U1	U2	RCS Data
100	100	Rx. Power %
Today	Today	Sample Date
Now	Now	Sample Time
976.5	1080	Boron ppm
2.07	2.14	• ##Li ⁺ ppm Goal is variable
35	47	• ##H ₂ Goal 25 to 50 cc/Kg
2.96 E-02	1.34 E-02	Dose Equ I Goal < 0.1
8.16 E-02	8.52 E-1	Xe-133 µCi/g
200	168	Silica ≤1000 ppb
5.235 E-5	4.528 E-2	Fuel Reliability Index
• ## If Goal is exceeded, report on morning status report.		

RWST's & Boric Acid Tanks Boron			
RWST Goal	Boron ppm	Date	Goal
U1 RWST	2608	Today	2500 to 2650
U2 RWST	2626	Today	2500 to 2650
*BAT A	6555	Today	Variable
*BAT B	6747	Today	Variable
*BAT C	6601	Today	Variable
Spent Fuel Pit	2502	Today	≥ 2056

SI-50 & SI-137.5 Primary to Secondary Leakrate Information		
U1	U2	
ND	ND	Leakrate SI-50 gpd
Today	Today	Date/Time SI-50
<0.1	<0.1	Leak rate SI-137.5 gpd
Today	Today	Date / Time SI-137.5
800	848	CPM above Bkgd. Equivalent to 5 gpd leak
14000	21730	CPM above Bkgd. Equivalent to 128 gpd leak
9000	2542	Δ CPM increase within 15 min. to equal a 15 gpd leak.
35	61	Current 119 countrate
31	40	119 Background cpm

Phone and Beeper Numbers:

- Chemistry Shift Supervisor Beeper 40-732
- Chem Lab Phones 7285; 6348 voice mail; Fax 7281
- Ecochem Onsite Pager 350-20-395

Comments: • All Parameters are within goals.

- 1) N₂ blanket on U1 HW pump 1C to control dissolved oxygen.
- 2) U-2 RCS DEI Currently at steady state conditions within the goal.AOP-R.06 exited 6/2/99 1640
- 3) U-2 HW air in-leakage Action Plan I/P.
- 4) U2 Sulfate Recovery Action Plan is I/P.
- 5)

U1	U2	S/G, FW & HW Data
0.38	0.34	• ## S/G Sodium Goal Goal ≤ 0.8 ppb
2.32	3.4	S/G Chloride Goal ≤ 10 ppb
1.0	1.0	• ## S/G Sulfate Goal ≤ 1.7 ppb
0.23	0.14	• ## S/G Molar Ratio Goal 0.05 to 0.5
1.13	0.62	S/G Cation Cond Goal ≤1.0 µS
5.6	8.8	S/G Boron Goal 5 to 10 ppm
50	155	SGBD Flowrate in GPM
1.01	1.1	• ## CPI Goal ≤1.1
SO ₄ 226 ppb days 18% of S/D Limit	Cl ⁻ 425 ppb-days 23%	Corrosion Index Limiting Value ppb-days for % of hot soak value
2.3	2.9	FW ETA Goal 2 to 3 ppm
9.7	9.1	FW pH
64	75	FW Hydrazine Goal ≥ 30 ppb
0.18	1.9	• ## FW Iron Goal ≤ 5 ppb
0.2	1.2	FW Dissolved O ₂ Goal ≤ 5.0 ppb
3.8	0.2	HW Dissolved O ₂ Goal ≤ 5.0ppb
0.01	0.02	HW Sodium ppb
<5.0	<5.0	Condenser Air Inleakage Goal ≤ 6 cfm
• ## If Goal is exceeded, report on morning status report.		

U1 Con-DI				U2 Con-DI		
Outlet Sodium ppb		0.05		Outlet Sodium ppb		0.08
Flowrate gpm		1000		Flowrate gpm		1000
Pol	Sp Cond	Status	Millions of Gal.	Sp Cond	Status	Millions of Gal.
1	Vessel is empty & in service				FR	
2		SF	5.0		Empty OOS	
3		Fresh			Ex	
4		Fresh			Ex	
5		Fresh		0.11	I/S	~ 12
6		Fresh			Fresh	
NR = Needs Rinse, I/S = In Service				EX = Exhausted, SF=Semi-Fresh		
ERCW Chlorination						
Goal is 3Wk at RT >50° F < 80°						
Mon.	Tues.	Wed	Thur.	Fri.		
no	Yes	Yes				
<ul style="list-style-type: none">• PCL-222 continuous injection to ERCW in progress downstream of each ERCW strainer.• Injecting CL-363 to ERCW ~ twice per week						

Chemistry WR's

1. C410323 12/17/98 TB Lab A/C leak-coil remains I/S. WW242
2. C415811 Drain line from CCS/ERCW overflows when sampling. WW230
3. C402198 2-SIV-43-78 U2 RHR-B sample valve leaking through. WW238
4. C412044 U1 HW Sample Pump A. WW235
- 5.

Tech Spec or Critical Items:

None

Inoperable Rad Monitors requiring compensatory sampling:

1. For Information only: 2-RM-90-99 inoperable.
- 1-RM-90-99

SQN 1	CHANNEL CALIBRATION OF PRESSURIZER PRESSURE CHANNEL I RACK 1 LOOP P-68-340 (P-455)	1-SI-ICC-068-340.1 Rev. 8 Page 15 of 90
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6.2 Setup

[1] **VERIFY** the status of the following trip status lights and perform the following:

[a] **RECORD** status, lit or not lit, of each.

[b] **IF** any light is lit, **THEN**

OBTAIN Unit 1 UO's concurrence before proceeding
(N/A concurrence if **NO** light is lit.)

CAUTION The following functions will occur if any of the applicable trip status lights are lit. The P-11 status lights will be lit when above the P-11 setpoint.

- A. Reactor Trip (Applies to REAC TRIP lights.)
- B. Remove Manual Block of Safety Injection (Applies to P-11 lights.)
- C. Safety Injection (Applies to SI SIG lights.)
- D. Turbine Runback Initiation and Block of Automatic and Manual Rod Withdrawal (only applies to the transmitter calibration)
(Applies to TURB RNBK lights.)

WINDOW #	DESCRIPTION	RACK		TRANSMITTER	
		LIT	NOT LIT	LIT	NOT LIT
XX-55-6A-30	PS-68-334B PRZR LO PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-31	PS-68-334A PRZR HI PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-33	PS-68-334D PRZR LO PRESS SI SIG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-34	PS-68-334E PRZR HI PRESS P-11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-50	PS-68-323B PRZR LO PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-51	PS-68-323A PRZR HI PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-53	PS-68-323D PRZR LO PRESS SI SIG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-54	PS-68-323E PRZR HI PRESS P-11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-6A-70	PS-68-322D PRZR LO PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rack

Transmitter

(step continued)

SQN 1	CHANNEL CALIBRATION OF PRESSURIZER PRESSURE CHANNEL I RACK 1 LOOP P-68-340 (P-455)	1-SI-ICC-068-340.1 Rev. 8 Page 16 of 90
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6.2 Setup (Continued)

Step 6.2 [1] (Continued)

WINDOW #	DESCRIPTION	RACK		TRANSMITTER	
		LIT	NOT LIT	LIT	NOT LIT
XX-55-6A-71	PS-68-322A PRZR HI PRESS REAC TRIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-30	TS-68-25D RC LP2 OTΔT REAC TRIP	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-35	TS-68-25E RC LP2 OTΔT TURB RNBK	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-50	TS-68-44D RC LP3 OTΔT REAC TRIP	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-55	TS-68-44E RC LP3 OTΔT TURB RNBK	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-70	TS-68-67D RC LP4 OTΔT REAC TRIP	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>
XX-55-5-75	TS-68-67E RC LP4 OTΔT TURB RNBK	N/A	N/A	<input type="checkbox"/>	<input type="checkbox"/>

Rack

Transmitter

_____/

_____/

_____/

_____/

Unit 1 UO Concurrence

Unit 1 UO Concurrence

- [2] HAVE Unit 1 UO place PRESS CONTROL CHANNEL SELECTOR switch
1-XS-68-340D (PS/455F) on 1-M-5 to the Loop PT-68-334 & 323
(PT-456 & 457) position.

Rack

Transmitter

_____/

_____/

Unit 1 UO

Unit 1 UO

_____/

_____/

Concurrent Verifier

Concurrent Verifier

SQN 1	CHANNEL CALIBRATION OF PRESSURIZER PRESSURE CHANNEL I RACK 1 LOOP P-68-340 (P-455)	1-SI-ICC-068-340.1 Rev. 8 Page 17 of 90
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6.2 Setup (Continued)

NOTE Steps 6.2 [3] and [4] can be N/A'd by Unit 1 UO if performing this instruction during modes 5 and 6.

- [3] **HAVE** Unit 1 UO place LOOP TAVG Δ T REC/SEL switch
1-XS-68-2B (TS/411E) on 1-M-5 to Loop 2, 3, or 4 position.

<u>Rack</u>	<u>Transmitter</u>
N/A /	/

- [4] **HAVE** Unit 1 UO place PRESS REC CHANNEL SELECTOR switch
1-XS-68-340B (PS/455G) on 1-M-5 to a position other than Loop
PT-68-340 (PT-455).

<u>Rack</u>	<u>Transmitter</u>
/	/

- [5] **DELETE** the following computer points from PROCESSING.

A. 1P0480A
B. 1T0410A

RACK XMTR

☐ ☐
N/A ☐

<u>Rack</u>	<u>Transmitter</u>
/	/

NOTE The channel calibration, verification and adjustment is divided into two parts, the rack calibration (Section 6.3) and transmitter calibration (Section 6.4). These parts may be performed as follows:

- [6] **PERFORM** one part at a time such that the channel is removed and returned to service during the performance of each part **OR**

PERFORM both parts prior to returning channel to service. RACK XMTR
☐ ☐

Op-Test No.: 1 Scenario No.: 1 Event No.: 1 Page 1 of

Event Description: Swap Controlling Pressurizer Pressure Channels IAW 1-SI-ICC-068-340.1.

Time	Position	Applicant's Actions or Behavior
	CREW	Swap Controlling Pressurizer Pressure Channels IAW 1-SI-ICC-068-340.1.
	SRO	REVIEW the SI for impact on the plant. Review expected actions of the IM's with the crew
	RO	IM have signed off procedure step 6.2.1. IM have RO place Press Control Channel Selector switch to the 334/323 position. (Critical Step)
	RO	IM have RO place Loop Tavg/ DT Rec/Sel switch to the Loop 2, 3, or 4 position.
	RO	IM have RO place PRESS REC CHANNEL SELECTOR switch to a position other than 340.
	SRO	Allow IM's to commence work

Event Description: Reduce power from 100% to 65% to remove 1B MFP from service.

Time	Position	Applicant's Actions or Behavior
	CREW	Perform a power reduction from 100 to 30% of GO-5.
	RO/SRO/BOP	<ul style="list-style-type: none"> REVIEW of Precautions and Limitations section 3.0 has been completed REVIEW of Precautions and Limitations section 3.0 has been completed. NOTIFY Radcon of impending load reduction. NOTIFY CON DI operators of load reduction and to remove beds as needed. NOTIFY Load Dispatcher of impending load reduction. INITIATE a load reduction. <ul style="list-style-type: none"> Change Setter to the desired setting by using the down pushbutton Verify load rate thumbwheel set at 1%/min or as directed by the SRO Depress the GO pushbutton
	RO/BOP	<ul style="list-style-type: none"> MONITOR turbine load decreasing. Monitor the following periodically as load is increased. T-avg following T-ref program. Monitor RPIs, group step counters, Loop ΔT, NIS, QPTR, rod insertion, rod misalignment, inoperable RPIs & inoperable rods. valve position limit ~10% above gov vlv control indication as turbine load is decreased..
	SRO	CONTACT Reactor Engineering if AFD remains outside the target band for 30 min. or more as to why and when AFD may be returned to the target band.
	BOP	WHEN ~ 85 to 90% RTP, THEN IF 3 condensate demineralizer booster pumps are in service THEN STOP 1 condensate demineralizer booster pump IAW SO-2/ 3-1. IF 2 condensate demineralizer booster pumps are in service, THEN evaluate removing both condensate demineralizer booster pumps IAW 1,2-SO-2/3-1.
	RO	Complete the following at 80% reactor power: Calculate Calorimetric power $U1118 \div 34.11 = \text{ } \%$. Verify that all NIS PR A channel drawers are within 2% of calculated calorimetric power. If NO is checked, then perform 0-SI-OPS-092-078.0
	SRO	WHEN turbine load < 75%, THEN Check Turbine Runback circuits are not armed.
	BOP	At 55 - 70% power remove the following from service 1. Simultaneously stop both operating condensate demin booster pumps and 1 of 3 No. 3 Heater drain pumps
	BOP	Dispatch AUO to align sealing steam from opposite unit OR Aux Boiler,
	BOP	At \div 65% STOP one of the two #7 HDT pumps.

Op-Test No.: __1__

Scenario No.: __1__

Event No.: __2__

Page __1__ of __

Event Description: Boration for Load Reduction.

Time	Position	Applicant's Actions or Behavior
	CREW	<ul style="list-style-type: none"> • Reviews PRECAUTIONS AND LIMITATIONS • Reviews PREREQUISITE ACTIONS <ul style="list-style-type: none"> • If reactor is critical and reactor power to be changed by >5% then perform calculations.
	RO	Performs Section 6.4 BORATE, of)-SO-62.7
	RO	ENSURES Boric Acid Storage Tank level is within TS 3.1.2.6 limits.
	RO	ENSURES makeup system is aligned for AUTO operation
	RO	Records amount of boric acid to be added.
	RO	Places HS-62-140A to STOP
	RO	Places HS-62-140B to BORATE
	RO	ADJUST FC-62-139 for desired flow rate
	RO	SET FQ-63-139 for the desired quantity of water
	RO	PLACE HS-62-140A to START
	RO	ENSURES Boric Acid Pumps are in FAST speed by right red light LIT on HS-62-230A OR HS-62-232A.
	RO	MONITORS nuclear instrumentation and reactor coolant temperature to ensure the proper response from boration is achieved.
	RO	IF VCT level increases to 63% THEN ENSURE LCV-62-118 OPENS
	RO	WHEN boration is complete, THEN: <ol style="list-style-type: none"> Place HS-62-140A to STOP Call Chem Lab for an RCS Boron Sample
	RO	REALIGN makeup controls for AUTO makeup

Event Description: PZR Level Channel 1-68-339 Transmitter Fails High.

Time	Position	Applicant's Actions or Behavior
	SRO	EVALUATE the following Tech Specs for applicability: <ul style="list-style-type: none">• 3.2.5, DNB Parameters• 3.3.1.1, Reactor Trip System Instrumentation• 3.3.2.1, Engineered Safety Feature Actuation System Instrumentation• 3.3.3.7, Accident Monitoring Instrumentation• 3.4.3.2, RCS Relief Valves - Operating
	SRO	EVALUATE EPIP-1, Emergency Plan Initiating Matrix. Implement AOP-I.04 Section 2.2 and diagnose the failure as Pressurizer Level Instrument.
	RO	<ul style="list-style-type: none">• Section 2.2• CHECK LI-68-339 indicates NORMAL. If not then perform the following:<ul style="list-style-type: none">• ENSURE LEVEL CONTROL CHANNEL SELECTOR switch XS-68-339E in LT-68-335 & 320.• ENSURE LEVEL REC CHANNEL SELECTOR switch XS-68-339B in LT-68-320 or LT-68-335.• GO TO Step 4.• CHECK letdown in service. If not then restore letdown using EA-62-5.• ENSURE pressurizer heaters restored to service.
	SRO	NOTIFY IM to remove failed pressurizer level channel from service USING appropriate Appendix. Contact MSS to remove channel from service Contact management, work control and inform them of the failure
	SRO	GO TO appropriate plant procedure.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4 Page 1 of

Event Description: Letdown Line Filter Failure due to blockage.

Time	Position	Applicant's Actions or Behavior
	CREW	Respond to annunciators and diagnoses a letdown line problem. AR checks PI indicators, PCV-62-81 to Manual
	SRO	Directs RO to remove letdown and place excess letdown in service Dispatches AO to investigate
	RO	Goes to 1-SO-62-6
	RO	ENSURE [1-FCV-62-93] is in MANUAL AND OPERATE as needed to regulate charging flow to keep pressurizer level on program.
	RO/SRO	NOTIFY RADCON that Excess Letdown is being PLACED in SERVICE . Notify Maintenance and Engineering to obtain assistance
	RO	IF Excess Letdown is the only letdown flowpath, THEN VERIFY Positive Displacement Pump is out of service.
	RO	ENSURE [1-FCV-70-143] CCS water to the excess letdown heat exchanger is OPEN .
	RO	ENSURE [1-FCV-70-85] Excess Letdown Heat Exchanger CCS flow control valve is OPEN .
	RO	NOTE Step [6] will prevent subjecting the CVCS piping downstream of the Excess Letdown HX to a temperature above the design value.
	RO	ENSURE that [1-FI-70-84] is indicating greater than 230 gpm. IF AO is dispatched, booth will report hi filter Delta P
	RO	ENSURE Excess Letdown 3-way divert valve [1-FCV-62-59] is in NORMAL .
	RO	CAUTION FCV 62-63 has replaced RCP seal leak-off isolation valves as the primary means for isolating seal flow. The normal letdown path for excess letdown will not be available if FCV-62-63 is CLOSED .
	RO	NOTE Back flow through the RCP seals will occur should the RCP seal leakoff isolation valves fail to their OPEN position on loss of air or electrical power.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4 Page 2 of

Event Description: Letdown Line Filter Failure due to blockage.

Time	Position	Applicant's Actions or Behavior
	RO	IF less than 100 psig in RCS and [1-FCV-62-63] is CLOSED and excess letdown will be aligned for NORMAL operation, THEN ENSURE the following are CLOSED : Seal returns and bypasses
	RO	ENSURE [1-FCV-62-63] is OPEN .
	RO	OPEN [1-FCV-62-54] Cold Leg Loop #3 Excess Letdown isolation valve. (Critical Step)
	RO	OPEN [1-FCV-62-55] Excess Letdown containment isolation valve. (Critical Step)
	RO	OPEN [1-FCV-62-56] slowly to increase excess letdown flow to desired amount, not to exceed 206°F heat exchanger outlet temperature, as indicated on 1-TI-62-58.
	RO	NOTE Placing Excess Letdown in service causes increased activity in various areas of the Auxiliary Building.
	RO/SRO	NOTIFY RADCON that Excess Letdown has been placed in service.
		Removing Letdown From Service
	RO	OBTAIN permission from Unit 1 SRO to remove letdown from service.
	RO	IF excess letdown is to be put in service, THEN PERFORM 1-SO-62-6, AND RETURN to step [3].
	RO	ENSURE following letdown orifice valves CLOSED : <u>62-72, 62-73, 62-74</u>
	RO	CLOSE following letdown isolation valves: 62-69 and 62-70. (Critical Step)

Op-Test No.: 1 Scenario No.: 1 Event No.: 5 Page 1 of

Event Description: Impulse Pressure Transmitter 1-73 fails High.

Time	Position	Applicant's Actions or Behavior
	CREW	STABILIZE THE PLANT
	RO/SRO/BOP	<p>If PT-1-73 has failed, then place control rods in MANUAL. (Critical Step)</p> <ul style="list-style-type: none"> • REFERENCE ANNUNCIATOR RESPONSES • UTILIZE SUPPORTING PROCEDURES The crew may refer to AOP-C.01, Section 2.2, Continuous Control Rod Movement in addition to AOP-I.08, Turbine Impulse Pressure Instrument Malfunction
	RO/BOP	EVALUATE the following Tech Specs for applicability: 3.3.1.1, Reactor Trip System Instrumentation
	SRO	Direct actions of AOP-I.08
	BOP	CHECK PI-1-72 indicates normal. If not then Place steam dumps in STEAM PRESSURE mode & NOTIFY IM to remove P-1-72 from service using Appendix A.
	RO	<p>CHECK PI-1-73 indicates normal. If not then perform the following:</p> <p>PLACE rods in MAN. STABILIZE reactor power.</p>
	BOP	<p>EVALUATE placing Main Reg Valves in MAN to maintain SG level on program.</p> <p>PLACE steam dumps in STEAM PRESSURE mode.</p>
	SRO	<p>NOTIFY IM to remove P-1-73 from service using Appendix B.</p> <p>GO TO appropriate plant procedure.</p>
		RO may request or SRO may direct to move rods to match Tavg/Tref

Op-Test No.: _1_

Scenario No.: _1_

Event No.: _6_

Page _1_ of _

Event Description: FRV 3-90 fails as is.

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize and announce failure of MFW Feedwater Control. Place loop feedwater reg valve to MANUAL and increase feedwater flow to return SG level to program.
	SRO	Direct the actions of AOP-S.01, Section 2.1.
	BOP	Maintain S/G level(s) on program.
	BOP	Check Steam Flow and Feed Flow channels NORMAL.
	BOP	Maintain SG levels on program
	BOP	Verify failure due to steam/feed flow instrument failure
		Insert the next failure prior to the crew tripping the reactor
	CREW	Crew will diagnose cannot control S/G level and will discuss the need to trip the reactor due to uncontrollable S/G level.
		NOTE: with NRC examiner concurrence, call SRO as Ops. Supt to continue to get power down

Page 1 of 1

Event Description: Rod Ejection/ Small Break LOCA.

[illegible]

Event Description: Reactor Trip Response/Small Break LOCA.

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • VERIFY Rx trip. If not then trip reactor. If reactor can not be tripped then monitor status trees and GO TO FR-S.1 • Reactor trip breakers OPEN • Reactor trip bypass breakers OPEN or DISCONNECTED • Neutron flux DROPPING • Rod bottom lights LIT • Rod position indicators less than or equal to 12 steps
	RO/BOP	<ul style="list-style-type: none"> • VERIFY turbine trip. Turbine stop valves CLOSED. • If not then trip turbine. If turbine can not be tripped then close MSIVs and MSIV bypass valves. • VERIFY Shutdown boards energized. <ul style="list-style-type: none"> • VERIFY generator breakers OPEN 30 seconds after turbine trip. • ENSURE station service ENERGIZED from start busses. • VERIFY at least one train of shutdown boards ENERGIZED. • VERIFY both trains of shutdown boards ENERGIZED. • IF power can NOT be restored to at least one train of SD Bds then GO TO ECA-0.0. • DETERMINE if SI actuated. If required, then actuate SI. If not actuated, then determine if SI is required. If SI is not actuated/required then monitor status trees and GO TO ES-0.1. <ul style="list-style-type: none"> • ECCS pumps RUNNING • Any SI alarm LIT [M-4D]. • VERIFY CCS pumps running. • CHECK ERCW System operation. VERIFY at least four ERCW pumps running. (Will start 2 additional pumps). VERIFY D/G ERCW supply valves OPEN. (Will attempt to open both DG supply valves, valves will not open, Will emergency stop DG) • MONITOR ECCS operation. <ul style="list-style-type: none"> • VERIFY ECCS pumps RUNNING: • VERIFY CCP flow through CCPIT. • CHECK RCS pressure less than 1500 psig. • VERIFY SI pump flow. • CHECK RCS pressure less than 180 psig. • VERIFY RHR pump flow. • VERIFY ESF system aligned. <ul style="list-style-type: none"> • Phase A ACTUATED:

- CONTAINMENT ISOLATION
PHASE A TRAIN A alarm LIT
[M-6C, B5].
- CONTAINMENT ISOLATION
PHASE A TRAIN B alarm LIT
[M-6C, B6].
- Containment Ventilation Isolation ACTUATED:
 - CONTAINMENT VENTILATION
ISOLATION TRAIN A alarm LIT
[M-6C, C5].
 - CONTAINMENT VENTILATION
ISOLATION TRAIN B alarm LIT
[M-6C, C6].
- Status monitor panels:
 - 6C DARK
 - 6D DARK
 - 6E LIT OUTSIDE outlined area
 - 6H DARK
 - 6J LIT.
- Train A status panel 6K:
- Train B status panel 6L:
- MONITOR containment spray NOT required. (Phase B NOT ACTUATED, Containment pressure less than 2.81 psid.) If required then ENSURE containment spray initiated, ENSURE Phase B valves CLOSED, STOP RCPs & MONITOR containment air return fans.
- Check if main steam lines should be isolated. (Any S/G pressure less than 600 psig AND STEAMLINE PRESS ISOL/SI BLOCK RATE ISOL ENABLE permissive DARK [M-4A, A4]. OR Phase B actuation OR Any S/G pressure drop at a rate greater than 100 psi in a 50-second period AND STEAMLINE PRESS ISOL/SI BLOCK RATE ISOL ENABLE permissive LIT [M-4A, A4]. If required VERIFY MSIVs and MSIV bypass valves CLOSED.
- VERIFY MFW isolation.
- VERIFY AFW pumps running. (TDAFW & MDAFW)
- VERIFY AFW valve alignment. AFW MD in AUTO & TD LCVs open and recirc valves closed.
- DETERMINE if secondary heat sink available. (Level in at least 1 SG >10% [25% ADV] or >440 gpm. Control feed flow to maintain > 10% [25% ADV] and 50% in all S/Gs)
- MONITOR RCS temperatures. (RNO = If T-avg < 547°F then ensure steam dumps and atmospheric relief valves CLOSED, If cooldown continues then control total AFW flow using EA-3-8. IF cooldown still continues, THEN close MSIVs.)
- DISPATCH personnel to perform EA-0-1, Equipment Checks Following ESF Actuation.
- CHECK pressurizer steam space integrity.

Event Description: Rod Ejection/ Small Break LOCA.

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> CHECK pressurizer steam space integrity. <ul style="list-style-type: none"> Pzr PORVs CLOSED. (IF RCS press < 2335 then close PORV or block valve. IF NOT then GO TO E-1.) Pzr safety valves CLOSED. (IF NOT then GO TO E-1.) Pzr sprays CLOSED. (If RCS press < 2260 psig then close spray valves. IF NOT then stop RCP supplying failed spray valve. MONITOR RCP trip criteria. If at least one CCP OR SI pump running AND RCS pressure < 1250 psig then STOP RCPs. (Crew may stop RCP's earlier based on foldout page) CHECK S/G secondary pressure boundary integrity. IF not then monitor status trees and GO TO E-2. CHECK S/G tube integrity. IF not then monitor status trees and GO TO E-3. <u>CHECK RCS integrity. IF not then monitor status trees and GO TO E-1.</u> STA should be called to monitor status trees, If called early should meet transition to FR-Z.1, otherwise crew will have to monitor trees.
FR-Z.1 Steps		MONITOR RWST level greater than 27%.
		VERIFY containment ventilation dampers CLOSED: Panel 6K CNTMT VENT GREEN Panel 6L CNTMT VENT GREEN
		VERIFY Phase A valves CLOSED: Panel 6K PHASE A GREEN Panel 6L PHASE A GREEN
		VERIFY Phase B valves CLOSED: Panel 6K PHASE B GREEN Panel 6L PHASE B GREEN.
		VERIFY containment spray operation: STOP RCPs CHECK procedure applicability for containment spray operation: <ul style="list-style-type: none"> RHR sump recirculation capability AVAILABLE. VERIFY containment spray pumps RUNNING. (Will have to start 1 Spray Pump) MONITOR RWST level greater than 8%.
		VERIFY containment spray suction ALIGNED to RWST: Containment spray suction from RWST valves FCV-72-22 and FCV-72-21 OPEN.
		VERIFY containment spray discharge alignment: Containment spray discharge valves FCV-72-39 and FCV-72-2 OPEN

		Containment spray recirculation to RWST valves FCV-72-34 and FCV-72-13 CLOSED Containment spray flow greater than 4750 gpm on each train.
		VERIFY EGTS operation VERIFY EGTS fans RUNNING. VERIFY EGTS operation NORMAL.
		MONITOR containment air return fans: RECORD present time in Operator's Daily Journal. WHEN 10 minutes have elapsed from time recorded in Substep 7.a., THEN VERIFY containment air return fans running.
		VERIFY MSIVs and MSIV bypass valves CLOSED.
		MONITOR if RHR spray should be placed in service: CHECK the following: <ul style="list-style-type: none"> • Containment pressure greater than 9.5 psid AND <ul style="list-style-type: none"> • At least 1 hour has elapsed since beginning of accident AND <ul style="list-style-type: none"> • RHR suction ALIGNED to containment sump AND <ul style="list-style-type: none"> • At least one CCP AND one SI pump RUNNING.
	SRO	Transition to and direct actions of E-1. (<i>Scenario may terminate at examiner discretion</i>)

Event Description: Rod Ejection/ Small Break LOCA.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	<ul style="list-style-type: none"> • MONITOR RCP trip criteria. • CHECK S/G secondary pressure boundary integrity. IF not met then VERIFY all Faulted S/G(s) ISOLATED. IF any Faulted S/G NOT isolated then GO TO E-2. • MAINTAIN Intact S/G narrow range level between 10% & 50% [25% & 50% ADV]. IF level in any S/G continues to rise above 50% in an uncontrolled manner, then GO TO E-3. • VERIFY secondary radiation NORMAL. IF NOT then GO TO E-3. • MONITOR pressurizer PORVs and block valves. • ENSURE Rx Bldg auxiliary floor and equipment drain sump pumps STOPPED. • MONITOR SI termination criteria. (IF criteria met THEN GO TO ES-1.1.) • MONITOR if containment spray should be stopped. • MONITOR if containment vacuum control should be returned to normal. • MONITOR shutdown boards continuously energized. WHEN shutdown board reenergized, then ENSURE safeguard equipment running as necessary. • DETERMINE if RHR pumps should be stopped. • CHECK RCS and S/G pressures. IF S/G pressure dropping or RCS pressure rising then GO TO Note prior to Step 1. • DETERMINE if D/Gs should be stopped. • INITIATE evaluation of plant status. IF cold leg recirculation capability can NOT be verified then GO TO ECA-1.1. IF LOCA outside containment indicated then GO TO ECA-1.2. • MONITOR if hydrogen igniters and recombiners should be turned on. • DETERMINE if RCS cooldown and depressurization required. IF RCS pressure \geq 180 psig & one RHR pump flow \leq 1500 gpm, then GO TO ES-1.2. • DETERMINE if transfer to cold leg recirculation is required. If RWST level $<$ 27% then GO TO ES-1.3. If not then GO TO Step 14 (Initiate evaluation of plant status). • MONITOR if CLAs should be isolated. • MONITOR if RHR spray should be placed in service. • DETERMINE if Intact S/Gs should be depressurized to RCS pressure. • DETERMINE if reactor vessel head should be vented.

Facility: Sequoyah Scenario No.: 2 Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives: To evaluate the applicants' ability to perform normal operations and to raise reactor power in accordance with plant procedures; to respond to a false power range channel overpower rod stop; to respond to a centrifugal charging pump shaft break; to respond to a respond to a loss of the running ERCW pump; to respond to a No. 5 FW heater level controller failing low; and to assess the applicants' in using the "Reactor Trip or Safety Injection" EOP and Functional Recovery procedure FR-H.1 as a result of a loss of 125 VDC Vital Battery Board I in conjunction with a temporary loss of all Auxiliary Feedwater.

Initial Conditions: Reactor is operating at 58% power. SG 2 has a 4 gph tube leak. Severe thunderstorm warnings are in effect for Hamilton and Rhea counties for the next 2 hours. The Train week is "A". The following equipment out of service: 1A-A AFW pump, 1A-A SI pump.

Turnover: Raise reactor power to 90% as soon as possible to meet load demand. The 1B MFWP has been locally checked out per 1-SO-2/3-1, section 5.10 and is ready for loading.

Event No.	Malf. No.	Event Type*	Event Description
			Set-up to IC-87
Preinsert	FW07	C	MOTOR DRIVEN PUMP 1B-B initially starts, but trips on overload.
1	-	N (BOP)	Place the 1B MFW pump in service.
2	-	R (RO)	Increase power from 90 % to 95 %.
3	NI10A	I (RO)	NIS A PR Channel 1 overpower rod stop false signal.
4	CV21B	C (RO)	Centrifugal Charging Pump 1B-B shaft breaks. Place standby pump in service.

Event No.	Malf. No.	Event Type*	Event Description
5	RW	C (BOP)	The N-B ERCW pump trips. Manually start a standby pump.
6	RX26C	I (BOP)	No. 2 S/G Pressure Transmitter Fails High.
7	ED12	M (All)	Loss of 125 VDC Vital Battery Board I.
	FW07B	C	MOTOR DRIVEN PUMP 1B-B initially starts, but trips on overload. (Will not be restored.)
	FW07C FW0	C	TURBINE DRIVEN PUMP 1A-S fails to start. Can be restarted locally but will immediately overspeed. (After entering FR-H.1 and prior to step 16, TTAFW pump will be returned and SG levels restored.)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

MATERIALS:

1. Appendix A - Shift Turnover

SCENARIO SUMMARY:

Starting from 73% RTP BOL, with 1A-A MD AFW pump , 1A-A SI pump out of service, the following conditions will be encountered in sequence:

1. NIS overpower rod stop false signal.
2. CCP broken shaft.
3. ERCW pump Trips.
4. No. 5 feedwater heater level control fails low.
5. Loss of 125V DC Vital Battery Board,
6. AFW pump trip or fail to start.
7. AFW pump trip or fail to start.

CONSOLE OPERATOR'S INSTRUCTIONS

ELAP. TIME	IC/MF/RF/OR #	DESCRIPTION
Sim. Setup - reset to IC-87 or	Reset IC-11 Perform switch check. Allow the simulator to run for at least 3 minutes before loading CAE or starting the exercise. This will initialize ICS. Load cae ! nrc-s-2 Place simulator momentarily in RUN, Place OOS equipment in required position with tags, Clear alarms and Return to FREEZE.	Initialize simulator at 68% RTP. Place Mode 1 placards on panel. Update M-5 placard with RCS C _B from Chemistry Report.
	Disable override "RCR". RCR Off <p style="text-align: center;">Important Note --></p>	Steps control banks to proper position. Shutdown banks should be fully withdrawn. Ensure operator aid placard is marked YES to core burnup less than 12000 MWD/MTU. Place A Train Week sign on the simulator.
This remote function is active when the CAE file is loaded.	MRF fwr34 out IOR zlohs3116aa[1] off IOR zlohs3116aa[2] off IOR zlohs3116aa[3] off IOR zlohs3116aa[4] off IOR zdihs3116aa close	1A-A MDAFW pump breaker racked out and pump tagged for maintenance. <u>Place a hold order on the 1A-A MDAFW pump & HS-3-116 handswitches.</u>
This remote function is active when the CAE file is loaded.	MRF sir08 off	1A-A SI pump breaker racked out and pump tagged for maintenance. <u>Place 1A-A SI pump handswitch in PTL and place a hold order on the handswitch.</u>
		When dispatched as AO to check 1B-B MFP for start report that prestart checks are complete. IM's and AO are standing by for startup.
At examiner direction insert	imf ni10a (none 0)	NIS Channel 1 OVERPOWER ROD STOP FALSE SIGNAL

CONSOLE OPERATOR'S INSTRUCTIONS

At examiner direction insert	imf cv21b (none 0)	CHARGING PUMP 1B-B BROKEN SHAFT <i>When the Support ASOS/AUO are dispatched to investigate, wait ~ 5 min. and report that the shaft is broken.</i>
At examiner direction insert	imf rw01d (none 0)	ERCW Pump M-B Trip <i>When the Support ASOS/AUO are dispatched to investigate, wait ~ 5 min. and report that the relay target is instantaneous overcurrent and the pump smells hot.</i>
At examiner direction insert	imf rx26c 100 (none 0)	PT-1-9A fails high
At examiner direction insert	imf ed12a (none 0)	LOSS OF 125 VDC VITAL BATTERY BOARD I
This malfunction is active when the CAE file is loaded	imf fw07b (none 0)	AFW PUMP 1B-B TRIP OR FAIL TO START <i>When the Support ASOS/AUO are dispatched to investigate, wait ~ 5 min. and report that the relay target is instantaneous overcurrent and the pump smells hot.</i>
This malfunction is active when the CAE file is loaded	imf fw07c (none 0)	AFW PUMP 1C-S TRIP OR FAIL TO START

Unit <u>1</u>	Rx Power <u>58</u>	MWD/MTU <u>3950</u>
Train A Week		
<p>The plant was at 100% power, load was reduced to take 1B MFP from service for maintenance. The pump has been repaired. Increase Power Level to 90% %. GO-5 step 5.3.13 is complete SM wants the OATC to start the feed pump.</p> <p>Preconditioned power level is 100%</p>		
3.7.1.2.a for 1A-A MD AFW pump.; Tagged for maintenance to replace motor.		
3.5.2.a for 1A-A SI pump.; 1A-A SI pump tagged electrically.		
The National Weather Service has announced a severe storm warning for Hamilton and Rhea counties. It is to remain in effect for 4 more hours.		
There is a small (40 gpd) S/G tube leak in #2 S/G. Chem lab is sampling and monitoring.		

Sequoyah Electric Plant Chemistry Report

U1	U2	RCS Data
69	100	Rx. Power %
Today	Today	Sample Date
Now	Now	Sample Time
1096	1080	Boron ppm
2.07	2.14	☛ ##Li ⁺ ppm Goal is variable
35	47	☛ ## H ₂ Goal 25 to 50 cc/Kg
2.96 E-02	1.34 E-02	Dose Equ I Goal <0.1
8.16 E-02	8.52 E-1	Xe-133 μCi/g
200	168	Silica ≤1000 ppb
5.235 E-5	4.528 E-2	Fuel Reliability Index
☛ ## If Goal is exceeded, report on morning status report.		

RWST's & Boric Acid Tanks Boron			
RWST Goal	Boron ppm	Date	Goal
U1 RWST	2608	Today	2500 to 2650
U2 RWST	2626	Today	2500 to 2650
*BAT A	6555	Today	Variable
*BAT B	6747	Today	Variable
*BAT C	6601	Today	Variable
Spent Fuel Pit	2502	Today	≥ 2056

SI-50 & SI-137.5 Primary to Secondary Leakrate Information		
U1	U2	
ND	ND	Leakrate SI-50 gpd
Today	Today	Date/Time SI-50
<0.1	<0.1	Leakrate SI-137.5 gpd
Today	Today	Date/Time SI-137.5
800	848	CPM above Bkgrd. Equivalent to 5 gpd leak
14000	21730	CPM above Bkgrd. Equivalent to 128 gpd leak
9000	2542	Δ CPM increase within 15 min. to equal 61 gpd leak.
35	61	Current 119 countrate
31	40	119 Background cpm

Phone and Beeper Numbers:

- Chemistry Shift Supervisor Beeper 40-732
- Chem Lab Phones 7285; 6348 voice mail; Fax 7281
- Ecotchem Onsite Pager 350-20-395

Comments ☛ All Parameters are within goals.

- 1) N₂ blanket on U1 HW pump 1C to control dissolved oxygen.
- 2) U-2 RCS DEI Currently at steady state conditions within the goal AOP-R.06 exited 6/2/99 1640
- 3) U-2 HW air in-leakage Action Plan I/P.
- 4) U2 Sulfate Recovery Action Plan is I/P.
- 5)

U1	U2	S/G, FW & HW Data
0.38	0.34	☛ ## S/G Sodium Goal Goal ≤ 0.8 ppb
2.32	3.4	S/G Chloride Goal ≤ 10 ppb
1.0	1.0	☛ ## S/G Sulfate Goal ≤ 1.7 ppb
0.23	0.14	☛ ## S/G Molar Ratio Goal 0.05 to 0.5
1.13	0.62	S/G Cation Cond Goal ≤ 1.0 μS
5.6	8.8	S/G Boron Goal 5 to 10 ppm
50	155	SGBD Flowrate in GPM
1.01	1.1	☛ ## CPI Goal ≤ 1.1
SO ₄ 226 ppb days 18% of S/D Limit	Cl ⁻ 425 ppb- days 23%	Corrosion Index Limiting Value ppb-days for % of hot soak value
2.3	2.9	FW ETA Goal 2 to 3 ppm
9.7	9.1	FW pH
64	75	FW Hydrazine Goal ≥ 30 ppb
0.18	1.9	☛ ## FW Iron Goal ≤ 5 ppb
0.2	1.2	FW Dissolved O ₂ Goal ≤ 5.0 ppb
3.8	0.2	HW Dissolved O ₂ Goal ≤ 5.0 ppb
0.01	0.02	HW Sodium ppb
<5.0	<5.0	Condenser Air Inleakage Goal ≤ 6 cfm
☛ ## If Goal is exceeded, report on morning status report.		

U1 Con-DI				U2 Con-DI		
Outlet Sodium ppb		0.05		Outlet Sodium ppb		0.08
Flowrate gpm		1000		Flowrate gpm		1000
Pol	Sp Cond	Status	Millions of Gal.	Sp Cond	Status	Millions of Gal.
1	Vessel is empty & in service				FR	
2		SF	5.0		Empty OOS	
3		Fresh			Ex	
4		Fresh			Ex	
5		Fresh		0.11	I/S	~ 12
6		Fresh			Fresh	
NR = Needs Rinse, I/S = In Service				EX = Exhausted, SF = Semi-Fresh		
ERCW Chlorination Goal is 3/Wk at RT >50° F < 80°						
Mon.		Tues.		Wed.		Thur.
no		Yes		Yes		Fri.
<ul style="list-style-type: none">• PCL-222 continuous injection to ERCW in progress downstream of each ERCW strainer.• Injecting CL-363 to ERCW ~ twice per week						

Chemistry WR's

1. C410323 12/17/98 TB Lab A/C leak-coil remains I/S. WW242
2. C415811 Drain line from CCS/ERCW overflows when sampling. WW230
3. C402198 2-SIV-43-78 U2 RHR-B sample valve leaking through. WW238
4. C412044 U1 HW Sample Pump A. WW235
- 5.

Tech Spec or Critical Items:

None

Inoperable Rad Monitors requiring compensatory sampling:

- 2 For information only : 2-RM-90-99 inoperable.
- 1-RM-90-99

Op-Test No.: 1 Scenario No.: 2 Event No.: 1 Page 1 of 2

Event Description: Place MFP in Service.

Time	Position	Applicant's Actions or Behavior
	SRO	RECORD MFPT selected to be started second 1B MFPT (1-SO-2/3-1, Section 5.13.3)
	SRO	ENSURE applicable Trip Test Prior to Startup has been COMPLETED :
	BOP	ENSURE MFPT Speed Control Bias dial at 50%.
	BOP	CAUTION The MFP suction pressure should be monitored when operating the recirc valve on the idle pump.
	BOP	THROTTLE [1-FCV-3-70] OR [1-FCV-3-84] MFP Recirc valve between 30%-50% OPEN (for pump to be started) with [1-FIC-3-70] OR [1-FIC-3-84].
	BOP	RESET the Standby MFPT.
	BOP	ENSURE the following: Condenser Inlet Isol valve 2-211A, Condenser Outlet Isol valve 2-216A, OPEN
	BOP	NOTE Either stop valve handswitch will open both high pressure and low pressure stop valves for the applicable MFPT.
	BOP	OPEN the Stop Valves for the MFPT to be started by placing either the H/P or L/P handswitch to the RAISE position: H/P Stop Valve, 1-HS-46-43A, L/P Stop Valve, 1-HS-46-44A, Open
	BOP	VERIFY the MFP turning gear motor has STOPPED .
		CAUTION Observe MFP speed, flow, discharge pressure during the MFPT startup to prevent an inadvertent FW swing if the MFPT minimum speed setpoint is excessively high.
		NOTE 1 The feedwater pump speed controller will take control at the minimum speed setting and run the governor valve positioner out to its upper limit. Minimum speed on high pressure steam is 3100 to 3,300 rpm and 3650 to 3850 rpm on low pressure steam. This value may vary based on IMs last calibration.
		NOTE 2 The feedwater pump and turbine is equipped with a rotor vibration monitor (maximum allowable 3 mils) and a thrust bearing wear monitor (maximum allowable, normal thrust 5 mils; maximum allowable, reverse thrust 5 mils). Both should be observed during this and all phases of operation. The maximum allowable bearing temperature is 225°F.

Op-Test No.: 1 Scenario No.: 2 Event No.: 1 Page 2 of 2

Event Description: Place MFP in Service.

Time	Position	Applicant's Actions or Behavior
		NOTIFY the IM's to adjust the MFPT hand changer for the proper rpm as the second MFPT is accelerated.
		PLACE the governor valve positioner to the RAISE position to open the steam chest valves and accelerate the MFPT.
		CAUTION DO NOT increase second MFPT speed faster than the master speed control can maintain program d/p.
		NOTE As the second MFPT is loaded, the first MFPT should back down in load.
		SLOWLY LOAD the second MFPT to supply feedwater to the SGs and INCREASE MFPT speed until demand on MFPT speed controller matches the demand output of the first MFPT.
		WHEN the Master Controller has a zero deviation, THEN PLACE the second MFPT in AUTO.
		CLOSE the second MFPT drain valves: 1-HS-46-41, CLOSED
		CAUTION 1 MFP Recirc valves controllers should NOT be operated in AUTOMATIC due to the potential for isolating all three intermediate heater strings and resulting MFP damage. (Reference: PER 00-002540-000).
		CAUTION 2 Operation of MFP RECIRC valve should be performed slowly due to affect on MFP DP program.
		ENSURE [1-FCV-3-70] OR [1-FCV-3-84] MFP Recirc valve is CLOSED and in MANUAL.
		CAUTION A negative "bias" adjustment (>50%) should be limited to a maximum of 60% unless evaluated by Systems Engineering since the maximum speed could impact a MFPT's ability to carry above normal loads in the event the other MFPT trips.
		NOTE 1 The following step may be performed at any time when both MFPTs are in service and in AUTO.
		NOTE 2 With both MFPTs in AUTO it may become necessary to adjust the MFPT speed control bias on one of the operating MFPTs to prevent MFPTs from fighting each other (oscillating).
		IF an adjustment of the flow balance between the MFPTs is desired, THEN SLOWLY ADJUST one MFPT speed control bias (0% to 60%) until desired flow balance is achieved.

Op-Test No.: _1_

Scenario No.: _1_

Event No.: _2_

Page _1_ of _4_

Event Description: Increase power from 58% to 90%.

Time	Position	Applicant's Actions or Behavior
	CREW	Perform a power increase from 58% to 90% IAW 0-GO-5.
	RO/SRO/BOP	<p>Determines amount of boration/dilution required</p> <ul style="list-style-type: none"> Determines reactivity change using 0-SO-62-7, Appendix E and various graphs. Use REACT or ICS to determine Xenon values. <p>Calculates the concentration change in ppm and using TI-44 or REACT, converts ppm change to amount of boration/dilution required</p>
	RO	<p>Performs a DILUTION to establish new concentration using 0-SO-62-7</p> <ul style="list-style-type: none"> Reviews PRECAUTIONS AND LIMITATIONS Reviews PREREQUISITE ACTIONS <ul style="list-style-type: none"> If reactor is critical and reactor power to be changed by >5% then perform calculations. Performs Section 6.1 At Power Routine Dilution Places HS-62-140A to STOP Places HS-62-140B to DILUTE ENSURES HS-62-140D is CLOSED SETS FQ-63-142 for the desired quantity of water ADJUSTS FC-62-142 for desired flow rate PLACES HS-62-140A to START VERIFIES FCV-62-128 OPEN and Primary water flow on FI-62-142A OR FQ-62-142. MONITORS nuclear instrumentation and reactor coolant temperature to ensure the proper response from dilution is achieved. IF VCT level increases to 63% THEN ENSURE LCV-62-118 OPENS WHEN dilution is complete, THEN: <ul style="list-style-type: none"> Place HS-62-140A to STOP Check no primary flow on either FI-62-142A OR FQ-62-142 Ensure FC-62-142 is in AUTO and set at 35%. ENSURE FCV-62-128 CLOSED. Place HS-62-140B in AUTO position. Place HS-62-140A to the START position.

Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 2 of 4

Event Description: Increase power from 58% to 90%.

Time	Position	Applicant's Actions or Behavior
	SRO	<p>Power Ascension Steps:</p> <ul style="list-style-type: none">• IF the second #7 HDT pump has not been started, THEN start the second pump IAW 1,2-SO-5-3.• ENSURE generator hydrogen is sufficient for anticipated load per figure.• Maintain river water temperature limitations of HPDES permit as specified in 0-PI-OPS-000-666.0.• Place third CCW pump in service as necessary to maintain maximum condenser vacuum per 0-SO-27-1.• IF startup follows a refueling, THEN perform applicable surveillance's.• WHEN ~ 49% of RTP, THEN perform appropriate surveillance's associated with AFD, QPTR.• CONTINUE power ascension to 74% AND ADJUST turbine load as needed while maintaining valve position limit ~10% above gov vlv control indication.• IF diluting the RCS to increase Tavg, THEN continue the dilution and increase turbine load to maintain Tref with Tavg. Control rods may be used along with dilution to increase reactor power.• MONITOR turbine load increasing• At $\geq 50\%$ ensure the following annunciators respond properly: XA-55-4A, Window 32 XA-55-4B, Window 10 XA-55-4B, Window 17 XA-55-4B, Window 25• Check MFPTC vacuum normal ($>20''$ HG).

Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 3 of 4

Event Description: Increase power from 58% to 90%.

Time	Position	Applicant's Actions or Behavior
	BOP	<ul style="list-style-type: none"> • If air in leakage exceeds 10 CFM then take immediate corrective measures and notify OPS Supt. or Plant Manager. • Prior to exceeding 55% reactor power complete the following: Calculate calorimetric power - U1118 _____ ÷ 34.11 = _____ %. Verify all NIS PR A channel drawers are within 2% of calculated power. If NO is checked, then perform 0-SI-OPS-092-078.0 • Ensure at least one bus duct cooler is in service prior to increasing turbine load above 59.7% or 729 MW. • PRIOR to increasing power above 60%, ENSURE all #3 and # 7 HDT systems are pumping forward. • PRIOR to increasing turbine load above 65% ENSURE second MFPT is in service. (Complete actions of step [19] if the power ascension was done with only one MFP) • At 70% turbine power start 2 condensate demin booster pumps. • Prior to operation above ÷ 65% turbine power ensure second MFPT in service. <p>At ~ 70% turbine power, place third #3 HDT pump in service and ensure LCV-6-106A and B are controlling #3 HDT level properly..</p>
		<p>CAUTION: Evaluate starting and stopping of condensate demineralizer pumps using condensate pressure, MFP inlet pressure, condensate booster pump inlet pressure, and #3 and #7 HDT pump and bypass valve operation. The US/SRO may start or stop condensate demineralizer pumps at his discretion, but if any of the following occurs the pumps must be started.</p> <ol style="list-style-type: none"> 1) Condensate booster pump suction pressure >125 psig on PI-2-77 2) Main Feedwater pump suction pressure >420 psig on PI-2-129 3) Injection Water pump discharge pressure >265 psig as indicated by no alarm on XA-55-3B, Window E-1 THEN start the third condensate demin booster pump.

Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 4 of 4

Event Description: Increase power from 58% to 90%.

Time	Position	Applicant's Actions or Behavior
	BOP	EVALUATE starting 2 condensate demineralizer pumps IAW 1,2-SO-2/3-1. This step may be N/A'd or signed-off at a time when the pumps are placed in service.
	RO	<ul style="list-style-type: none"> IF startup follows a refueling, THEN perform applicable surveillance's at 75% rated thermal power. Prior to exceeding 75% reactor power complete the following: Calculate calorimetric power - $U1118 \div 34.11 = \text{_____} \%$. Verify all NIS PR A channel drawers are within 2% of calculated power. If NO is checked, then perform 0-SI-OPS-092-078.0
	SRO	CONTINUE power ascension to 90% AND ADJUST turbine load as needed while maintaining valve position limit ~10% above gov vlv control indication.
	BOP	IF diluting the RCS to increase Tavg, THEN continue the dilution and increase turbine load to maintain Tref with Tavg. Control rods may be used along with dilution to increase reactor power.
	BOP	MONITOR turbine load increasing.
	BOP	PRIOR to increasing load >80%, ENSURE LCV-6-106A and B are controlling properly, and LCV-6-105A and B are CLOSED.
		WHEN ~ 85 to 90% RTP, THEN PLACE the third condensate booster pump in service IAW SOI-2.1& 3.1. If high pressure condition exists, then THROTTLE 14-550 to attain desired pressure. IF unable to throttle 14-550, then refer to 1,2-SO-5-2, Section 8.0 to adjust pressure.
		When the power levels off at 90% perform NIS PR adjustments and secondary side adjustments.

Op-Test No.: _1_

Scenario No.: _2_

Event No.: _3_

Page _1_ of _1_

Event Description: NIS "A" PR channel 1 overpower rod stop false signal.

Time	Position	Applicant's Actions or Behavior
	CREW	Refer to AR 1-M4-B-D3 to diagnose failure of drawer
	RO/SRO	Checks reactor power, determines drawer failure
	RO/SRO	Goes to AOP-I.01
	SRO	EVALUATE the following Tech Specs for applicability: 3.3.1.1 (3.3.1), Reactor Trip System Instrumentation 3.3.1.2 3.3.2.1 (3.3.2), Engineered Safety Feature Actuation System Instrumentation 3.3.3.5, Remote Shutdown Instrumentation 3.3.3.7, Accident Monitoring Instrumentation 3.9.2, Refueling Operations Instrumentation 4.2.4.2, QPTR with one PR Channel Inoperable
	RO	DIAGNOSE the failure: Power Range Failure Section 2.3 of AOP-I.01
	SRO	PLACE rod control in MAN.
	RO/BOP	STABILIZE reactor power at current level.
	RO	PLACE following switches located on Detector Current Comparator drawer [M-13, N50] in position corresponding to failed Power Range Channel: (N41) Upper Section Lower Section Appropriate Rod Stop Bypass switch Appropriate Power Mismatch Bypass switch
	RO	DEFEAT failed Power Range channel USING Comparator Channel Defeat switch: Comparator and Rate Drawer [M-13, N37]
	RO/BOP	RESTORE T-avg to T-ref.
	RO	ENSURE OPERABLE Power Range channel selected: Nuclear Power Recorder [M-4, NR-45] RCS Temp ΔT recorder - (green pen) [M-5, XS-68-2B]
	RO	RETURN rod control to AUTO if desired.
	SRO/RO	CHECK reactor power greater than 75%.
	SRO	NOTIFY IM to remove failed power range channel from service USING Appendix A, and Rx Eng to perform SI-11 for QPTR

Op-Test No.: 1 Scenario No.: 2 Event No.: 4 Page 1 of 1

Event Description: 1B-B Centrifugal Charging Pump Shaft Breaks.

Time	Position	Applicant's Actions or Behavior
		(Letdown will isolate if 1B CCP is stopped prior to starting 1A)
	RO	Respond to 1B-B CCP loss of flow by announcing to crew. Perform the following: <ul style="list-style-type: none">• Refer to ARP for loss of charging.• Isolate Letdown• Start 1A-A CCP and place 1B-B CCP in PTL position.• Re-establish letdown. (If isolated)
	SRO	Consult Tech Specs and enter LCO actions 3.1.2.2, 3.1.2.4, and 3.5.2. Dispatch personnel to investigate cause of pump broken shaft and initiate WR.
	SRO	Will enter LCO 3.0.3
	SRO	Will notify management of the LCO, investigate maintenance of other pumps
	SRO	Notify plant mgt. of event in accordance with SSP-4.5. Discuss recommendations for plant conditions. Should recommend a slow plant shutdown to initiate within 1 hour.
		If asked, the MSS will report repairs on SI and AFW pumps will be complete in 5 hours

Op-Test No.: _1_

Scenario No.: _2_

Event No.: _5_

Page _1_ of _1_

Event Description: Running ERCW Pump M-B Trip.

Time	Position	Applicant's Actions or Behavior
	SRO	Enter and direct the actions of AOP-M.01, Section 2.0. <ul style="list-style-type: none"> • Evaluate Tech Specs • Evaluate EPIP-1 • Go to Section 2.1
	BOP	Perform the actions of AOP-M.01, Section 2.1. <ul style="list-style-type: none"> • Identify and Lockout failed ERCW pump. • Evaluate the need for starting associated train ERCW pumps. Will start an additional ERCW pump (L-B, M-B, or P-B) • Check two A Train ERCW pumps available.
	SRO	Dispatch personnel to inspect failed pump(s) and determine cause for failure.
	BOP	Check 1A and 2A ERCW supply header pressures and flows NORMAL.
	BOP	Check 1B and 2B ERCW supply header pressures and flows NORMAL.
	BOP	Check ERCW pump loading amps NORMAL.
	BOP	Transfer emergency power selector switch away from failed pump.
	SRO	Close manual discharge valve for failed pump(s). [ERCW Pumping Station]
	SRO	Go To appropriate plant procedure.
	SRO	Refer to TS 3.7.4.1.

Op-Test No.: 2 Scenario No.: 2 Event No.: 6 Page 1 of 1

Event Description: PT-1-9A, SG Pressure Transmitter Fails High

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Will respond to the AR 1-M5-A, B-7
	BOP/RO	Will review annunciator response and be directed to AOP-S.01
	SRO	Direct the actions of AOP-S.04, Section 2.1.
	BOP	Takes manual control of #2 FRV
	BOP/RO	SF/FF channels checked normal.
	BOP/RO	Transfers to the alternate control channel.
	BOP	Maintains level on program.
	RO/BOP	Verifies channel failure is cause of the problem.
	BOP	Places FRV in auto when level restored
	SRO/RO	Checks S/G Pressures normal, Transitions to AOP-I.06
	SRO	Diagnoses failure goes to section 2.1.
	SRO	Ensures unaffected channel selected
	SRO	Notifies IM/MSS to remove channel from service IAW Appendix D
	SRO	Go to appropriate plant procedure.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 1 of 2

Event Description: Loss of 125VDC Vital Battery Board 1.

Time	Position	Applicant's Actions or Behavior
	SRO	EVALUATE the following Tech Specs for applicability: 3.8.2.3, DC Power Distribution System, Operating 3.8.2.4 DC Power Distribution System, Shutdown
	SRO	EVALUATE EPIP-1, Emergency Plan Initiating Matrix.
	SRO	Implement AOP-P.02 and diagnose the failure as a loss of 125V DC Battery Board
	SRO (will direct BOP to complete the procedure, Potentially after FR-H.1)	<p>Implement AOP-P.02 Section 2.1.</p> <ul style="list-style-type: none">• CHECK Unit 1 in Mode 1, 2, or MODE 3 with reactor trip breakers closed. TRIP Unit 1 reactor and GO TO E-0 WHILE continuing with this procedure.• DISPATCH operators with radios to the following areas to determine the cause of the failure:<ul style="list-style-type: none">• Aux. Bldg. 749' elev. 125 Vital Battery Chargers• Aux. Bldg. 734' elev. 125 Vital Battery Boards• EVALUATE Appendix A.• IF EOPS are NOT in progress, THEN<ul style="list-style-type: none">• ENSURE S/G atmospheric relief valves CONTROLLING RCS temperature.• CONTROL Unit 1 charging flow.• ESTABLISH Excess Letdown USING EA-62-3.• MONITOR 125V DC Vital Battery Board I ready to be energized. IF NOT GO TO Step 11.• RESTORE 125V DC Vital Battery Board I using 0-SO-250-1.• MONITOR 125V DC Vital Battery Board 1 voltage.• GO TO Step 18.• MAINTAIN VCT level.• DISPATCH an operator to Unit 2 TD AFWP to TRANSFER turbine controller to ALTERNATE.• PLACE equipment in PULL-TO-LOCK• STOP Unit 1 annulus vacuum fans.• PLACE ABGTS Train B IN SERVICE USING 0-SO-30-18.• PLACE EGTS Train B IN SERVICE to Unit 1 USING 0-SO-65-1.• TRANSFER 125 V DC busses to ALTERNATE USING Appendix E.• CHECK AFW status.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 2 of 2

Event Description: Loss of 125VDC Vital Battery Board 1.

Time	Position	Applicant's Actions or Behavior
	BOP	IF EOPs are NOT in progress, THEN CONTROL feed flow to MAINTAIN SG narrow range level in all S/Gs.
	SRO	DISPATCH operator to check Glycol System status.
	BOP	IF EOPs are NOT in progress, AND offsite power is available, THEN PLACE DGs in standby.
	BOP	CHECK voltage on 125 V DC Vital Battery Board I between 124V and 140V.
	BOP	IF EOPs are NOT in progress, THEN PLACE DG 1A-A in standby USING EA-82-1
	BOP/SRO	DISPATCH an operator to Unit 2 TD AFWP turbine controller to transfer DC control power to NORMAL.
	BOP	RESTORE 125V DC Vital Battery Board I to NORMAL USING Appendix I.
	BOP	IF EOPs are NOT in progress, THEN RESTORE systems to NORMAL USING the appropriate procedure.
	SRO/BOP	GO TO appropriate plant procedure.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 1 of 3

Event Description: Loss of DC, Reactor Trip Response.

Time	Position	Applicant's Actions or Behavior
	CREW	Enter and direct the actions of E-0.
	RO/SRO/BOP	<ul style="list-style-type: none"> • VERIFY Rx trip. If not then trip reactor. If reactor can not be tripped then monitor status trees and GO TO FR-S.1 • Reactor trip breakers OPEN • Reactor trip bypass breakers OPEN or DISCONNECTED • Neutron flux DROPPING • Rod bottom lights LIT • Rod position indicators less than or equal to 12 steps
		<ul style="list-style-type: none"> • VERIFY turbine trip. Turbine stop valves CLOSED. • If not then trip turbine. If turbine can not be tripped then close MSIVs and MSIV bypass valves. • VERIFY Shutdown boards energized. <ul style="list-style-type: none"> • VERIFY generator breakers OPEN 30 seconds after turbine trip. • ENSURE station service ENERGIZED from start busses. • VERIFY at least one train of shutdown boards ENERGIZED. • VERIFY both trains of shutdown boards ENERGIZED. • IF power can NOT be restored to at least one train of SD Bds then GO TO ECA-0.0. • DETERMINE if SI actuated. If required, then actuate SI. If not actuated, then determine if SI is required. If SI is not actuated/required then monitor status trees and GO TO ES-0.1.

Op-Test No.: 1 Scenario No.: 2 Event No.: 7 Page 2 of 3

Event Description: Loss of DC, Reactor Trip Response.

Time	Position	Applicant's Actions or Behavior
	RO	Transitions to ES-0.1
	RO/BOP	MONITOR SI NOT actuated: <ul style="list-style-type: none"> • S.I. ACTUATED permissive DARK [M-4A, D4].
	RO	MONITOR T-avg greater than 540F..
	RO	MONITOR RCS temperatures: <ul style="list-style-type: none"> • IF any RCP running, THEN CHECK T-avg stable at or trending to between 547F and 552F. OR • IF RCPs stopped, THEN CHECK T-cold stable at or trending to between 547F and 552F.
	CREW	When the FR-H.1 transition is identified, the crew should transition to FR-H.1

Op-Test No.: _1_ Scenario No.: _2_ Event No.: ____ Page _1_ of _2_

Event Description: FRP-H.1, Loss of Secondary Heat Sink.

Time	Position	Applicant's Actions or Behavior
	SRO	Transition to and direct actions of FR-H.1.
	SRO	DETERMINE procedure applicability
	RO	MONITOR RWST level > 27%. IF not then go to ES-1.3.
	BOP	CHECK if secondary heat sink required. RCS pressure greater than any non-Faulted S/G pressure RCS temperature greater than 350°F.
	BOP	MONITOR CST level > 10%.
	RO/BOP	MONITOR heat removal capability. At least two S/G wide range levels greater than 25% [35% ADV]. Pressurizer pressure less than 2335 psig.
	RO/SRO/BOP	<ul style="list-style-type: none"> • ATTEMPT to establish AFW flow to at least one S/G in the following order of priority--Intact, Ruptured, Faulted. <ul style="list-style-type: none"> • CHECK S/G blowdown isolation valves CLOSED. • CHECK control room indications for cause of AFW failure: • ESTABLISH MD AFW pump flow: Dispatch people to do EA-9 • ESTABLISH TD AFW pump flow: Dispatch people to do EA-10 • STOP RCPs. • CHECK at least one CCP AVAILABLE. If not then go to caution prior to Step 16. • MONITOR shutdown boards continuously energized. • ESTABLISH MFW flow to at least one S/G. • DETERMINE if secondary heat sink restored. • ATTEMPT to establish feed flow from condensate system. <ul style="list-style-type: none"> • Depressurize RCS to 1920 psig. • Block SI signals. • CHECK FW isolation valves OPEN. • ALIGN condensate flow path to S/Gs USING EA-2-2. • Depressurize at least one S/G at maximum rate. When condensate flow established then stop S/G depressurization. • DETERMINE if secondary heat sink restored. If not then continue with procedure. If restored then return to instruction in effect.

Op-Test No.: 1 Scenario No.: 2 Event No.: Page 2 of 2

Event Description: FRP-H.1, Loss of Secondary Heat Sink.

Time	Position	Applicant's Actions or Behavior
	SRO	Refer to SQN EPIP-1 and classify event as <u>Site Area Emergency</u> , (based on 1.1 Fuel Clad Barrier potential loss of CSFS and 1.2 RCS Barrier potential loss of CSFS OR 6.2 Loss of Heat Sink) .
	SRO	Make notification to the ODS within 5 min of declaration.
	SRO	Announce emergency classification to crew members.
	SRO	For classifications of SAE and higher, remind the crew that all activities requiring manpower outside the control room must be directed through the SM until relieved by the SED. The same is true of an ALERT if personnel accountability and evacuation is initiated.
	SRO	Notify plant management of emergency plan classification in accordance with appropriate EPIP.
	SRO	Notify NRC within 1 hr.
	CREW	Will transition back to ES-0.1 and should address AOP-P.02 for loss of DC bus.
		TERMINATE THE EXERCISE WHEN EXAMINER DIRECTS AFTER FEEDWATER IS RESTORED TO ALL STEAM GENERATORS AND FR-H.1 IS EXITED

Facility: Sequoyah Scenario No.: 3 Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives: To evaluate the applicants' ability to perform normal operations and to raise reactor power in accordance with plant procedures; to respond to a VCT level transmitter failing high; to respond to a loss of component cooling water to a RCP; to respond to a failure of the Pressurizer spray valves to respond to pressure changes; to respond to a failure of the Steam Dumps; and to assess the applicants' in using the "Reactor Trip or Safety Injection" and "Loss of Reactor or Secondary Coolant" EOPs and Functional Recovery procedure FR-S.1 as a result of an ATWS in conjunction with an unisolable stuck open Pressurizer PORV.

Initial Conditions: The reactor is operating at approximately 94% power. SG 2 has a 4 gph tube leak. Severe thunderstorm warnings are in effect for Hamilton and Rhea counties for the next 2 hours. The Train week is "A". The following equipment is out of service: 1A-A AFW pump, 1A-A SI pump.

Turnover: Continue reactor startup and power ascension to 100 % power. A load increase has been approved by the Load Dispatcher. Raise reactor power from 94 % to 100 % and stabilize. Swap Centrifugal Charging Pumps to allow tagging the 1B-B CCP for oil change.

Event No.	Malf. No.	Event Type*	Event Description
			Set-up to IC-86
Preinsert	EG03A	C (BOP)	EDG 1A-A fails to auto start.
1	-	R (RO)	Increase power from 83 % to 90 %.
2	-	N (RO)	Swap Charging Pumps.
3	CV09	I (RO)	VCT Level Transmitter LT-62-130-A fails HIGH.
4	CC02	C (BOP)	Loss of Component Cooling Water to RCP #1 thermal barrier heat exchanger - about 6 GPM. Override outlet isolation valve fail to close. Can close manually.

Event No.	Malf. No.	Event Type*	Event Description
5	RC06A	C (RO)	Pressurizer Spray Valve PCV-68-340B fails partially open.
6	RX23A	I (BOP)	Loss of condenser vacuum permissive PS-2-1B to Steam Dumps.
7	TU02I	M (All)	Main Turbine high vibration resulting in rapid or emergency shutdown.
8	ED06A	C (All)	At 50 % power, Loss of Emergency Bus 1A normal power supply. (EDG 1A-A fails to auto start.)
	RP01C	M (All)	ATWS.
	RC07A IRFRCR04		Pressurizer PORV stuck open at mid-position (PORV block can't be closed due to loss of Emerg. Bus 1A.)
		M (All)	Pressurizer vapor space LOCA.
	RP16K611B RP16K608B		Selected Train "B" ECCS components fail to start on a LOCA.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (P)RA, (L)ow Power

MATERIALS:

1. Appendix A - Shift Turnover

SCENARIO SUMMARY:

Starting from 95% RTP BOL, with 1A-A MD AFW pump , 1A-A SI pump out of service, the following conditions will be encountered in sequence:

1. VCT Level Transmitter Fails High.
2. Loss of CCS to RCP #1 Thermal Barrier Hx.
3. Pressurizer (PZR) spray valve failure.
4. Loss of 6.9 kV Shutdown Board.
5. D/G failure to start.
6. Loss of Condenser Vacuum Permissive to Steam Dumps.
7. Main turbine high vibration.
8. Turbine Trip Bus A Failure.
9. Reactor Trip Signal Fails (ATWS).
10. Pressurizer (PZR) Automatic Open failure.
11. Failure of SSPS slave relay.
12. Failure of SSPS slave relay.

CONSOLE OPERATOR'S INSTRUCTIONS

ELAP. TIME	IC/MF/RF/OR #	DESCRIPTION
Sim. Setup reset to IC-86 or	Reset IC-9 Perform switch check. Allow the simulator to run for at least 3 minutes before loading CAE or starting the exercise. This will initialize ICS. Load cae ! nrc-s-3 Place simulator momentarily in RUN, Place OOS equipment in required position with tags, Clear alarms and Return to FREEZE.	Initialize simulator at 95% RTP. Place Mode 1 placards on panel. Update M-5 placard with RCS C_B from Chemistry Report.
	Disable override "RCR". RCR Off <p style="text-align: center;">Important Note --></p>	Steps control banks to proper position. Shutdown banks should be fully withdrawn. Ensure operator aid placard is marked YES to core burnup less than 12000 MWD/MTU. Place A Train Week sign on the simulator.
This remote function is active when the CAE file is loaded.	MRF fwr34 out IOR zlohs3116aa[1] off IOR zlohs3116aa[2] off IOR zlohs3116aa[3] off IOR zlohs3116aa[4] off IOR zdihs3116aa close	1A-A MDAFW pump breaker racked out and pump tagged for maintenance. <u>Place a hold order on the 1A-A MDAFW pump & HS-3-116 handswitches.</u>
This remote function is active when the CAE file is loaded.	MRF sir08 off.	1A-A SI pump breaker racked out and pump tagged for maintenance. Place 1A-A SI pump handswitch in PTL and place a hold order on the handswitch.
At Examiner Direction	imf cv09 (none 0)	VCT LEVEL TRANSMITTER FAILS HIGH (LT-62-130-A)
At Examiner Direction	imf cc02 (none 0) 15 10 0	Loss of CCW to RCP #1 Thermal Barrier Htx. Will have to adjust severity up to 25% to get effect

CONSOLE OPERATOR'S INSTRUCTIONS

At Examiner Direction	imf rc06a (none 0) 8 45 0	PRZR SPRAY VALVE (PCV-68-340B) FAILURE <i>Will have to adjust severity up to ~13% to get heaters on</i>
At Examiner Direction	imf ed06a (none 0)	LOSS OF 1A-A 6.9 KV SD BOARD DUE TO DIFFERENTIAL <i>If dispatched, wait ~ 4 minutes and report a board differential relay operation. You can not determine the cause but will continue to investigate. If dispatched to bypass the H2 and Air side seal oil TCVs, then set rwr5448 to 45% and rwr556 to 35%. This will hold temperature at ~ 110 degrees F.</i>
This malfunction is active when the CAE file is loaded	imf eg03a (none 0)	DIESEL GENERATOR 1A-A FAILURE TO START
At Examiner Direction, insert after PZR Lo pressure alarm comes in	imf rx23a (none 1500)	LOSS OF COND VAC PERMISSIVE (C-9) PS-2-1B Fails
At Examiner Direction	imf tu02i (none 1500) 35 45 0	Main Turbine High Vibration on Bearing #9 Increase to 40% after crew takes initial actions
		Role play as SM to get the turbine off line ASAP
Event trigger, after Turbine Trip	imf rp01c (e7 0) imf rp01a imf rp01b	Both Reactor Trip Breakers Fail
Event trigger, after Rx Trip	imf rc07a (e1 0) imf rc05 (e1 0) 40%	FAILURE OF PZR PORV FCV-68-334 Automatic Circuit
If requested by the crew then insert this remote malfunction	irf rcr04 off	PRZ PORV BLOCK VLV FCV-68-333 PWR REMOVAL
Event trigger, after SI	imf rp16k611a (e2 0)	Tr B SI Relay Failure. (No SI signal to 1B-B MD & TD AFW Pump, ERCW pumps L-B,N-B,M-B,P-B)
Event trigger, after SI	imf rp16k608b (e2 0)	Tr B SI Relay Failure. (No B-Tr CRI, Train B ECCS pumps, 1B-B CCS pump)
When directed to trip rx	dmf rp01a, b, c irf rdr01 trip irf rdr02 trip	Removes failure and trips mg set supply breakers

Appendix B

Plant Data

Unit <u>1</u>	Rx Power <u>95</u>	MWD/MTU <u>3950</u>
Train A Week		
Increase Power Level to 100%. Swap charging pumps in preparation for planned maintenance on 1B-B pump		
3.7.1.2.a for 1A-A MD AFW pump.; Tagged for maintenance to replace motor.		
3.5.2.a for 1A-A SI pump.; 1A-A SI pump tagged electrically.		
The National Weather Service has announced a severe storm warning for Hamilton and Rhea counties. It is to remain in effect for 4 more hours.		
There is a small (40 gpd) S/G tube leak in #2 S/G. Chem lab is sampling and monitoring.		

SIMULATOR EXERCISE GUIDE**Sequoyah Electric Plant Chemistry Report**

U1	U2	RCS Data
100	100	Rx. Power %
Today	Today	Sample Date
Now	Now	Sample Time
995	1080	Boron ppm
2.07	2.14	• ##Li ⁺ ppm Goal is variable
35	47	• ## H ₂ Goal 25 to 50 cc/Kg
2.96 E-02	1.34 E-02	Dose Equ I Goal < 0.1
8.16 E-02	8.52 E-1	Xe-133 µCi/g
200	168	Silica ≤1000 ppb
5.235 E-5	4.528 E-2	Fuel Reliability Index

• ## If Goal is exceeded, report on morning status report.

RWST's & Boric Acid Tanks Boron			
RWST Goal	Boron ppm	Date	Goal
U1 RWST	2608	Today	2500 to 2650
U2 RWST	2626	Today	2500 to 2650
*BAT A	6555	Today	Variable
*BAT B	6747	Today	Variable
*BAT C	6601	Today	Variable
Spent Fuel Pit	2502	Today	≥ 2056

SI-50 & SI-137.5 Primary to Secondary Leakrate Information		
U1	U2	
ND	ND	Leakrate SI-50 gpd
Today	Today	Date/Time SI-50
<0.1	<0.1	Leak rate SI-137.5 gpd
Today	Today	Date / Time SI-137.5
800	848	CPM above Bkgd. Equivalent to 5 gpd leak
14000	21730	CPM above Bkgd. Equivalent to 128 gpd leak
9000	2542	Δ CPM increase within 15 min. to equal a 15 gpd leak
35	61	Current 119 countrate
31	40	119 Background cpm

Phone and Beeper Numbers:

- ♦ Chemistry Shift Supervisor Beeper 40-732
- ♦ Chem Lab Phones 7285; 6348 voice mail; Fax 7281
- ♦ Ecologychem Onsite Pager 350-20-395

Comments • All Parameters are within goals.

- 1) N₂ blanket on U1 HW pump 1C to control dissolved oxygen.
- 2) U-2 RCS DEI Currently at steady state conditions within the goal.AOP-R.06 exited 6/2/99 1640
- 3) U-2 HW air in-leakage Action Plan I/P.
- 4) U2 Sulfate Recovery Action Plan is I/P.
- 5)

U1	U2	S/G, FW & HW Data
0.38	0.34	• ## S/G Sodium Goal Goal ≤ 0.8 ppb
2.32	3.4	S/G Chloride Goal ≤ 10 ppb
1.0	1.0	• ## S/G Sulfate Goal ≤ 1.7 ppb
0.23	0.14	• ## S/G Molar Ratio Goal 0.05 to 0.5
1.13	0.62	S/G Cation Cond Goal ≤1.0 µS
5.6	8.8	S/G Boron Goal 5 to 10 ppm
50	155	SGBD Flowrate in GPM
1.01	1.1	• ## CPI Goal ≤1.1
SO ₄ 226 ppb days 18% of S/D Limit	Cl ⁻ 425 ppb- days 23%	Corrosion Index Limiting Value ppb-days for % of hot soak value
2.3	2.9	FW ETA Goal 2 to 3 ppm
9.7	9.1	FW pH
64	75	FW Hydrazine Goal ≥ 30 ppb
0.18	1.9	• ## FW Iron Goal ≤ 5 ppb
0.2	1.2	FW Dissolved O ₂ Goal ≤ 5.0 ppb
3.8	0.2	HW Dissolved O ₂ Goal ≤5.0ppb
0.01	0.02	HW Sodium ppb
<5.0	<5.0	Condenser Air Inleakage Goal ≤ 6 cfm

• ## If Goal is exceeded, report on morning status report.

U1 Con-DI				U2 Con-DI			
Outlet Sodium ppb		0.05		Outlet Sodium ppb		0.08	
Flowrate gpm		1000		Flowrate gpm		1000	
Pol	Sp Cond	Status	Millions of Gal.	Sp Cond	Status	Millions of Gal.	
1		Vessel is empty & in service			FR		
2		SF	5.0		Empty OOS		
3		Fresh			Ex		
4		Fresh			Ex		
5		Fresh		0.11	I/S	~ 12	
6		Fresh			Fresh		

NR = Needs Rinse, I/S = In Service EX = Exhausted, SF=Semi-Fresh

ERCW Chlorination					Goal is 3/Wk at RT >50° F < 80°
Mon.	Tues.	Wed	Thur.	Fri.	
no	Yes	Yes			

- PCL-222 continuous injection to ERCW in progress downstream of each ERCW strainer.
- Injecting CL-363 to ERCW ~ twice per week

Chemistry WR's

1. C410323 12/17/98 TB Lab A/C leak-coil remains I/S. WW242
2. C415811 Drain line from CCS/ERCW overflows when sampling. WW230
3. C402198 2-SIV-43-78 U2 RHR-B sample valve leaking through. WW238
4. C412044 U1 HW Sample Pump A. WW235
- 5.

Tech Spec or Critical Items:

None

Inoperable Rad Monitors requiring compensatory sampling:

• For Information only: 2-RM-90-99 inoperable.
1-RM-90-99

Op-Test No.: __1__ Scenario No.: __3__ Event No.: __1__ Page __1__ of __2__

Event Description: Increase Power to 100%.

Time	Position	Applicant's Actions or Behavior
	CREW	Briefs load increase from GO-5
	SRO/RO	<p>Determines amount of boration/dilution required:</p> <ul style="list-style-type: none"> • Determines reactivity change using 0-SO-62-7, Appendix E and various graphs. Use REACT or ICS to determine Xenon values. • Calculates the concentration change in ppm and using TI-44 or REACT, converts ppm change to amount of boration/dilution required
	RO	Performs a DILUTION to establish new concentration using 0-SO-62-7
	RO	<ul style="list-style-type: none"> • Reviews PRECAUTIONS AND LIMITATIONS • Reviews PREREQUISITE ACTIONS <ul style="list-style-type: none"> • If reactor is critical and reactor power to be changed by >5% then perform calculations. • Performs Section 6.1 At Power Routine Dilution • Places HS-62-140A to STOP • Places HS-62-140B to DILUTE • ENSURES HS-62-140D is CLOSED • SETS FQ-63-142 for the desired quantity of water • ADJUSTS FC-62-142 for desired flow rate • PLACES HS-62-140A to START • VERIFIES FCV-62-128 OPEN and Primary water flow on FI-62-142A OR FQ-62-142. • MONITORS nuclear instrumentation and reactor coolant temperature to ensure the proper response from dilution is achieved. • IF VCT level increases to 63% THEN ENSURE LCV-62-118 OPENS • WHEN dilution is complete, THEN: <ul style="list-style-type: none"> • Place HS-62-140A to STOP • Check no primary flow on either FI-62-142A OR FQ-62-142 • Ensure FC-62-142 is in AUTO and set at 35%. • ENSURE FCV-62-128 CLOSED. • Place HS-62-140B in AUTO position. • Place HS-62-140A to the START position.

Op-Test No.: 1 Scenario No.: 3 Event No.: 1 Page 2 of 2

Event Description: Increase Power to 100%.

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	CONTINUE power ascension to 100% AND ADJUST turbine load as needed while maintaining valve position limit ~10% above gov vlv control indication.
	RO	IF diluting the RCS to increase Tavg, THEN continue the dilution and increase turbine load to maintain Tref with Tavg. Control rods may be used along with dilution to increase reactor power.
	BOP	MONITOR turbine load increasing.

Page _1_ of _1_

Event Description: Swap Charging Pumps from "B" to "A".

[illegible]

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 1 of 2

Event Description: VCT Level Transmitter LT-62-130A fails High.

Time	Position	Applicant's Actions or Behavior
		CAUTION If actual level is permitted to become low, charging pump gas intrusion could occur. [C.5]
		<p>NOTE 1 High failure of 1-LT-62-129A or 1-LT-62-130A defeats auto switch over to RWST on low level.</p> <p>NOTE 2 High failure of 1-LT-62-129A will divert letdown flow with NO affect on Auto makeup.</p> <p>NOTE 3 High failure of 1-LT-62-130A will divert letdown and prevent Auto makeup. 1-LI-62-129 will indicate actual level.</p> <p>NOTE 4 Symptom of partial loss of reference leg 1-LT-62-129A and -129C. 1-LI-62-129 (1-M-6) and 1-LI-62-129C (1-L-10) both indicating the same and higher than log point L0112A (1-LT-62-130A). . [C.5]</p> <p>NOTE 5 Symptom of partial loss of reference leg 1-LT-62-130A and -130C. Log point L0112A (1-LT-62-130A) indicating higher than 1-LI-62-129 (1-M-6) and 1-LI-62-129C (1-L-10). . [C.5]</p>
	RO	COMPARE indicated level between [1-LI-62-129] (1-M-6), Plant computer point L0112A (1-LT-62-130), and [1-LI-62-129C] (2-L-10).
	RO	IF [1-LI-62-129] (1-M-6) and [1-LI-62-129C] (1-L-10) agree and are indicating lower than Log Point L0112A (1-LT-62-130A), THEN, RELY on [1-LI-62-129] (1-M-6).
	RO	IF Log Point L0112A (1-LT-62-130A) is indicating lower with [1-LI-62-129] (1-M-6) and [1-LI-62-129C] (1-L-10) in agreement but indicating higher, THEN, DETERMINE [1-LT-62-130C] output for comparison to L0211A by obtaining TP-19 voltage reading in (1-L-11A) using the table for conversion.
	RO	IF level loop 1-LT-62-130C and Log Point L0211A agree, THEN, RELY on Log Point L0211A for actual level.
	RO	<p>IF LOW level, THEN,</p> <p>[a] INITIATE makeup in accordance with 1-SO-62-7, <i>Boron Concentration Control</i>.</p> <p>[b] ENSURE [1-LCV-62-118] aligned to VCT.</p> <p>[c] LOCATE and ISOLATE leaks.</p> <p>[d] CHECK Reactor Coolant Filter ΔP.</p>

Op-Test No.: 1 Scenario No.: 3 Event No.: 3 Page 2 of 2

Event Description: VCT Level Transmitter LT-62-130A fails High.

Time	Position	Applicant's Actions or Behavior
	RO	IF HIGH level, THEN [a] ENSURE [1-LCV-62-118] aligned to HUT. [b] STOP VCT makeup.
	SRO	IF in MODE 4, or MODE 5 and a LOCA is identified, THEN, GO TO AOP-R.02, Shutdown LOCA (MODE 4, or 5).
	SRO	IF a small RCS leak is indicated, THEN, GO to AOP-R.05, RCS Leak and Leak Source Identification.

Op-Test No.: 1 Scenario No.: 3 Event No.: 4 Page 1 of 2

Event Description: Loss of Component Cooling Water to RCP Thermal Barrier.

Time	Position	Applicant's Actions or Behavior
	SRO	Implement AOP-M.03
	SRO	EVALUATE the following Tech Specs for applicability: 3.4.1.1, Reactor Coolant Loops and Coolant Circulation - Startup and Power Operation 3.4.1.2, Reactor Coolant System - Hot Standby 3.4.1.3, Reactor Coolant System - Shutdown 3.5.2, ECCS Subsystems Tavg ≥ 350°F 3.5.3, ECCS Subsystems Tavg <350°F 3.6.2.1, Containment Spray Subsystems 3.7.3, Component Cooling Water System
	SRO	EVALUATE EPIP-1, Emergency Plan Classification Matrix.
	SRO	DIAGNOSE the failure: CCS Thermal Barrier Booster Pump trip or failure 2.4
	RO/BOP	IDENTIFY and LOCK OUT failed Thermal Barrier Booster Pump.
	RO/BOP	CHECK Thermal Barrier isolation valves OPEN: <ul style="list-style-type: none"> • FCV-70-87 • FCV-70-90 • FCV-70-133 • FCV-70-134
	SRO	NOTIFY Chemistry to sample CCS for activity, and GO TO Step 4.
	RO	ENSURE proper RCP seal injection: <ul style="list-style-type: none"> • Flow between 8 gpm and 13 gpm • VCT outlet temperature less than or equal to 130°F
	RO	MONITOR RCP seal water and lower bearing temperatures less than or equal to 225°F. (Bearing temps will be less than 225°F initially)
	CREW	TRIP the affected Unit's reactor and RCP(s). IF in MODE 1, 2, or 3, THEN GO TO E-0, Reactor Trip or Safety Injection. <i>(This will be the step that the crew will trip the reactor with later)</i>
	RO/BOP	MONITOR CCS radiation levels STABLE or DROPPING : <ul style="list-style-type: none"> • RA-90-123A, CCS Liquid Effluent Monitor • Chemistry Sample

Op-Test No.: _1___ Scenario No.: _3___ Event No.: _4___ Page _2_ of _2_

Event Description: Loss of Component Cooling Water to RCP Thermal Barrier.

Time	Position	Applicant's Actions or Behavior
	CAUTION	AUTOMATIC ISOLATION OF THE THERMAL BARRIER CAN BE CAUSED BY A HEAT EXCHANGER TUBE LEAK. REALIGNMENT OF THE THERMAL BARRIER MAY CAUSE ADDITIONAL LEAKAGE.
	SRO	DETERMINE whether Thermal Barrier is to be placed back IN SERVICE. (NO)

Op-Test No.: _____ Scenario No.: 3 Event No.: 5 Page 1 of 1

Event Description: Pressurizer Spray Valve PCV-68-340 fails partially Open.

Time	Position	Applicant's Actions or Behavior
	CREW	Refer to AR 1-M-5A-D4
		Restore pressure using heaters and spray Adjust spray valve manually
	RO/SRO	PRUDENT OPERATOR ACTIONS <ul style="list-style-type: none"> • STABILIZE THE PLANT ATTEMPT TO CLOSE PZR SPRAY VALVE. IF PZR SPRAY VALVE WILL NOT CLOSE THEN TRIP THE RX AND REMOVE APPLICABLE RCP FROM SERVICE. • REFERENCE ANNUNCIATOR RESPONSES • UTILIZE SUPPORTING PROCEDURES •
		EPM-4, Section 3.4, Management Expectations The use of Alarm response procedures is not intended to delay actions. <p style="text-align: center;"><u>NOTE</u></p> When a parameter is approaching a protective setpoint in an uncontrolled manner, the operator is expected to: <ul style="list-style-type: none"> • evaluate parameter magnitude and trend. • initiate a manual trip and/or safety injection prior to automatic initiation.
	Examiner Note	This is event is slow moving, the crew may not immediately trip the reactor until they determine if PZR heaters will maintain pressure
	CREW	May discuss the possibility of isolating air to containment FCV-32-80 & 102
	SRO	Evaluate TS 3.3.1, 3.3.2, 3.2.5

Op-Test No.: _____ Scenario No.: 3 Event No.: 6 Page 1 of 1

Event Description: Loss of Condenser Vacuum Permissive PS-2-1B.

Time	Position	Applicant's Actions or Behavior
	CREW	NOTE The presence of this alarm allows steam dumps to operate.
	BOP	VERIFY condenser pressure less than 3.4 psia.
	BOP	VERIFY at least one condenser circulating water pump operation.
	BOP	IF C-9 goes dark during normal operation, THEN REFER to AOP-S.02, <i>Loss of Condenser Vacuum</i> .
	Examiner Note	AOP-S.02 will not address this failure
		Notify MIG and Management of the failure

Op-Test No.: 1 Scenario No.: 3 Event No.: 7 Page 1 of 2

Event Description: Main Turbine High Vibration resulting in a rapid shutdown.

Time	Position	Applicant's Actions or Behavior
	BOP	MONITOR recorder [1-XR-47-2] to determine which bearing has possible vibration problems and establish trend.
	SRO	DISPATCH operator to sound out turbine to verify alarm and 1-XR-47-2 indications.
	BOP	CHECK the following conditions for potential root cause. a. Oil temperature. b. Critical speed. c. Sealing steam pressure. d. Condenser vacuum. e. Exhaust shell temperature.
	BOP	CORRECT parameter values within applicable plant procedures' limits.
	RO/BOP	IF vibration remains high > 7 mills, THEN CONSULT with SRO/SM, AND EVALUATE starting unit shutdown. IF vibration continues to increase and [1-HS-47-120] is in CUTOFF position, THEN CONSULT SM, AND EVALUATE tripping the turbine prior to exceeding 14 mills verified vibration. IF reactor trip, THEN GO TO E-0, <i>Reactor Trip or Safety Injection</i> . IF turbine trips and no reactor trip, THEN GO TO AOP-S.06, <i>Turbine Trip</i> .
	Note	Crew will go to AOP-C.03 for the emergency shutdown

Op-Test No.: 1 Scenario No.: 3 Event No.: 7 Page 2 of 2

Event Description: Main Turbine High Vibration resulting in a rapid shutdown.

Time	Position	Applicant's Actions or Behavior
		Emergency Shutdown Procedure AOP-C.03
	SRO	EVALUATE Tech Specs for applicability
	SRO	EVALUATE EPIP-1, Emergency Plan Initiating Conditions Matrix.
	SRO	NOTIFY following personnel of emergency shutdown: Load Coordinator [C.1] Chemistry RADCON Plant Management
	SRO	MONITOR reactor/turbine trip NOT required USING Appendix A, Reactor and Turbine Trip Criteria.
		NOTE Using a conservative differential boron worth (DBW) of 8 pcm/ppm and a charging flowrate of 90 gpm the RWST has the capability to inject approximately 24 to 30 pcm/min.
	RO	INITIATE boration using BAT to maintain control rods above low-low insertion limits.
	RO	ENERGIZE one set of backup heaters to maintain pressurizer boron concentration within 50 ppm of RCS boron concentration.
	BOP	INITIATE load reduction at rate of between 2% and 5% per minute.
	BOP/RO	MONITOR automatic rod control maintaining T-avg/T-ref mismatch less than 5°F.
	RO/BOP	IF T-avg/T-ref mismatch can NOT be maintained less than 5°F, THEN TRIP the reactor and GO TO E-0, Reactor Trip or Safety Injection.
	BOP	STOP secondary plant equipment USING Appendix B, Secondary Plant Equipment.
	SRO	IF shutdown of Reactor is required, THEN continue with next step.
		NOTE The following ESF actuations are expected to occur as a result of removing the unit from service: <ul style="list-style-type: none"> • Feedwater Isolation • Auxiliary Feedwater start

Op-Test No.: _____ Scenario No.: 3 Event No.: 8 Page 1 of 1

Event Description: Loss of 6.9Kv Shutdown Board.

Time	Position	Applicant's Actions or Behavior
	SRO	EVALUATE the following Tech Specs for applicability: <ul style="list-style-type: none"> • 3.0.5, Power Source OPERABILITY - Modes 1-4 • 3.1.2.3, Charging Pump - Shutdown • 3.8.1.1, AC Sources - Operating • 3.8.1.2, AC Sources - Shutdown • 3.8.2.1, AC Power Distribution System, Operating • 3.8.2.2, AC Power Distribution System, Shutdown • 3.8.2.3, DC Power Distribution System, Operating • 3.8.2.4, DC Power Distribution System, Shutdown
	SRO	EVALUATE EPIP-1, Emergency Plan Initiating Matrix.
	SRO	Implement AOP-P.05 and diagnose the failure as a loss of 1A-A 6900V Shutdown Board.
	BOP	Perform actions of AOP-P.05 Section 2.1. <ul style="list-style-type: none"> • MONITOR 1B-B 6900V Shutdown Board ENERGIZED. • ENSURE at least 1 A train ERCW pump in service. • ENSURE 1B-B CCS pump SUPPLYING A Train.
	RO	MONITOR REACTOR COOLANT PUMPS MOTOR THRUST BEARING TEMP HIGH alarm DARK.
	RO	CHECK charging in service and letdown IN SERVICE.
	BOP	CHECK ERCW supply header pressure NORMAL.
	BOP	ENSURE 1A-A DG RUNNING and ERCW ALIGNED to all DGs.
	SRO	DISPATCH operators with radios to determine the cause of the failure.
	BOP	EVALUATE starting additional CRDMs based on reactor cavity air temperature and RPI indications USING 0-SO-30-6.
	SRO	EVALUATE air system status.
	BOP	ENSURE affected Battery Chargers ALIGNED to AVAILABLE source USING 0-SO-250-1, 0-SO-250-5 or 0-SO-250-6 as applicable.
	RO	<i>Crew should recognize the need to trip the reactor based on one of the following: 1. high temperature of RCP bearings, 2. Tavg/Tref > 5F, 3. Increased turbine vibrations and trip the reactor and reactor coolant pumps, Go to E-0</i>

Op-Test No.: _____ Scenario No.: 3 Event No.: _____ Page 2 of 5

Event Description: Reactor Trip Response/FRP-S.1 ATWS.

Time	Position	Applicant's Actions or Behavior
	BOP	<ul style="list-style-type: none"> • MAINTAIN S/G narrow range levels. If $\leq 10\%$ [25% ADV] then maintain total AFW flow > 880 gpm until level $> 10\%$ [25% ADV] in at least one S/G. If total flow < 880 gpm then establish required AFW alignment. • ENSURE inadvertent dilution paths are blocked, isolated or bypassed. • CHECK if uncontrolled RCS cooldown in progress. If NOT then STOP any controlled cooldown. If uncontrolled RCS cooldown in progress then perform the following <ul style="list-style-type: none"> • CHECK MSIVs and MSIV bypass valves closed. • IDENTIFY Faulted S/G(s). • DETERMINE if any S/G Intact. • ISOLATED Faulted S/G(s). • CHECK Core Exit TCs - Less Than 1200°F. If NOT and increasing then GO TO SACRG-1, Severe Accident Control Room Guideline Initial Response. • VERIFY reactor subcritical. IF NOT then continue boration. IF boration NOT available then allow RCS to heat up. • MONITOR boration termination criteria. Notify Chemistry to sample • Return to procedure and step in effect.
		<i>The first two actions of FR-S.1 are immediate operator actions</i>
	SRO/BOP	Note: In the RNO for uncontrolled cooldown, stopping any controlled cooldown should include reducing feed flow to slightly above 880 gpm until 1 S/G $\geq 10\%$ [25% ADV].
	SRO	Refer to SQN EPIP-1 per EAL 2.3 and declare a Site Area Emergency (If Rx Power $> 5\%$ and not decreasing after valid auto & manual trip signals) or Alert (If Rx Power $> 5\%$ and not decreasing after valid auto trip signal but manual trip is successful).
	SRO	Make notification to ODS within 5 min. of declaration. Announce emergency classification to crew members. Notify plant management of the event in accordance with applicable EPIP. Notify NRC within 1 hr.

Op-Test No.: _____ Scenario No.: 3 Event No.: _____ Page 3 of 5

Event Description: Reactor Trip Response/FRP-S.1 ATWS.

Time	Position	Applicant's Actions or Behavior
		Transition to E-0
		<ul style="list-style-type: none"> • VERIFY Rx trip. If not then trip reactor. If reactor can not be tripped then monitor status trees and GO TO FR-S.1 • Reactor trip breakers OPEN • Reactor trip bypass breakers OPEN or DISCONNECTED • Neutron flux DROPPING • Rod bottom lights LIT • Rod position indicators less than or equal to 12 steps
	RO/BOP	<ul style="list-style-type: none"> • VERIFY turbine trip. Turbine stop valves CLOSED. • If not then trip turbine. If turbine can not be tripped then close MSIVs and MSIV bypass valves. • VERIFY Shutdown boards energized. <ul style="list-style-type: none"> • VERIFY generator breakers OPEN 30 seconds after turbine trip. • ENSURE station service ENERGIZED from start busses. • VERIFY at least one train of shutdown boards ENERGIZED. • VERIFY both trains of shutdown boards ENERGIZED. • IF power can NOT be restored to at least one train of SD Bds then GO TO ECA-0.0. • DETERMINE if SI actuated. If required, then actuate SI. If not actuated, then determine if SI is required. If SI is not actuated/required then monitor status trees and GO TO ES-0.1. <ul style="list-style-type: none"> • ECCS pumps RUNNING • Any SI alarm LIT [M-4D]. • VERIFY CCS pumps running.
	RO/BOP	<ul style="list-style-type: none"> • CHECK ERCW System operation. VERIFY at least four ERCW pumps running. VERIFY D/G ERCW supply valves OPEN. • MONITOR ECCS operation. <ul style="list-style-type: none"> • VERIFY ECCS pumps RUNNING: • VERIFY CCP flow through CCPIT. • CHECK RCS pressure less than 1500 psig. • VERIFY SI pump flow. • CHECK RCS pressure less than 180 psig. • VERIFY RHR pump flow.

Op-Test No.: _____ Scenario No.: 3 Event No.: _____ Page 4 of 5

Event Description: Reactor Trip Response/FRP-S.1 ATWS.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	<ul style="list-style-type: none"> • VERIFY ESF system aligned. • Phase A ACTUATED: <ul style="list-style-type: none"> • CONTAINMENT ISOLATION PHASE A TRAIN A alarm LIT [M-6C, B5]. • CONTAINMENT ISOLATION PHASE A TRAIN B alarm LIT [M-6C, B6]. • Containment Ventilation Isolation ACTUATED: <ul style="list-style-type: none"> • CONTAINMENT VENTILATION ISOLATION TRAIN A alarm LIT [M-6C, C5]. • CONTAINMENT VENTILATION ISOLATION TRAIN B alarm LIT [M-6C, C6]. • Status monitor panels: <ul style="list-style-type: none"> • 6C DARK • 6D DARK • 6E LIT OUTSIDE outlined area • 6H DARK • 6J LIT. • Train A status panel 6K: • Train B status panel 6L: • MONITOR containment spray NOT required. (Phase B NOT ACTUATED, Containment pressure less than 2.81 psid.) If required then ENSURE containment spray initiated, ENSURE Phase B valves CLOSED, STOP RCPs & MONITOR containment air return fans. • Check if main steam lines should be isolated. (Any S/G pressure less than 600 psig AND STEAMLINE PRESS ISOL/SI BLOCK RATE ISOL ENABLE permissive DARK [M-4A, A4]. OR Phase B actuation OR Any S/G pressure drop at a rate greater than 100 psi in a 50-second period AND STEAMLINE PRESS ISOL/SI BLOCK RATE ISOL ENABLE permissive LIT [M-4A, A4]. If required VERIFY MSIVs and MSIV bypass valves CLOSED.

Op-Test No.: ____

Scenario No.: 3

Event No.: ____

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Event Description: Reactor Trip Response/FRP-S.1 ATWS.

Time	Position	Applicant's Actions or Behavior
	RO/BOP	<ul style="list-style-type: none">• VERIFY MFW isolation.• VERIFY AFW pumps running. (TDAFW & MDAFW)• VERIFY AFW valve alignment. AFW MD in AUTO & TD LCVs open and recirc valves closed.• DETERMINE if secondary heat sink available. (Level in at least 1 SG >10% [25% ADV] or >440 gpm. Control feed flow to maintain > 10% [25% ADV] and 50% in all S/Gs)• MONITOR RCS temperatures. (RNO = If T-avg < 547°F then ensure steam dumps and atmospheric relief valves CLOSED, If cooldown continues then control total AFW flow using EA-3-8. IF cooldown still continues, THEN close MSIVs.)• DISPATCH personnel to perform EA-0-1, Equipment Checks Following ESF Actuation.• CHECK pressurizer steam space integrity.
		Transition to E-1
		Terminate at examiner direction